

SEPTEMBER 1975

26p

Pet **Fish**

PRACTICAL FISHKEEPING MONTHLY



Contents include
Blue 'Aphyo' Breeding
Frogbit Maintenance
Goldfish Without Dorsal Fins
What's New?

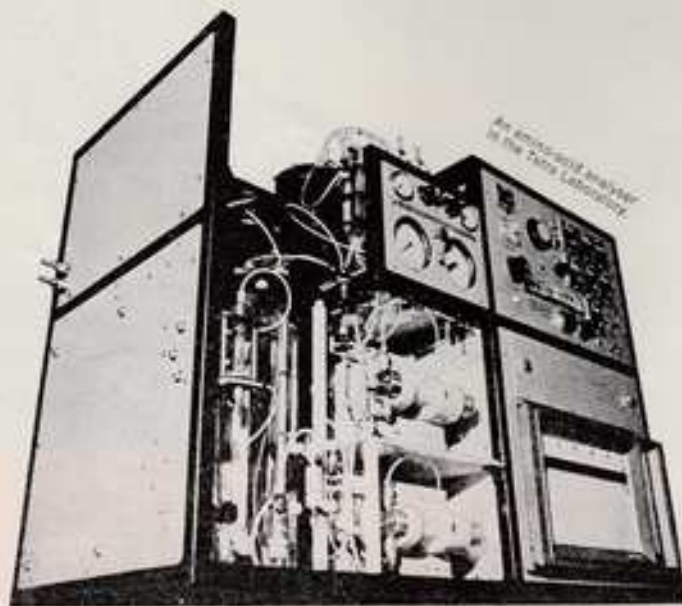
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Comments and Quotes

● Electrical Safety Regulations dictate a new look at heating equipment

Heaters Old and New

THE days of the glass-encased heaters and thermostats are numbered. It looks as if they will be on sale until September 1976 but after that, under new Electrical Appliances Safety Regulations, it will no longer be permissible to sell the types at present available. The trade, manufacturers, wholesalers and retailers are, in fact, breathing a sigh of relief that the notice is as long as it is, for but a few weeks ago it seemed as if 1st September this year might be the date of embargo on manufacture.

As the result of energetic representation to the Department of Prices and Consumer Protection, manufacturers are now able to continue production without changes until 1st April next, and it seems that generally they are confident that they can meet the new regulations. What future new features we shall see remain, as yet, secrets.

We made a Comment in the July issue of *PFM* that the time has come in any case for new thoughts on heating equipment. In the general enthusiasm for production of low-priced items we hope that our suggestion for an enclosed thermostatically operated heater unit for installation beneath the aquarium will not be overlooked. Anything to get electrical equipment out of the aquarium, out of the water, must be a good move. Anything that will do away with the tendency to have

a clutter of box behind the aquarium must be good. Anything that makes fool-proof and simplicity itself the joining of heater and thermostat to the mains must be good. Although not above safety, economy of operation must be very good with the price of electricity escalating as it threatens continually to do; aquarium base heating supplies heat evenly where it is wanted and wastes none.

It is obvious that cost of production of such heating units would be high, and that their ultimate selling price would be way above that of present heating appliances. So be it. Not only under the heading of safety, but on the grounds of durability, efficiency and elegance aquarium equipment deserves to acquire a completely new look in 1976.

Meaning of Quarantine

THERE is no single procedure better able to ensure healthy fish stocks than quarantine. If diseased or parasitised stock is not added to an aquarium, healthy fish already there stay healthy. This simple fact is of

CAPT. L. C. BETTS

AS this issue closed for press, we heard with regret of the death of Captain Leonard C. Betts, on 11th August. A tribute to this pioneer in the development of the fancy goldfish hobby in this country will appear in our October issue.

such importance for all fish-keepers to grasp that it is depressing to see the word quarantine being misused. Although quarantine involves isolation,

and fish known to be ill are usually treated in isolation, there is a difference. Quarantine does not mean curing sick fish. It means isolation of every

new fish for a period adequate to allow symptoms of any disease to appear before the fish is placed with stock known to be healthy.



LETTERS



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

On Public View

FURTHER to your Comment 'On Public View' in the August issue, when you pointed out that a large aquarium in the foyer of a large office block, had been converted to marine, but was in a sorry and neglected state, and you wondered how many people it would put off 'Going Marine', you may be interested to know that this office has done a lot in the past four months to promote marine keeping. This is because in our office, in the centre of St Pauls Shopping Precinct, we have a large marine tank which I have lovingly cared for, which attracts most of the passers-by.

I am a beginner in the art of marine keeping, but I pride myself on the condition and beauty of this tank (and long may I do so), and it is very rewarding to see the number of people who stop and gaze through the windows (giving me some idea of what the fish feel like, as my desk is next to the tank, which I expect will make your readers green with envy).

With the danger of becoming boring, I would like to tell you of a visit I had from a middle-aged American couple. After visiting St Pauls Cathedral, they were walking through the Shopping Precinct, when they saw my pride and joy (the fish tank). I was unaware of their attentions, until they suddenly burst into the office and promptly sat down; without a word they sat gazing in admiration. I didn't know what to do, until the silence was eventually broken by comments such as 'Gee Whiz!' and 'That's Great!'.

On recovering from my amazement, I learnt that the husband was a marine

enthusiast who had had nothing but trouble. Back home in New York he had spent a fortune in attempting to stock his tank with such specimens as Moorish idols, clown triggers, butterfly fishes etc., only to see them keel over as soon as they entered the water. Unfortunately this gentleman is still trying, to the delight no doubt of his dealer, and to the horror of most self-respecting enthusiasts, who probably feel he ought to be locked up.

However, I get a lot of enjoyment talking to fellow enthusiasts, and if any find their way to Sugg Personal Services, 20a Cathedral Place, London E.C.4, they can be sure of a warm welcome (that is if the boss isn't there).

London EC4M 7DY

G. A. TOMPKINS

The Record

I FEEL that I must set the record straight with regard to the letter headed 'Cold-water Fish Standards' in the July issue of PETFISH MONTHLY. The statement is made that present were "representatives from MAAS, FBAS and NGPS and other responsible organisations." "Much encouragement was afforded us and acceptance on publication assured by the above bodies."

As one of the FBAS delegates present I have consulted my notes of the meeting in order to ascertain who the 'other responsible organisations' were and I have come to the conclusion that there were none. Although the NGPS were present there was no representative from the

Continued on page 209

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LETTERS

continued from page 202

FNAS, the Scottish Federation, Bristol AS or the GSGB.

Secondly, with regard to the remarks on the acceptance by those present, this to say the least is totally inaccurate, insofar as the FBAS was concerned, because our delegation stressed the fact that although the Federation Assembly would have the final word on the matter, it was felt that the standards as proposed by MAPS would need a great deal of improvement before

they came up to the quality required by the FBAS.

C. A. T. BROWN
Secretary, FBAS Judges and Standards
Committee

IT is unfortunate that a letter sent to you for publication in my name, bears a signature not of my hand. The letter, obviously published in good faith by your magazine (PFM, July) was not sent by me. It did however resemble a letter from me to the Confederation of United Kingdom Aquarists in December 1974 which did not refer in any way to the FBAS. The difference in both letters leaves me no alternative, and I reject completely the authenticity of the publication which bears my name.

F. R. CLOSE
Handsworth, Birmingham

Glass- or Metal-Cased Heaters?

New Electrical Appliances Safety Regulations mean that sale of glass-encased heaters of existing types will be banned in a year's time. This appraisal of aquarium safety aspects was prepared by S. SINGLETON, originator of glass-encased heaters, as part of manufacturers' representations to Government on the matter.

FROM time to time would-be users of this type of equipment have questioned the safety of it, especially with regard to the likelihood of electric shock. On the face of it and without giving the matter deep thought, there would appear to be a hazard, for here we have water and electricity. Even experts in the field of electricity cast doubts on the wisdom of using glass rather than metal for the cases of aquarium heaters and thermostats.

Electrical aquarium heaters and thermostats encased in glass are by no means a new innovation. As long ago as 1932 I produced my first glass-cased aquarium immersion heater and in 1933 began small scale production which steadily increased until the outbreak of war. The idea was quickly copied and since 1945 many companies all over the world have adopted the principle, so that by now many millions of glass-cased heaters and thermostats have been made and are in use. Metal-cased aquarium heaters are never seen and it is doubtful whether a maker exists.

Now it would be reasonable to expect

that, during all these 42 years, if there was any element of risk then someone would have been electrocuted or at least severely shocked, yet such a happening has never been reported. I have made enquiries in various directions with a view to establishing if any person has been involved in such an accident, but my enquiries have always drawn a blank.

What is the explanation for this apparently extraordinary safety, for in the complete absence of any reports to the contrary it would appear that this type of equipment has a safety factor far and above that of any other domestic electrical equipment used. It will be agreed by the experts that there can be no danger whilst the glass tube remains whole, and uncracked, because glass is one of our best insulating materials, but what if the glass tube does become cracked or broken, so that water can enter, and it is reasonable to suppose that this has happened on thousands of occasions:

Under such circumstances electricity

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will always take the shortest and least resistant path to complete the circuit, and in this case it will flow from the one electrode to the other and will not take a longer path via the aquarist's fingers and body to earth. Having said that, it is admitted that there will always be the slightest leakage, perhaps in the order of a few milliamps, so that when the aquarist touches the water his fingertips will feel a slight tingle and his hand will be quickly withdrawn; his fingers would curl away from the water, in the spasm of contraction; were the shock severe enough, he would have nothing to grip which would keep him in contact with the electrified body of water. In other words his reaction would throw him clear of the danger.

Here it might be pertinent to mention tests which I have carried out to prove my theory, and to establish the pressure of any stray voltage which could be measured in the surface layer of water with an aquarium heater/thermostat laying on the bottom of a glass tank with its glass tube removed and connected to the mains supply.

For this test I used one of our combined heater/thermostat units because, of all the units which we manufacture, it would have the greatest surface area of live metal. The tank was filled to a depth of 8 inches and the unit was placed at the bottom centre of the tank. A piece of aluminium sheet was cut and folded over the top of the glass tank. It had a width of 25 mm, and was immersed to a depth of 35 mm. The aluminium plate was connected directly to an AVometer and to complete the circuit a cable was taken from the other terminal of the meter directly to the earth pin of a 13 amp plug. The combined heater/thermostat unit was in turn connected to the live and neutral terminals of the same 13 amp plug. Upon operating the 13 amp switch the meter registered a pressure of 70 volts, with only the meter current flowing. The voltage would drop in relation to current flow and to illustrate this fact I connected a resistance in the region of 2,200 ohms between the aluminium plate and the earth wire. I recorded a current flow of 28 milliamps and the pressure between the plate and earth dropped to 55 volts. Bearing in mind the very high resistance of the human body it would be reasonable to suppose that a lethal dose is out of the question.

Now let us consider what could happen if metal cases were used for these immersion heaters. It should be borne in mind that the aquarist would fit his own plug. In the normal way with a well-made heater and the plug correctly fitted there would be little risk of danger to the aquarist, but we have to consider the fool for whom nothing can be foolproof. He would connect the live wire to earth, the neutral and earth wires going to the element. Under such circumstances the aquarium would become very much alive due to the fact that there is no earth return, and secondly there would be a relatively large area of electrified metal. Should anyone touch the water a very severe shock might be experienced.

Of course it will be argued that cable leads have to be clearly marked by the manufacturer and indeed they would be so marked, but it is my unfortunate experience that a few retailers are careless and after removing the article from its carton for demonstration purposes labels come loose and are not replaced. I have even seen articles of another manufacture returned to my company in one of our cartons. The retailer in this case had demonstrated articles of similar types, but made by different manufacturers, and had replaced them into the wrong cartons.

Glass-cased immersion heaters and thermostats are in use in every country throughout the world. My company exports to over 30 countries and in two of them our glass-cased products have been accepted after undergoing very exacting tests. I refer to Canada and Australia. In Canada we have obtained C.S.A. approval on one of our glass units and in Australia a similar unit with glass casing has been accepted after passing their stringent tests. In the U.S.A. it is estimated that as many as 20,000,000 families keep tropical fish in aquariums heated largely by glass-cased heaters and thermostats.

To conclude, after 42 years of world-wide use during which glass-cased aquarium equipment has established itself as the safest and most satisfactory method of heating an aquarium, should such equipment be subjected to regulations which have been drawn up to mainly safeguard the public from poorly designed domestic electrical equipment such as Toasters, Electric Fires and Hairdryers etc.?

The Colourful Blue 'Aphyo'



Aphyosemion sjoestedti

By RUDOLPH ZUKAL

IN the tropical rain forests of Africa, chiefly in the neighbourhood of the Niger delta and west Cameroons, lives one of the most beautiful representatives of the *Aphyosemion* genus, *A. sjoestedti*, in the shallow waters and pools of that area. It was first brought to Europe in 1905 and since it was first named by Boulenger in 1915 there have been various names for the blue Aphyo — *Fundulus gularis*, *Fundulus gularis* var. *coeruleus*, *Fundulopanchax coeruleus*, *Aphyosemion coeruleum* and others.

Photographs by the author

Unfortunately, this fish is a little 'brute'. He will not tolerate any of the related toothcarps near him, and since he can reach the considerable size of 4½ inches (12 cm.) he can devour guppies without straining himself. He is not at all gentle even with his female partner and for breeding these fishes I recommend using a really well-planted medium-sized (11-13 gallons, 50-60 litres) tank to give the female fish plenty of hiding places. It is certainly not a suitable species for a community tank.

The tank setting must be very carefully selected to set off the fish's beautiful colours. Only with a subdued light will they show to their full advantage, but some

Translated by F. MARSH



After the preliminary display by the male and his pushing and occasional biting of the female, she appears to select the spawning site and the male approaches her from above.

plants floated on the water surface will achieve this effect. The fish should be kept at a temperature of about 68°F (20°C). To exceed this is to shorten their life span considerably. They are bottom swimmers and take only live foods and even small fishes.

The species is very susceptible to the presence of water organisms so I recommend dissolving some salt in the water — 3-4 ounces (100 grams) per 2½ gallons (10 litres).

It is impossible to define the colours of this fish exactly as these are extremely variable. The species contains different forms and the males differ one from the other in colouring. One thing they do all have in common is a preponderant blue-green colour over the whole body. The female, however, is merely a red-brown, greenish colour, with light red spots along the sides of the body. Her fins are rounded and a soft yellowish green compared with the yellow, red-spotted or



Here, a spawning by one pair is taking place on the gravel while a second female circles round the pair awaiting her turn.

Below: spawning in progress on the gravel surface. The pair lie with bodies pressed closely side by side just before the eggs are released and fertilized.



Above: as the spawning pair raise themselves from the gravel surface the separate eggs are released and by a flick of the female's tail they are pressed into the gravel.

blue-green yellow-striped fins of the male.

The fish should be bred in soft water and they breed readily. An all-glass tank can be used and the water temperature raised to 71.5°F (22°C) — higher temperatures are harmful. Two females to one male should be used and the fish will spawn at the bottom of the tank in peat, on fine-leaved plants or simply in the substrate. There may be 100-200 eggs laid singly, but the spawning can be repeated several times a year.

The plants with the eggs on can be removed or the single eggs in the peat

sucked out with a plastic tube and kept in a very little damp peat in a plastic bag. They should be exposed to the light and kept at 60°F (16°C) for about 6-8 weeks. (It is most important to make a note of the date of the spawning!) After this time has elapsed, water from the tank or even rainwater, at a temperature of 68-72°F (20-22°C), can be poured on to the peat to hatch the eggs. As soon as the fry are free-swimming they must be given fine live foods. The young fish are adult after 2-3 months, but only fish 6 months old or more should be used for breeding.

COLDWATER SCENE



By FRANK W. ORME

Uncalled-for worries about welfare of stock • Holiday advice proved • Breeder's sales

EARLIER in the year many goldfish breeders were bemoaning the fact that they just could not coax their fish to spawn. The males would chase the females with vigour but the eggs just would not be released. Although I was fortunate and did not suffer these problems, nevertheless, I was extremely puzzled as the different difficulties were discussed with me — for many of these breeders were hardly lacking in experience. Could it be due to the consecutive mild winter, was it perhaps something in local water supplies? Dire tales were told of super-chlorinated week-end water, fin rot attacking fish placed in day-old water. One breeder told of the pair of fish that refused all attempts to get them to spawn, how in disgust he removed them from their tank and placed them into a ground-level trough, which contained very old water, and — yes, you guessed it, they spawned!

Mid-June and all was smiles as fish began to present the desired spawnings. Just like the Junes of yesteryear, the days were hot and sunny and night-time temperatures high. Spawn hatched quickly and fry grew apace. Could it be that despite their owner's wishes, the goldfish knew instinctively that weather conditions had not been suitable for the well-being and safety of their eggs? After all, only a week before the hot spell the B.B.C. had issued snow and gale warnings! In the Midlands we had both snow and very heavy frost, hardly the ideal conditions if fry were to survive.



A fear that seems to be troubling newcomers to goldfish breeding, if the number of people who have questioned me over recent months is any indication, is 'egg binding'. Why this trouble should worry them before it has occurred I do not know

— perhaps they have been reading the wrong books! I do not believe that egg binding arises by itself. It is a secondary symptom of some other malady. In all the years that I have kept fancy goldfish I cannot recall ever encountering this problem with my fish. Probably the prime cause of egg binding is incorrect feeding. Of course, damage to internal organs could also result in inability of the fish to expel her eggs. It seems to be the 'in-thing' at the moment to hand-strip; although this is safe enough with the experienced hand it can cause serious damage if clumsily practised by a novice. One result can be an egg-bound fish.

The answer is to let fish spawn in a natural fashion (this is not to dispute that hand-stripping has its uses), and to feed with plenty of live food during the conditioning period. This has always been my method of fish breeding and, as I have said, the trouble has never arisen in my fish house.

Another apparent worry is that dire trouble will beset any female fish that does not spawn during the year. A groundless fear if consideration is given to the number of goldfish that are kept as pets — and although they come nowhere near a male, come to no harm. Be sure if the female is full of ripe ova, and ready to spawn, she will throw the eggs whether a male is present or not. Very often if a ripe female is changed to another tank she will lose her eggs.

Occasionally at shows a tank will be seen to contain a number of eggs that have been shed by the occupant. Undeveloped ova will be carried over until the next season without causing any harm — I think the often-heard statement that any eggs left in the female are absorbed into her system is a fallacy. If eggs are sufficiently far developed they will be shed. If not, they will remain within the fish until they are ready to be thrown.

Recently I received the Newsletter produced by the British Koi-Keepers Society, which contained a number of very interesting items. The chairman, Mr. Eric Allen, had written an article on water pumps with much useful advice together with a table that compared pumps of various outputs, with the average running costs if in continuous use for a period of 3 months. Other items covered the Society's visit to Japan, and Mr Fred Ayres drew the conclusion that a great many of the pools maintained by the Japanese amateur were 'koi-keeping machines'. Their sole purpose is to keep the fish in a similar manner to the techniques of art galleries, in which sterile, air-conditioned rooms are used to preserve their collections.

Of particular interest was an article by Mr David Hollom, who discussed the problem of the disease 'hole in the body' and mentioned various trial treatments. It was found that terramycin, salt, malachite green and Dipterex had no effect, although they may have removed a possible primary source of infection. When used in a bare all-glass tank, free of any metals or other chemicals, para-chlorophenoxethol brought about an improvement within 24 hours and a complete cure within 7 days. The method of treatment was to maintain the water temperature at 68°F (20°C). A capful of the medicament (one of the proprietary forms is marketed by King British Ltd. under the name of 'K.B. Fungus Cure-It'), for each 9 gallons of water to be treated, is added to a pint of warm water and stirred vigorously. The mixture is then added over a 5 minute period. Twelve hours later an identical amount of the mixture is added. The tank thus finally contains one capful for each 4½ gallons of tank water. Water and mulm are removed every 24 hours during the course of treatment, to reduce the water volume by half. This is replaced with fresh water, containing the correct amount of chemical, at a similar temperature to that in the tank. It should, of course, be mixed in to ensure even distribution.

★ ★ ★

Another specialist group that produces an exceptionally good Bulletin, known as 'Fancy Talk', is the Association of Goldfish Breeders. During the past three issues an

American member, Mr H. M. McClelland, has written a series on the 'American Quality Breeding Programme', which has covered selection and conditioning of the pair to be spawned, preparation of the breeding quarters, and various methods of breeding the fish, together with a summary of the hand-stripping method. In another article, Mr L. F. Clements puts forward his view that if water can be maintained in a healthy condition for an indefinite time in marine tanks, then the same principles can be applied with equal success to the coldwater set-up. If applied correctly, he reasons, it becomes virtually unnecessary to change the water — a task that can become quite burdensome and is, he thinks, the reason why many give up the hobby when they reach an age that should allow more time for the pleasure of goldfish breeding. Mr Clements explains his methods, and provides working drawings of such items as a biological filter and an ultraviolet bactericidal unit.

Bulletins, such as those mentioned, provide a good method of allowing information and knowledge to be disseminated and thus provide much food for thought for the more experienced reader. At the same time, for those who are new to the hobby of fishkeeping, the way is pointed to safer and easier methods of caring for the tanks and their occupants. Ease of management and the perfect health of the fish is, after all, the aim of all enthusiasts — satisfy these two points and the pleasure of keeping fish must be that much greater.

★ ★ ★

On a number of occasions I have suggested that fish should be left to take care of themselves during holiday periods. The proof of the ability of fish to survive without attention, whilst a holiday is taken, has been proved in my own fish house. Just before the day of my departure a pair of fish spawned. The spawning was divided between two tanks and left. On the day my wife and I left for our change of scene, a quick look at the eggs revealed that they were eyed, and the fish house was locked up and away we went. I confess, no more thought was given to the fish house until

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by
ARPEE

Personal COMMENT

HAVE you ever considered fully enough the proposition that one of the most critical periods of the life of a fish is that interval between the dealer's tank and your own? We tend to take the operation very much for granted, as it happens so often. Perhaps it happens more often than it should do by virtue of the simple fact that we lose too many fish as a consequence of faulty transfer techniques. I will examine in these notes some of the points to look out for.

We start at the point when you have selected your fish — or perhaps we first enquire whether you have brought your container with you. By this I do not mean your personal plastic bag, but an insulated container into which to place your dealer-provided bag or bags after the transaction. This need not be expensive or complicated. I have used a stout old cardboard box for some years now, but it is lined with $\frac{1}{4}$ inch expanded polystyrene sheet. Indulge yourself, though, if you so feel inclined — it is not difficult to put together a wooden carrying case, and they certainly look very businesslike. At least the dealer knows he is treating with a person of discrimination, and is thus the more likely to acquiesce with his whims. The reason for an insulated case is that a temperature drop may give rise to a situation within the fish which is conducive to the development of some form of disease. Some species are particularly susceptible to shock, pure and simple, and in cases of this sort every effort must be made to minimise the number of factors which can, in amalgam, constitute a condition of shock.

Returning to the stage at which you have chosen your fish, it is important to realise that success or failure may depend on the skill or lack of it exercised by the catcher of the fish. Some dealers never

seem to have got the hang of it, whilst others will take infinite pains to subject each specimen to a minimum of upset. One establishment I visited recently — but which I shall not trouble again — actually succeeded in killing one fish and severely injuring another before I was handed a bag containing several terrified specimens. At another a young lady deftly trapped six fish in one graceful sweep of her net and presented them to me in a bag before they had really had time to know what was happening. Apart from the shock aspects of a wild chase round the tank before netting, unskilful methods will often result in surface injuries of one sort or another, and the lesions are open doors to infection.

The dealer who puts your fish in two plastic bags instead of one gets full marks for looking after his customers, though you must not always expect this treatment if you buy only a pair of zebras; some fish have quite sharp spines or rays and these may puncture the thin plastic with which most bags are made. It pays to take along several spare bags in your carrying case, just in case you buy a highly expensive fish from a not very understanding dealer.

Always time your purchases sensibly. By this I mean that if you are taking the family shopping, buy your fish at the end of the expedition, rather than at the beginning. It may be as well to have first stowed some money in your shoe or some safe hiding place, to be sure, but by postponing the acquisition of fish until you are on the point of returning home, you will be subjecting them to a minimum of time in their travelling bags with its dwindling oxygen supply. Long period of confinement, excepting in cases where oxygen has been released into the bags before they were sealed, can certainly result in deaths en route and to gill failures.

It is preferable to add newly acquired fish to your quarantine quarters in conditions of subdued lighting. The contents of each plastic bag should be decanted into a plastic sandwich box or some similar rigid container and floated in the tank. It is not always wise just to float opened plastic bags, as the sides have a habit of folding into small pockets under certain conditions and fish get trapped inside them; in their struggles they drive themselves further and further into the

envelope, which then empties of water. Asphyxiation may follow, though sometimes the fish gets away with it, at the cost of severe shock and possibly gill degeneration. The container should be allowed to float for half an hour or so, in order that temperatures may be equalised, and then the waters should be gently mixed during the next half hour in order that the differing water conditions should have a minimum impact on the fish. This is going to extremes in the case of fish like tetras and guppies, but it is a good habit to get into in the interests of more delicate and expensive fishes which you may encounter from time to time.

Assuming that the quarantine tank has been lightly medicated with a suitable reception preparation, your fish should, if you have taken account of these procedures, be well on their way to starting a new life with good chances of survival. Even so, some will die of internal parasites or more obvious diseases like white spot. Failures from these causes cannot in fairness be laid at your door. But deaths from shock most certainly can, and there is obviously much that we can do to reduce their frequency.



I hope that my first article on the subject of routines in aquarium keeping will not have proved too much for those readers who instinctively like to take things easily: in point of fact the whole idea of planning one's activities is to take the sting out of the accumulation of tasks which is the inevitable consequence of no planning at all. We now pass from the daily to the weekly jobs.

Feeding. We take daily feeding for granted, but it is all too easy to get into the habit of taking out of the store cupboard a succession of containers of dry food and simply ringing the changes on those. It should be a weekly routine to feed a regular source of live food, and the choice as to what this should actually be is best left to the individual to decide. I would suggest that the regular standby should be white worm, as it is obtainable throughout the year and its supply is controllable by the aquarist and not by the whims of the weather or the commercial collector, as in the cases of daphnia and tubifex. Whatever form of live food you

decide upon, if it is home-grown don't forget to add to your list of reminders that you should feed the culture, too.

Tank appearance. It is astonishing how much dirt and dust collects on and around a tank, and how much this detracts from its attractiveness if allowed to accumulate. A duster, a damp cloth or the business end of a vacuum cleaner will make a lot of difference: wives can sometimes be persuaded to include this in their domestic cleaning routines, but much depends on how far you complicate the process by festoons of wires or potted plants around the tanks, so this may remain as a job which cannot be delegated. A quick rub across the external glass faces of the aquarium with a wash leather will restore the sparkle, and of course it is usually necessary at the weekly stage to employ the scraper on the inner glass to dislodge unwanted algal growths. At this point I would utter a plea for the tank scraper to end all tank scrapers. Does such a thing really exist which presents the correct angle of the razor blade to the glass, and which does not spin round or fall off when the least pressure is exerted? It should be adjustable for angle and the handle should not, as in the case of one which was given to me for Christmas, snap off in the middle after its third time out.

Plants. The excellent advice given by Mr W. Tomey some time ago in PFM on the subject of planted tanks should be read and re-read by those who have any feeling for the plant population of their tanks, and although many of us will not be able to afford the daily attention which the perfectionist would advocate, it will be found that for all practical purposes the weekly routine will suffice. Exposed roots should be tucked away safely, rotting leaves removed and spaces filled up. Ungainly growth in plants like *Bacopa* species may be nipped off and replanted, and any plants which seem to be failing should be removed and tried in some alternative set of conditions. There will be some who will argue that all sediment should be siphoned off each week, but I am not inclined to get too worried about small build-ups of this, as in controlled quantities the plants do derive a certain amount of benefit from it, though the situation will have to be watched where the heavy feeders are concerned. At all events, should sediment ever get to the

stage where it affects visibility of the tank contents, you may be sure that you have well over-run the safety limits.

Topping up. This is another weekly job which may not actually need action each week, but simply a check as to whether such is called for. The thing to aim at is that the water level shall never fall below the lower part of the top frame of the tank. It will be noted that the evaporation rate of one tank varies from another — a lot depends on the rate of aeration temperatures, the method of tank covering, and whether or not you have much in the way of floating vegetation.

It will be seen from these notes that the weekly jobs are very much related to the appearance of the tank, and I rather think this is the way it should be. There is something very rewarding about making something look better than it was, and at the end of a week's hard work in the shop or the office it is highly relaxing for many to potter around their tanks in the way I have suggested. The jobs are not very strenuous ones, and fit nicely into that Sunday morning void between breakfast and the time when it is quite impossible to put off mowing the grass any longer.

Coldwater Scene

continued from page 215

we returned. After arriving back home the fish house was looked into — the fish were fine. The young had grown, despite not being fed, the eggs had hatched and a large number of quite sizeable fry were swimming happily in their tanks! I wonder if things would have gone as well if some well-meaning friend or neighbour had been allowed into the fish house. Possibly, but I doubt it!

★ ★ ★

Why is it, I wonder, that some people expect a breeder to let them walk away from his fish house with his best fish? Recently I had a phone call enquiring for young lionheads, which subsequently led to the enquirer appearing at my home. In my fish house his eyes fell upon the few fish which I had selected for myself. Upon being informed that they were not for sale — he demanded to know why not, adding that he thought it grossly unfair that breeders always kept the best for themselves. To my answer that he could overcome this problem by breeding his own stock I received the reply that he was only interested in showing and could not be bothered with breeding! At that point

the visit began to move rapidly to an end, as I firmly pointed out those fish which I was prepared to let go. He finally departed with a few of the better fish that were for sale, and which would not disgrace a show tank, but, in truth, I would have been happier had he not called upon me.

Fortunately, the majority of visitors are a pleasure to meet, and a number of them are welcomed as they return each year with ever-increasing knowledge and appreciation of the fancy goldfish.

★ ★ ★

When one considers the ever-rising cost of young fish, due to various increasing prices of electricity, food materials, etc., I am surprised that more fishkeepers do not attempt to breed and raise their own stock. Space, or the lack of it, is usually put forward as the reason against the idea. Yet the very first fish that I bred spawned in my one, and only, tank of 24in. by 12in. by 12in.; the eggs were removed and hatched in enamel wash-bowls and the resulting small fish were raised in another tank, of similar dimensions to the first, specially bought for the purpose (but that was many years ago).

If only one variety is bred, and the breeder does not try to raise too many, it is quite possible to produce a few reasonable young with, say, three 3ft. by 12in. by 12in. tanks. After all, if your interest is in showing, surely there is greater satisfaction in obtaining a card with a fish that you have raised from the egg, rather than with a fish bred by someone else?

The AQUARIUM SHOW '75



ROYAL HORTICULTURAL SOCIETY OLD HALL
VINCENT SQUARE, LONDON, SW1

24th - 26th October

Presented by The Federation of British Aquatic Societies

AQUARIUM Show secretary, Mr D. Lam-bourne, has schedules available for the competitive classes at this year's Show. They can be obtained from him at 7 Wheeler Court, Plough Road, London, SW11 2AX (phone 01-223 2630) or from one of his offices at 554 Garratt Lane, London, SW17 0NY.

This year the classes will be judged by Mr A. Blake (FBAS), Mr C. A. T. Brown (FBAS), Mr M. Carter (FBAS), Mr C. W. Gorwill (FBAS, CNA), Mr B. Pye (FBAS), Mr D. Renton (FBAS, TTA), Mr W. Roder (FBAS, ASAS), Mr F. Tomkins (FBAS).

The classes are: **Furnished aquaria:** Aa, club tropical (24 in. by 15 in. by 12 in.); Ab, club coldwater (24 in. by 15 in. by 12 in.); Ad, individual tropical (18 in. by 10 in. by 10 in.); Ae, individual coldwater (18 in. by 10 in. by 10 in.); Ag, miniature (10 in. by 8 in. by 6 in.). **Aquascapes:** Ah, club (24 in. by 15 in. by 15 in.); Ai, individual (24 in. by 15 in. by 15 in.). **Pairs:** N1, barbs; N2, characins; NDM, cichlids and sea egg-layers; NE, labyrinths; NF, egg-laying toothcarps; NGHL, sea catfish, *Corydoras*, *Brochis* and loaches; NJK, rasboras, danios and minnows; NLP, guppies; NQR, *X. helleri* and platys; NS, mollies; NT, sea livebearers. **Coldwater:** U, single-tailed goldfish; V, twin-tailed goldfish; W, sea coldwater. **Breeders:** XB-M, egg-layers; XN-P, guppies; XQ-S, *X. helleri*, platys and mollies; XT, sea livebearers; XU-W, coldwater. **Plants:** Za, rooted plants; Zb, cuttings; Zc, floating plants.

The popularity last year of the Special Class for large fishes (any fish from classes B-M 12 in. overall or over) with both exhibitors and the viewing public has encouraged the Federation to include it again this year. So don't leave your favourite 'monster' to languish unseen but bring it along to The Aquarium Show where it can be admired by all.

TAKE full advantage of the special party rates offered for tickets bought and paid for in advance. For orders of ten and over, tickets for adults are reduced to 30p and for children to 10p. Furthermore, the advance tickets can be used individually, and it is not necessary for ticket holders to visit the Show as a party. Cash with order, please, to PFM, 554 Garratt Lane, London SW17 0NY. (Group payments are not possible at the time of the Show).

ANY Society intending to enter the Tableaux Competition this year that has not yet returned a completed Entry Form are asked to do so as soon as possible now please. Forms should be sent to PFM, 554 Garratt Lane, London, SW17 0NY. This year, as we announced earlier, entering societies may build their tableaux from a base at floor level, or on plinths at a height of 2 ft. or 3 ft. from floor level as they wish. This should give greater freedom to tableaux constructors and result in some interesting new tableaux variations. In order to spread the burden of escalating costs this year, the Show Committee decided to award larger cash grants towards expenses to every entering Society and award trophies to the winning teams.

One of the Unusual Catfish

By J. ELIAS

Photographs by the author



I FIRST made the acquaintance of these very unusual-looking fish in 1970 at the Aquarium where I work in Brno. Among our countless imported fishes we discovered four specimens of heavily armoured catfish, later identified as *Amblydoras hancocki*. All this time they have been a permanent attraction for visitors and objects of constant interest for the staff.

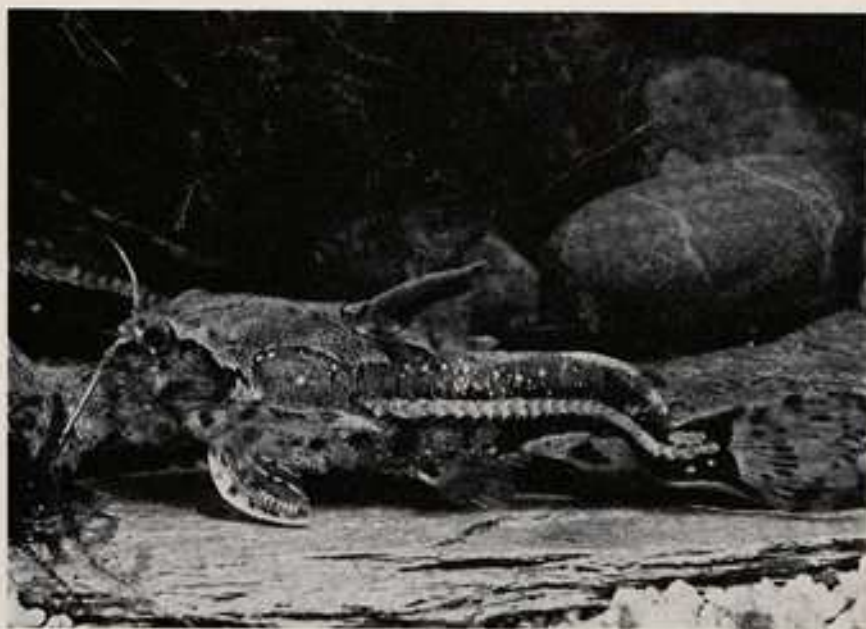
A representative of the Doradidae family, *A. hancocki* is to be found only in S. America. Strongly indented pectoral fins and auxiliary breathing with the help of the gut are characteristic of this group of fishes. The family is divided into many genera, the best known being *Acanthodoras*, *Apamyeis*, *Amblydoras*, *Astroodoras*, *Trachycorystes* and *Platyodoras*. When breeding, some species build themselves a kind of nest. Members of the Doradidae family are predominantly hardy animals, and they can tolerate a sudden drop in temperature. They like the twilight, and a dark, soft base set with roots amongst which they search for food towards evening. To some extent the fish take over the duties of a sanitary squad in the aquarium since they will eat the remains

of any live or dried food that may be lying forgotten on top of or even under the surface of the compost. This is why the provision of a soft base is a sensible move, because they have the power to burrow like lightning. When the fish are taken out of the tank little whimpering or clanking noises can be heard, the origin of which is not yet clear. The literature gives a suitable water temperature range of 68°-78°F (20°-26°C) for keeping the fish.

When seen from above *A. hancocki* has a relatively short body and outspread pectoral fins with powerful spines. Countless bony plates cover the surface, which is bedecked with many spines and teeth; the head armouring continues down behind the dorsal fin. The 'adipose' fin is quite short. The jaws are protruding and carry two pairs of barbels.

A. hancocki comes from the Amazon from as far as its upper waters in Peru. They also inhabit the rivers of Bolivia and Guyana, living only in fresh water. Many sources give the length of the fish as around 6 inches (15 cm.) but in the aquarium only smaller specimens are found, 2½-4 inches (6-10 cm.). Their colouring tends to be variable but unremarkable, usually mostly a darkish

Continued on page 225



One of the specimens of *Amblydoras hancocki* showing slight body deformation commented on by the author as having been seen in several of this species.

MARINIST'S NOTEBOOK

Knowing the Limitations

By ROY PINKS

DURING the past year or so the quantity and variety of marine species available in local shops has certainly diminished, to some extent, I believe, because the artificially created boom of several years ago exposed the sad fact that whilst there were then more fishes about, reliable culture methods were not increasing in like ratio. The wise aquarist today will therefore consider very carefully whether he can afford marines at all, and even if he does take the plunge, he will take great care not to waste his money.

The biggest pitfall, perhaps, is in likening tropical marine fishkeeping to tropical freshwater fishkeeping. Though there are many points of similarity, the thing to remember above all is that as soon as you have limited success, keep it limited! Time after time I have failed because I seem to have overcome a particular hurdle, only to fall at the next. If I had been content with the initial triumph, my long-term satisfaction would have probably been greater than it has been. The moral, then, may well be to make up your mind that you are going to keep a tropical marine fish, rather than tropical marine fishes in general. The corollary would be to set up a tank purely for that species, and to see just what happens. The usual thing which marinists try their hands at is the breeding of clownfish by associating them with anemones, and although this is a very fascinating experiment and a very attractive one, the chances of success are pretty remote.

A species which has always baffled and intrigued me is the common filefish (*Oryzias latipes*). This is an elongated species, basically coloured emerald green, and almost entirely covered with orange spots and blotches. It has a spike on the dorsal and ventral fins, which enable it, as a triggerfish, to lodge

itself rigidly within a crevice, whence it will only remove itself when the mood takes it. Its eye, with a black centre encircled by an orange band punctuated by green spots, is quite remarkable, and it appears to follow one around, almost reproachfully, once the fish has taken up position in a suitable niche. The fascination of this species lies in its thoroughgoing oddness, and I think it is irresistible. My own specimens were very short-lived - and indeed, the literature was not by any means optimistic about their chances - but I have heard of aquarists who have been rather more fortunate with them. No-one seems to have managed to provide them with the sort of environment which has really suited them, and I can imagine that success in this direction would be most rewarding from the point of view of the spectacle alone.

Feeding, alas, is the problem, as they have only tiny mouths. In practical terms this means an unending round of newly-hatched brine shrimp, and for many this is not only a tall order, but a quite impossible one. If you are not able to keep up this sort of service (during holidays, also, please remember!), leave this wonderful species alone, as it is too good to kill slowly by neglect. If you are dedicated enough to maintain this basic diet (though it is highly ersatz), it is necessary to experiment with alternative tiny food materials in an effort to induce it to be more adventurous. One specimen I had was very fond of finely chopped white worm, and would consume quite a lot of it, but others were not in the least interested. I did try this particular fish on tubifex, similarly reduced to minute particles, but the results were not good, and I doubt if it ever took much. I mashed the tubifex and the white worm together, but it seemed that it cunningly extracted the latter and allowed the tubifex to drift to

the tank floor, where a neon goby was always willing to clear up surpluses.

I was never able to keep several of these fish together, as is often recommended; they are said to do better in company, and this may well be so as they could scarcely have appeared less happy than they did in the company of the not very boisterous tankmates I perforce provided them with. Other species of filefish are probably perfectly all right, so long as there is no great disparity in size. Tank specimens are normally of the order of 3-6 inches in length, but specimens in the wild grow far larger. It could be that the feeding of the king sizes would not be as critical as with the smaller ones we tend to come across,

but their slow and deliberate means of locomotion spells difficulty in getting fair shares if other species are present, so this is very much a fish for special study.

I believe that unless the minute crustaceans on which they normally feed can be duplicated with greater accuracy in home aquaria than by the poor substitutes which we offer, these odd creatures will continue to baffle us, and in this event they would best remain where Nature put them in the first place. However, it would be welcome if some packaged wonder like brine shrimp suddenly appeared to meet their needs, for here would be a potential long-term favourite for home tropical marine aquaria.

What's New?

Colour-keyed Flake Food

It would probably come as a surprise to a good many people to be told that over 2 years could be required to develop an aquarium fish food. Yet this was the time elapsing between the decision of the giant company Mars Ltd to enter the fish food market and the appearance of the Aquarian range of foods at shops a few weeks ago. However, although the primary food in the range is in the now well-known flake form its formulation followed a research programme and lengthy feeding trials instituted by the makers, Pedigree Petfoods, to determine the most acceptable and nutritionally valuable food items—in fact nine different formulations, each represented by flakes of one particular colour. The final selection was Mk.4 in the series tried and tested in 20 laboratory aquaria set up with communities representative of the various types of

aquarium fish species. These trials involved photographic records of growth rates, and the only food given throughout the trials was the item under test, changes of water also being avoided to permit checks on build-up of 'solubles'.

Often overlooked is what a nonsense the term 'fish food' really is. Who would speak of a 'mammal food', for example, and expect to buy a carton with contents equally acceptable to dogs, horses and sea-lions? Within the class of fishes there is a range of dietary habits as great as those of the class of mammals, so that if food from a single can is going to be given to a mixed-species aquarium community of fishes there are sound reasons why the dietary items it contains should be in discreet particles and not merely compounded together, so that the horse can easily pick out the hay and oats from the meat and herring being simultaneously offered for the dog and sea lion, as it were. Since the diamond-shaped flakes of Aquarian for tropical fish are large it is also easy for the aquarist himself to select flakes from the mixture to meet the special needs of a particular species; what the colours represent is fully identified by the makers. The makers also stress that although each flake contains special ingredients for a specific purpose it is also a complete

food in itself, i.e. with adequate vitamins and minerals and other 'essentials'.

To meet the needs of one group with special dietary taste, the carnivorous fishes such as the cichlids, Aquarian Carnivore Fish Food is separately packed and has just five colours from the full range of flakes. In the same way there is a Vegetable Diet (four colours), A Growth Food, and separate fry foods for Livebearer and Egg-layer species, are mixtures suitably graded for size, and there is also a special formulation to enhance fish colours—the Colour Food. Two other 'specialist' lines are the Goldfish Food, in which the appropriate selection and balance of foods has been made already and the flakes are therefore smaller, and the Marine Fish Food, which has several special features developed from observation of feeding preferences of common seawater tank species.

The flakes have been designed to soften immediately on contact with the water, so that the fish have no difficulty in biting and swallowing the food. Flakes will float for surface feeders, sink slowly for middle feeders or reach the bottom for bottom feeders. If there are only bottom feeders in the aquarium, the makers suggest that the flake should be inserted edge-ways, for it to sink immediately.

The remarkable packaging

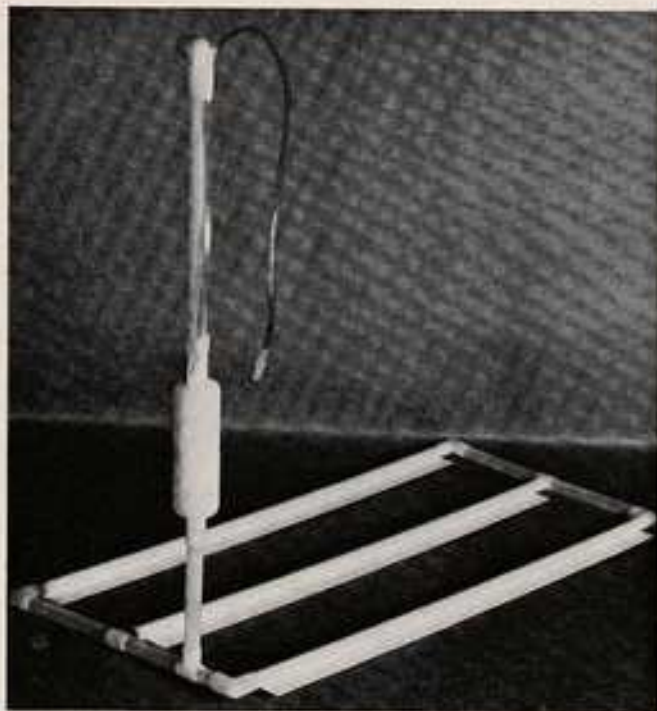
feature of the Aquarian range is that the foods are supplied in hermetically sealed aluminium cans with a ring-pull opener, and a snap-on plastic lid for use after the seal is broken. Freshness and freedom from infestation with insects at the

time the food is purchased is thus ensured.

The chemist responsible for the initial research and development of the Aquarian range is Dr David Ford, who had the advantage of 30 years' experience as an aquarist. As well as

white spot and fungus, an algae controller, a fish 'conditioner' and a plant food.

Tropical Fish Flakes come in three sizes: 100 c.c. at 22p, 200 c.c. 40p and 300 c.c. 57p; there is also an 8 ounce breeder's pack at £2.75. Goldfish Food is also in three sizes: 100 c.c. for 17p, 200 c.c. for 26p and 300 c.c. 38p. Marine Fish Food and Vegetable Diet are in standard 200 c.c. cans at 49p, and Carnivore Fish Food, Growth Food and Colour Food are 55p for 200 c.c. cans. The two Fry Foods are in 100 c.c. cans at 32p. All the Aquarian remedies and treatments are in 80 c.c. packs priced at 55p each.



Above: the Newflo undergravel filter.

Below: RB range of sliding vane air pumps.

the foods, Dr Ford's researches have selected preparations, also marketed (like the whole range, by Thomas's of Halifax) under the name Aquarian, for dechlorination of water and for tapwater conditioning, cures for

Undergravel 'Newflo' Filter

FIRST aquarium undergravel filter ever to be made available to aquarists was from Windmill Products Ltd., and after a good many years of satisfactory service from the original design there now comes the Newflo from the same manufacturers. In this the perforated tubes that form the undergravel portion of the equipment are stiffened by flat, rigid plastic flanges, allowing the tubes to be held firmly in place beneath the gravel. The well-known Windmill Booster Air-Lift, to be used in conjunction with an aerator, forms the water-moving part of the Newflo filter and gives a high rate of water turnover, since the air chamber contains twin air diffuser stones. Two sizes of filters are made, capable singly or in pairs of



fitting all the usual tank sizes. The Newflo small size costs £1.80 and the larger size L costs £2.05.

High-Output Air Pumps

A NEW range of large-output pumps designed to last for years without attention except for cleaning of the air filter and replacement of the sliding vanes in the pump every 6-12 months is now available for the hobbyist, trader or importer requiring an air supply for more than 25 air outlets. This is the **RB Range** of sliding vane

Pumps made in England by the well-known engineering company, Lacey-Hulbert Ltd. and distributed to the aquatic trade by Interpet of Dorking with their guarantee of excellent service.

The air supplied is stated to be completely oil-free, and as sufficient pressure is generated to force the air through relatively narrow-bore piping systems, 1/2 in. to 1 in. piping is adequate for the main air lines. The replaceable vanes are made of carbon, are low in cost and readily removed.

At 1 metre head of water, the RB1201 supplies 45 litres of

air per minute, the RB1361 supplies 140 litres per minute and the RB1-61 200 litres per minute. As a rough guide the distributors quote the following usages: a standard size coarse air stone uses between 0.25 and 2 litres of air per minute and an undergravel filter without air stone 0.5-1.5 litres of air per minute. These pumps can therefore be expected to cope with a range of air outlets from 25 to about 500.

A pump of this size is not claimed to be entirely quiet, but the noise is judged to be quite tolerable even when used in the fish room.

One of the Unusual Catfish

continued from page 221.

brown in small or larger irregular flecks strewn across a light brown background. The long lines on the sides that end at the tail root are ivory-coloured, finely spiked, and particularly well seen when viewed from above and from the front.

As soon as the four individuals of this species arrived in our Aquarium they were a great source of pleasure not only for the visitors but also for the staff, who took immense trouble in caring for them. These 'fearsome-looking' creatures were very attractive to watch. In the daytime they stayed motionless in the same place, really without the slightest movement. Anyone who did not know that towards evening they would start searching for food would believe that all was not well or even that they were dying. The visitors were and still are frequently anxious about this, and explanations about their immobility sometimes arouse disbelief. After a while the fish were housed in a very dark corner and the lighting was decreased as far as practicable, and then the fish began to search for food during the day.

When danger threatens, *A. hamcocki* reacts by remaining motionless as long as nothing touches it. But if this happens, it takes flight at a speed which might seem to leave a bullet out of a gun standing. Its first idea is to bury itself in the bottom or to hide in the plants, which, of course, disturbs the fine base, a hazard that we can hardly fail to notice after having the fish for a while.

The fish in our aquarium are mostly imported direct. In three of the four specimens I noticed a deformation of the body, and the fact that three out of four specimens carry this deformation suggests that it is a frequent occurrence in this species. Visiting aquarist colleagues, I have, in two cases, been able to confirm this body deformation of *A. hamcocki*, although the fish affected with this malady are just as lively as those that do not have the deformity.

The affected fish were kept in a tank containing normal water conditions at a temperature of 72°-75°F (22°-24°C). In the course of almost 4 years no disease exhibited itself. They were fed on tubifex and blood worms. They also picked up the remains of any uneaten food, and even accepted snails. After the addition of fresh water in the normal course of tank maintenance they show more eagerness for food and more activity can be noticed.

As for breeding, we have not had any results, and I myself have not had any luck either. The 'conquering' of this species needs a lot of experience, but we hope to achieve this soon.

Readers' Queries Answered

Poor Nests

Is it possible that a bubble-nester would not know how to build a bubble nest? I have a male paradise fish that seems unable to produce a nest without the bubbles spreading about all over the tank. Does this mean that I shall not be able to breed from this fish?

The skill of individual paradise fish in building a nest does vary considerably and some fail to produce a structure that remains compact. The eggs themselves are already fertilised, or not, as the case may be, when placed in the nest, which seems in Nature to serve a protective function in providing the male with the means whereby he can keep the eggs together and thus tend the fry as they hatch. In the breeding tank, danger is not going to confront the floating egg and certainly some of them will hatch.

Egg Eating

Is parental egg-eating a natural activity or is it similar to the activity of hens when they pull out their own feathers?

Egg-eating is not an 'unnatural' activity but merely one that the confines of the aquarium make it particularly easy for the fish to indulge in. Even in a tank, though, parent fish that have been fed before breeding on a good and very varied diet are less likely to eat all their eggs. No doubt eggs are eaten in the wild but because they are scattered so widely on to, perhaps, pebbles or mud and through innumerable plants, the majority are dispersed or lie hidden far more effectively than in any way that could be devised for the aquarium.

Aqua GLOSSARY

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

Acuti (Latin): pointed. Pronounced 'ac-kew-tee'. For example, the trivial name of *Ctenopoma acutirostre* ('ten-oh-poh-mah ac-kew-tee-rost-rer') refers to the pointed snout of the fish (*rostri*, Latin: beak).

Betta. Pronounced 'bet-tah'. Generic name of the fighting fish *Betta splendens* ('bet-tah splen-dens'), formed from the Malay native name 'ikan bettah'.

Brachy (Greek): short. Pronounced 'brack-ee'. The generic name *Brachygnathus* ('brack-ee-go-nee-uss') means literally short loach (*gnathus*, Latin: loach). The marine turkey fish (*Dendrochirus brachypterus*; 'den-droh-ky-russ brack-ee-ter-uss') has a trivial name which refers to the relatively short fins of this fish (*ptero*, Greek: fin).

Fusco (Latin): swarthy (brown). Pronounced 'foos-koh'. In the trivial names of the Malawi cichlids *Haplochromis fuscotaeniatus* ('hap-low-krow-miss foos-koh-tee-nee-ah-tuss) and *Pseudotropheus fuscus* ('sue-doh-troh-fee-uss foos-kuss') the brown bands (*taen*, Greek: band) of the former fish and brown coloration of the latter are recognised.

Geo (Greek): earth. Pronounced 'gee-oh'. The generic name *Geophagus* ('gee-oh-farg-uss') indicates habits of these cichlids of digging with their mouths (*phago*, Greek: to eat).

Penna, pinna (Latin): feather, fin. Pronounced 'pen-nah', 'pin-nah'. For example, the trivial name of the lemon tetra *Hyphessobrycon pulchripinnis* ('hy-fess-oh-bry-kon pulk-ree-pin-niss') literally means beautiful fins (*pulcher*, Latin: beautiful). Also the trivial name of the marine fishes *Anthias squamipinnis* ('an-thee-az skway-mee-pin-niss') and *Platax pinnatus* ('pla-tax pin-nah-tuss').

Rivulus (Latin): brook, stream. Pronounced 'riv-yew-luss'. Best known in its use as the generic name *Rivulus*, a major group of killifishes.

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GOLDFISH TYPES

The Varieties

Without Dorsal Fins

By FRANK ORME

LAST in the groups of fancy goldfish to be discussed in this series are those which lack a dorsal fin. These varieties either evoke admiration or revulsion, depending on the view of the beholder. To

broad across the back, which should rise and fall in a nice clean curve without any sign of spine, lump or hollow to mar the smooth contour. The body is short and moderately deep, similar to a Sumo



Photo:

Lionhead goldfish

W. J. Howes

my eye, some are attractive whilst others are downright ugly. My own preference is for the lionhead - a fish that is gaining in popularity, and which I have kept and used for many years. The Japanese, who call the metallic form Ranchu, consider this fish to be the 'King of all Goldfish'.

A good specimen will give an impression of strength and will, usually, have a fearless character. The body will be fairly

wrestler, to which it is likened by Japanese fanciers. An extremely short, almost non-existent, caudal peduncle carries a short stiffly held divided twin tail with moderate forking. Pectoral, pelvic and the double anal fins are all short, rounded and evenly matched. The outstanding feature, from which this variety derives its name, is the 'hood', which covers the head in a softish raspberry-like growth. The small rounded

protuberances which form the hood should cover the top and sides of the head, except for eyes and mouth, in a uniform growth; usually, however, the growth shows greatest development in the cranial region.

The most popular scale group is the metallic, although there is a nacreous form known as the Edonishiki. It takes some time for the hood to develop, therefore young lionheads will resemble the adult in body shape only.

The lionhead is a perfectly hardy type of goldfish that will eat all those foods that are taken by his plainer brethren.

Another in this group is the celestial, rather longer in the body than the previous variety; all the other descriptions apply except for the main feature. In this case it is the eyes. Not only are they 'telescopic', but they are upwards turned—hence the name celestial, as they gaze heavenwards. An old tale goes like this, for those who wish to believe it. During the travels of Marco Polo he visited Korea, where, stopping for water at a monastery, he discovered some fish of a golden hue with eyes that gazed forever at the stars. Their home was a pool within the interior of a dark temple in which the only source of light was a small circular hole set high in the roof. After some persuasion, and bartering, Marco Polo was presented with a few of these holy fish by the monks. Upon his arrival in China these fish were presented to the Emperor. This ensured a welcome for the traveller and it was from these fish that Chinese celestials were produced!

Whatever the truth, the fact remains that the upward-gazing eyes can cause some problems to the fish. Because of the line of sight it has difficulty in catching moving food and is at a distinct disadvantage, if kept with normal-eyed fish, in getting a fair share of food. The answer is to keep this variety with its own kind in an aquarium where they can be seen to the best advantage. Again the metallic form is the one most commonly seen.

A somewhat similar fish is the bubble-eye, resembling the celestial in both body shape and finnage, and it is the eyes of this variety that get attention. Beneath each eye a large fluid-filled bladder forms, so that the eyes appear vaguely 'telescopic'. However, whereas the 'telescopic' eye is firm, the bladder of the bubble-eye

moves, like a water-filled balloon, as the fish swims. A most peculiar sight, although it does not seem to inconvenience the fish in any way.

Like the celestial, this variety is probably best kept with other of the same variety in a tank that does not contain any sharp rocks, or other objects, that could puncture, or cause other damage to, the susceptible eye-sacs.

Another strange variety is the pompon, again found in both scale groups, but predominantly metallic. The same body and fin shapes as the preceding varieties are present but with a ball-like growth at each nostril. Caused by an over-development of the nasal septa, these growths can, in good specimens, become quite large. As the fish swims it appears to be nosing, or juggling, a couple of pompons, which, of course, is the reason for its name. This fish is well able to take care of itself in a mixed tank of the slower-moving varieties of normal-eyed fancy goldfish.

Treated with common sense and adequate care there is no reason why the above varieties should cause any problems, or be more difficult to keep in good health, than any other variety of goldfish. Both the lionhead and pompon can spend the summer in the garden pool, if precautions are taken to protect them from the attention of cats, or other marauders.

Breeding presents a challenge, since the number of reasonable young obtained is low. Whereas other goldfish varieties are bred to produce features that are over-developed in comparison with the common type, these varieties have the additional requirement that the growth of the dorsal fin has to be retarded, and to such an extent that it shows not a single trace. Additionally, patience is required to await the full development of the particular characteristic of the variety so that the potential of the fish can be fully assessed—and this can take some time. Because of the time involved and the many points that must be bred for, serious breeders of these goldfish varieties are in the minority. Prices, both of imported and home-bred stock, tend to be more expensive than other varieties of equal size and quality.

There are some other, rarer, varieties of fancy goldfish that have not been discussed in these articles but they are scarce, and not suitable for the tanks of the average amateur enthusiast.

Next Year's Frogbit Depends on Attention Given Now

By JAMES BARRIE

FROGBIT (*Hydrocharis morsus-ranae*) is one of the best native floating plants for the garden pool. In this country it occurs mainly in lowland England, and also in central Ireland. It also has a wider distribution through Europe, parts of Asia, Australia and North Africa. Elsewhere it has been successfully introduced. As the generic name *Hydrocharis* implies, it is a beautiful aquatic. Round to heart-shaped veined leaves, varying in colour between bronze and bright green with a tendency to purple pigmentation, somewhat larger in size than a 50p piece, float at the surface on longish stalks in characteristic clusters above bunched, slender roots which tail out in the water. From late June to August creamy-white, yellow-centred flowers will have been borne freely; they have three crinkled petals and a general appearance of extreme delicacy.

Frogbit prospers naturally in chalky districts and waters rich in dissolved nutrient salts. It is unlikely to do well, therefore, if the water is too soft and too acid. But most losses in ponds are due to ignorance of the plant's fascinating reproductive cycle or failure to make allowance for it.

Like all perennial floating plants, frogbit has to face a basic survival problem: how to get through the winter without fatal exposure to frost and ice. Pools and streams seldom freeze solid in temperate climates, so the answer is for the plant to

lay in stores of food and retire to the relative security of the bottom mud. The water lily, for example, uses its rhizome in this way. Frogbit adopts a different method. In autumn, specialised green shoots are produced on the end of runners hanging down in the water. These are the winter-buds, technically called hibernacula or turions. The buds are packed with starch, which will be broken down later into glucose and used for food; adventitious roots appear; excess air is eliminated under pressure, and weight increases. As the old plant decays the turions break away and, maintaining an upright position, sink to the substratum where they lie dormant awaiting the approach of spring. With intensifying daylight and rising temperature assimilation of the food reserve begins and respiration quickens. The turions lose weight and gases are formed which slowly carry the opening buds back to the surface, thus completing the cycle.

Clearly care must be exercised when servicing the pond to prevent the precious turions being unwittingly dumped with the sludge and debris. Perhaps the right solution is to collect the winter-buds in autumn before they drop off and keep them somewhere cool in a small unsealed container of water. At the beginning of May they can be returned to the pond.

Plenty of sunlight is needed to encourage blossoming of this plant. Pollination is by insects attracted to yellow spots at

the base of the petals, near three honey-secreting glands, which are probably nectar guides — phenomena associated with many insect-pollinated blossoms, usually recognisable as variable markings of contrasting coloration. The solitary female flowers are smaller than their male counterparts which grow in groups of two or three and although propagation from seed is possible, it rarely happens.

Although adapted to a free-floating habit, frogbit exhibits rooting proclivities in certain situations. For instance, when growing wild in shallow ditches or at the margin of certain pools, the roots often become embedded in the mud. It is also known to encroach on the land at times. Wells, in *TROPICAL AQUARIUMS, PLANTS AND FISH*, says it is his experience that frogbit which is allowed to take root grows much larger.

Nourishment is extracted from the surrounding water through a mass of fine hairs clothing the roots. As these root-

hairs harbour many aquatic creatures plus their eggs and larvae, new plants should always be thoroughly cleaned and disinfected to avoid transfer of undesirables to the pond.

During summer, frogbit multiplies by sending out runners in all directions from which secondary plants arise; these, in their turn, repeat the process and eventually a sizeable interlinking colony is built up. Filamentous algae sometimes become inextricably entwined in the resulting tangle of roots. While this can be annoying if it gets out of control, the effect is not all bad and can be turned to serve practical ends: fry left to grow-on in the pond gain protective cover within the maze, where they are able to feed on the minute organisms which will thrive in such an environment.

Fishes nibble on frogbit but do no serious damage. An interesting, if unwelcome, visitor is the terrestrial beetle

Riccia

Water cover to be used
with caution in ponds

Photograph by W. A. TOMEY

AN all-time favourite for the water surface of aquaria is *Riccia fluitans*, usually referred to as riccia or crystalwort. It produces small bright-green foliage that forms a branching mass over the water surface. It is an excellent refuge for fry and is also a good oxygenator. It grows easily, although it requires good lighting.

In ponds its growth should be strictly controlled, for the surface mat it forms can easily become dense enough to shut off light from the submerged plants, which can die and cause water pollution and death of fish. Regular removal of excess growth is therefore essential in ponds.



An enlarged view of a mass of crystalwort at the surface

Demerits. Living on plants in or near water, the female makes a round hole in the leaves before depositing eggs on the underside. The emergent larvae are unable to breathe oxygen dissolved in water, so they tap into the plant's air space by means of ingeniously modified hollow spines connected to their tracheal system and thereby breathe, snorkel fashion (?), from the roots and stems they inhabit. By far the worst threat comes from the ubiquitous water-snail—notably *Lymnaea*; their depredations quickly reduce healthy leaves to tatters. Exclusion of all snails from the outset is the safest policy for any pondkeeper who respects his water plants. In spite of the damning sobriquet, it cannot be claimed that frogs are a potential hazard!

When Linnaeus described and classified the plant for science he retained as the trivial name one coined earlier by Matthias de l'Obel (*Lobelia* is called after him), a sixteenth century Flemish botanist who spent part of his career as a physician to James I: *morsus*, biting; *ronca*, of a frog. It was anglicised by Henry Lyte the botanist and antiquary when he translated from the French a work by de l'Obel's contemporary, the Belgian writer, Rembert Dodoens, which was published in 1578 under the title *A NIEUWE HERBALL, OR HISTORIE OF PLANTES*. The common name is supposed to have originated because the plant was nearly always found growing in frog-infested districts, and it was anciently believed that the heart-shaped base of the leaf was caused by a frog-bite.



THE secretary of DUNLOP AQUARIUM KEEPERS SOCIETY, Mr K. A. Sey, reports: "The first Open Competition held by the Dunlop Aquarium Keepers Society, in their Works Canteen at Speke, Liverpool, on Sunday, 29th June, turned out to be a rousing success, with a record number of entries for the northern area. Exhibitors came from as far as Lancaster, Castletford, Blackburn, Wythenshawe, Cheshire and Wrexham. 800 exhibits of tropical, marine and coldwater fish were on display and over 1,000 visitors came, many seeing live fish for the first time." The presentation of trophies was by Mr Eric Hardy, well known naturalist, writer and Radio Merseyside broadcaster, who recalled boyhood angling days in the Speke area when there were only the old Parish Church, a couple of cottages and a few farms, but plenty of ponds and streams. He expressed his delight at such a large show and his pleasure at being present. 26 Societies

competed and 185 exhibits were from Dunlop AKS members.

Dunlop won five trophies, including the Best Fish in Show cup. The trophy winners were: T. Hampton trophy, Best Livebearers (Class A), Mr S. W. Carter (St. Helens); Dunlop AKS trophy, Best Anabantid (B), Mr M. Rimmer (Sandgrounders); Dunlop AKS Committee trophy, Best Cichlid (C), Mr A. Rocha (Dunlop); Aquaria Centre trophy, Best Barb (D), Mr A. Valentin (Merseyside); K. A. Sey Secretary's trophy, Best Characin (E), Mr J. Ridley (Hereswood); Jansons Aquaria trophy, Best Toothcarp (F), Mr E. Marshall (Blackburn); Dunlop AKS trophy, Best Minnow, Danio, Rasbora (G), Mr P. Wrench (Northwich); Dunlop Engineering Shop Steward's trophy, Best Catfish, Mr G. Muckle (Sandgrounders); John Terley trophy, Best Shark or Flying Fox (I), Mr R. Armstrong (Dunlop); Northend Aquaria trophy, Best Juvens entry (M), Master S. Lee (Castletford); William Gurnea trophy, Best Coldwater (O), Mr S. Foote (Ascrington); Mr Pets trophy, Best Marine fish (P), Mr A. Davies (Dunlop); Patricia Rosette, Best Novice entry (Q), Mr W. Lewis (Dunlop); Waterworld trophy for the Showman with most points, Mr P. Batchelor (Lynn); Dunlop sports and Social Club Cup, Best Fish in Show, Mr R. Armstrong (Dunlop). The other section winners were: True pairs, Master J. Emerson (Castletford); breeders, Mr M. S. Hootan (Sandgrounders); any other variety not listed, Mr P. Batchelor; ladies (sev), Mrs B. Sey (Dunlop); decorated jars, Mr E. Jones (Wrexham).

Thanks must be extended to all the committee, stewards and helpers for the work carried out under the watchful eye of our show secretary, Mr T. Hampton, whose careful planning resulted in the Show going off without a hitch. This was an extremely big venture for this Society

which has only been in existence for 5 years and we are looking forward to further shows in future years."

THE Exhibition of fishkeeping held by UXBRIDGE & DAS at the Hayes Carnival proved most successful and an even bigger display is planned for next year. Popular with the visitors were the swordtails and offspring and the smallest fishes, livebearer mosquitoes and egglayers *Rasbora maculata*. Club members have also enjoyed a coach outing to Eastbourne even though dismal, cloudy weather accompanied them. Other activities have included a talk by club members on fish-house construction and management; and a discussion conducted by FBAS judge Mr P. Ginger on the good and bad points of the fish taken to the meeting by members proved so popular that more such meetings are now being planned. Inter-club shows with Hendon AS and High Wycombe & DAS are also arranged.

THERE were a total of 651 entries at SUDBURY AS Open Show held during the summer where the FBAS judges presiding were: Mr F. Tomkins, Mr C. Brown, Mr N. Carter, Mr D. Durrant, Mr P. Ginger, Mr R. Bowes, Mr R. Fox and Mr K.

Saxby. Best Fish in Show was exhibited by Mr J. Brown (Croydon) and Best Livebearer by Mr K. Usher (Doncaster). The highest pointed visiting society was Basingstoke.

Remainder of results as follows: B: 1, Mr P. Newbury (Gosport); 2, Mr Lewis (Sudbury); 3, Mr O. Cruickshank (Ealing). C: 1, Mr R. Leslie (H. Wycombe); 2, Mr P. Lambourne (Riverside); 3, Mr J. Barry (Sudbury). Ca: 1, D 2 and FBAS champion, Mr T. Barvill; 3, Mr K. Usher. Cc: 1, Mr G. Lucas; 2, B 3, Mr E. Farnham. D: 1, Mr W. A. Knight (Gosport); 2, Mr I. Pierce (High Wycombe); 3, Mrs M. Nethersell (Riverside). Da: 1, Mr J. H. Jackson (BAS); 2, Mr T. Jones (BAS); 3, Mr K. Usher. Db: 1, Mr P. Coyle (Walton-on-Avon); 2, Mr T. Fraser (BAS); 3, Mr P. Newbury. E: 1, Mr J. Hughes (Roehampton); 2, Mr A. Chaplin; 3, Mr T. Woolley (Saracens). Ea: 1, C, B J. Richards (Sudbury); 2, Mr A. Chaplin; 3, Mr T. Woolley. Eb: 1, C, B J. Richards. C. Goddard (Sudbury); 3, Mr C. Brickeretz (Suffolk). Ec: 1, Mr J. Barry; 2, Mr P. Brown (Southampton); 3, Mr K. Usher. G: 1, B 2, D, B P. Lambourne; 3, Mr T. Woolley. H: 1, B 3, Mrs M. Nethersell; 2, Mr D. Winer (East Dulwich). J: 1, B 2, Mr E. Farnham (Sudbury); 2, Mrs P. Lambourne. K: 1, Mr M. Strange; 2, Mr T. Cruickshank; 3, Mr P. Moye (Sudbury). L: 1, B 3, Mr D. Winer; 3, Mr G. Kingsbury. M: 1, Mr J. Brown; 2, Mr C. Kingsbury; 3, Mr D. Kelly. NB-M: 1, Mr M. Strange; 2, Mr A. Chaplin; 3, Mr D. Kelly. NO-T: 1, B 3, Mr K. Usher; 2, Mr T. Fraser.

O: 1, Mr J. Randall (Hastings); 2, Mr A. E. Norrish (Basingstoke); 3, Mr G. Lucas. P: 1, C, B J. Richards; 2, Mr A. E. Norrish; 3, A, B J. Waldman (Sudbury). Q: 1, Mr E. Farnham; 2, B 3, Mr K. Usher. R: 1, Mr K. Usher; 2, Mr R. Osstew; 3, Mr T. Woolley. S: 1, Mr E. Dovehill; 2, Mr O. Cruickshank; 3, Mr G. Lucas. T: 1, Mr K. Usher; 2, Mr P. Moye; 3, Mr A. Chaplin. XB-M: 1, Mr P. Moye; 2, Mr M. Strange; 3, Mr R. Osstew. XO-T: 1, B 3, Mr K. Usher; 2, Mr T. Fraser.

THE inter-society show between SCUNTHORPE & DAS and STL HUMBERSIDE AS, judged by Mr F. Toyne and Mr G. S. Hill, resulted in a win by the home team of 54 points to 47. Scunthorpe also won the quiz devised by Mr Toyne by 118 points to 114. Results of the judging of the 146 entries were:

Supers: 1, Mr N. Kershaw (S.H., 70); 2, Mr K. Atkinson (S.H., 64); Molles: 1, Mr P. Smith (Sc., 71); 2, Mr B. Mrs Tyson (S.H., 69); 3, Mr B. Mrs Campbell (Sc., 64). Swardtails: 1, Mr N. Kershaw (72); 2, Mr B. Mrs G. Barry (Sc., 71); 3, Mr B. Mrs Tyson (70). Pityrs: 1, Mr G. Hill (S.H., 67); 2, Mr B. Mrs Dinadale (Sc., 65); 3, Mr B. Mrs Tyson (64). Juv Livebearers: 1, B 3, Mr M. Toyne (71, 69); 2, Mr G. Storr (Sc., 70); 3, Chadwain: 1, B 3, Mr Watts (S.H., 71, 69); 2, Mr D. Hill (S.H., 70); 3, Mr A. Liens (Sc., 72); 3, Mr Watts (71); 5, Mr B. Mrs Tyson (69). Angels: 1, Mr G. Storr (69);

2, B 3, H. W. Drury (S.H., 67, 66); 3, Valley cichlids: 1, Mr Parker (Sc., 72); 2, Mr B. Mrs L. Barr (Sc., 70); 3, Mr B. Mrs P. Barry (Sc., 69). Juv Cichlids: 1, G. D. B. Wressell (Sc., 74); 2, Mr A. Jordan (S.H., 70); 3, Mr B. Mrs L. Barr (67). Fighters: 1, B 2, Mr B. Mrs Lake (S.H., 69, 68); 2, Mr B. Mrs D. Davey (Sc., 67); 3, Juv Anguillid: 1, Mr B. Mrs L. Barr (74); 2, G. B. S. Wressell (Sc., 72); 3, H. W. Drury (S.H., 70). Sharks & Foxes: 1, Mr M. Toyne (Sc., 72); 2, Mr R. Battamley (Sc., 71); 3, Mr P. Smith (Sc., 70). Reaborns etc.: 1, B 3, Mr B. Mrs Lake (74). Best in Show trophy, 69; 2, Mr N. Kershaw (71); 3, Mr G. Allen (Sc., 72); 3, Mr M. Toyne, 70; 4, Mr C. Catlin; 1, Mr B. Mrs Lake (71); 2, G. B. S. Wressell (70); 3, Mr G. White (69). Juv: 1, Mr B. Mrs L. Barr (74); 2, Mr B. Mrs K. Barry (70); 3, Mr B. Mrs Lake (68).

THE BRITISH CICHLID ASSOCIATION is holding its Annual General Meeting at the Bay Hotel, Seaburn, Sunderland on 10th October, starting at 2.00 p.m. All members are invited to attend and nominations and proposals should be sent to Mr I. Sellick, 280 Northridge Way, Hemel Hempstead, Herts HP1 2AU by 30th September.

AT the CATFISH ASSOCIATION GREAT BRITAIN show, Mrs May Nethersell (Riverside) won the FBAS Supreme Championship trophy for class Ha, the King Trophy for Best Fish in Show and the Gold Pin with a *Brochis coeruleus*; she also won the Cruickshank trophy. The *Brachygnathodon betanouds* entered by Mrs S. Hedges won the Ivy Brown trophy for Best Juv Catfish. Best exhibits by a junior was a *C. coeruleus* entered by David Winder of East Dulwich.

Gc. Sagridae, the Ian Cup: 1, Mr S. Adams (Bothal Green, Lelocassie Llanernis); 2, Mr P. Elson (Southend, Llanernis); 3, Mr L. Derrick (Croydon, Llanernis). Gd. Callichthyidae, the P & D trophy: 1, Mr T. Woolley (Saracens, Hoplosternum thoracatum); 2, Mr J. Hughes (Roehampton, Callichthys callichthys); 3, Mr M. Sandford (Rugby & Redhill, Hoplosternum). Gf. Clariidae, the Carman trophy: 1, Mr M. Sandford (Clarias anguillaris); 2, Mr P. Jones (Catfish, Cl. anguillaris); 3, Mr D. R. Standell (Abridge, Cl. batrachus). Gh. Doryziidae, the J. C. trophy: 1, Mr W. F. Sutton (Catfish, Platydonas costatus); 2, B 3, Mr T. Woolley (Agamyxis pectinifrons, P. costatus). Gi. Loricariidae, the Chapman's Cup: 1, Mr L. G. Tiley (Saracens, Farlowella acuta); 2, Mr G. R. Standell (Pterygoplichthys multiradiatus); 3, Mr J. Dickinson (Havant, Hypostomus watwata group). Gk. Mochokidae, the Cam-

mites Cup: 1, Mrs S. Hedges (Bothal Green, Brachygnathodon betanouds); 2, B 3, Mr A. Haley (Bothal Green, Synodontis nigrita). S. petricola: 1, G. Pimekodontidae, the Ben. Mann trophy: 1, Mr W. F. Sutton (Mnioglanis paralyticus); 2, Mrs M. Nethersell (Riverside, Pimekodon bicolor); 3, Mr B. Mrs A. Sharp (Sittingbourne, Mnioglanis petricola). Gb. Synchelidae, Harlow Aquarium Supplies trophy: 1, Mr C. W. Goddard (Sudbury, Entopisthus buffei); 2, Mr C. Runty (Sg. Yarmouth, Synchelus lineatus); 3, Mrs G. Sandford (Rugby & Redhill, Sg. buffei). Gr. Siluridae, the Con'ed Cup: 1, Mr D. Allen (Hendon, Kryptopterus macrocephalus); 2, Mrs R. Pilsbury (Northampton, K. macrocephalus); 3, Mr T. Woolley (K. bicolor). Gr. Juv Catfish, the Gordon Howes trophy: 1, Mr D. Bupp (Riverside, Trachycorypha trachycorypha); 2, Mr D. Kelly (Runcy, Trachycorypha bicolor); 3, Mr M. Nethersell (Trachycorypha trachycorypha).

Ha. Brochis, the Bounty Cup: 1, B 3, Mrs M. Nethersell (Br. coeruleus); 2, Mr D. Kelly (Br. coeruleus). Hb. Corydoras 21in. and under, the Southview trophy: 1, Mr P. Moye (Sudbury, C. elegans); 2, Mr P. Rastbouse (Reading, C. elegans); 3, Mr T. Jones (Southend, C. elegans). C. elegans over 21in., the May trophy: Mr C. Kingsbury (Runcy, C. schwarzii); 2, Mr K. Taylor (Havant, C. schwarzii); 3, Mr B. Mrs Murphy (Catfish, C. punctatus). Hc. Corydoras not on FBAS size sheet, the Mann trophy: 1, Mrs F. Rogers (Bothal Green, Corydoras species); 2, B 3, Mr P. Moye (Corydoras species). NG. Juv Catfish pairs, the Old News trophy: 1, Mr G. Biggs (Riverton, C. fallax); 2, Mr C. Kingsbury (Runcy, C. schwarzii); 3, Mr D. Kelly (C. reticulatus); 4, Mr C. Beckett (Sg. Yarmouth, C. punctatus); 5, Mr T. Duffy (Bracknell, C. elegans). Juv Catfish breeders, the Frank Tomkins trophy: 1, B 2, C, B D. Bennett (Hippostomus punctatus). Xb. Corydoras & Brochis breeders, the Hendon trophy: 1, Mr C. Beckett (C. punctatus); 2, B 3, Mr T. Duffy (C. myersi, C. schultzi). Special class, the Drury trophy: 1, Mr C. Kingsbury (Runcy, Farlowella species); 2, Mr F. Moye (Brachyrambia instator); 3, Mr D. Kelly (Pim. species).

THE GOSPORT & DAS 9th annual Open Show, held in June, was supported by 383 entries. The Best Fish in Show (gold pin) went to Mr R. J. Canning (Newbury). Other trophies and results were:

1971 Committee Cup, Best in Show, Mr R. J. Canning (Newbury); 1972 Committee Cup, class K, Mr M. Strange (Basingstoke); 1974 Committee Cup, Best Killie, Mr D. Kelly (Runcy); 1975 Committee Cup, Class J, Mr T. Fraser (Basingstoke); Wingate Cup, Class XO-T, Mr S. Cripps (Havant); Conley Cup, Class XBM, Mr M. Strange; M. B. S. Cup, Furnished aquaria, Mr M. Cott (Gosport); J. R. Ellick Cup, Best Catfish, Mr J. Dickinson (Havant); J. R. Ellick Cup, Best Cichlid, Mr R. J. Canning; J. R. Ellick Cup, Best Labryinth, Mr J. Hughes (Roehampton); Gosport Club trophy, Best Livebearer, Mr A. Wain (Basingstoke); Mr J. Hobart (Basingstoke); Best Coldwater, Mr E. Binstead (Penny-mouth); M. B. S. Twinned Cup, Class V, Mr J. Jupp (Gosport); I. Wain Cup, Class B, Mrs P. Newbury (Gosport); D. B. P. Turner Cup, Class K, Mr T.

Fraser (Basingstoke); 1. B. K. Clarke (Newbury); Class Da, Mrs P. Newbury (Gosport); Scabington Aquaria Cup, Class B, Richards (Sudbury); John & Jane Taylor Rosebow, Best Guppy, Mr S. Lucas (Sudbury); Mrs Taylor Rosebow, Best Seated Pair, Mr G. Kesting (Runnymede); K. Clough (Newbury); Best Plant, Mr J. Hughes (Basingstoke); D. James Cup, Class Da, Mr W. Smith (Gosport); M. Cott Cup, Class B, Mr S. Cripps (Newbury); Dave B. Turner, Rosebow, Best Ladies Trophy, Mrs P. Newbury (Gosport); John & Jane Trophy, Class Ee, C. B. J. Richards (Sudbury); George & Brenda Richmond Trophy, Class Mz, Mr D. Reilly (Runnymede).



FEDERATION NEWS

FORTHCOMING CHAMPIONSHIP CLASS SHOWS *

Sept. 7	Bethnal Green	J	Rasboras
Sept. 14	Three Counties	F	Egglaying toothcarps
Sept. 21	Hastings & St. Leonards	O	Male Guppy
Sept. 28	Newbury	Dc	Rift Valley cichlids
Nov. 16	Walthamstow	Z	Plants

Results

Sudbury AS	Ca	Mr T. Burvill (Havant)
Riverside AS	Cz	Mr M. West (Kingston)
Southampton AS	Db	Mr T. Fraser (Basingstoke)
Corby AS	Dz	Mr M. Strange (Basingstoke)
Redcar AS	Eb	Mr Readman (Hartlepool)
Mid-Kent AS	G	Mrs M. Nethersell (Riverside)
Catfish Association	Ha	Mrs M. Nethersell (Riverside)
Havant AS	Hr	Mr K. Taylor (Havant)
Redhill & Reigate AS	L	Mr K. Groves (Horsham)
Medway AS	Mz	Mr C. Elliott (Medway)
South Shields	NC	Mr Holman
North Kent AS	NO-T	Mr K. Usher (Doncaster)
Southern, Leigh & DAS	T	Mr K. Usher (Doncaster)
Corringham AS	XB-M	Mr P. Moye (Sudbury)
Port Talbot AS	V	Mrs C. Rupert (Port Talbot)
Salisbury AS	Y	Mr L. Wilkins (BMAA)

* Winners of Federation Championship Trophies in classes for single fish automatically become eligible for the Supreme Championship Trophy Competition (to be staged at The AQUARIUM SHOW '75 at the Royal Horticultural Society's Old Hall, London, SW1, 24th-26th October). Six awards are made at this competition, and each entrant will receive a Championship 'Certificate'.

Ak: 1. Mr R. Paine (Havers); 2. Mr S. Targary (Havers); 3. Mr R. J. Hard (Havers); Ak-A1: 1. Mr M. Cott; 2. Mr D. James; 3. Mr A. Stoughton; Class B: 1. Mrs P. Newbury; 2. Mr K. Lucas; 3. Mr R. Gray (Havant); C: 1. C. B. J. Richards; 2. Mr T. Smith; 3. Mr J. Brown; Ca: 1. Mr M. West; 2. Mr J. Clarke (Gosport); 3. Mr K. J. Hard (Havers); D: Mr R. J. Cripps; 2. Mr D. Turner; 3. Mr I. Adams (Holt, Wymondley); Da: 1. Mrs P. Newbury; 2. Mr R. J. Canning; 3. Mr S. Jackson; Db: 1 & 2. Mrs P. Newbury; 3. Mr T. Fraser; Dc: Mr W. Knight; 2. Mr K. Taylor; 3. Mr D. Turner; E: 1. Mr J. Hughes; 2. Mr D. Reilly; 3. Mr G. Lucas (Sudbury); Ee: 1. C. B. J. Richards; 2. Mr P. Smith; 3. Mr S. Cripps; Fr: 1. Mr G. Reilly; 2. Mr G. Reilly; 3. Mr D. Reilly; G: Mr J. James (Gosport); H: 1. Mr J. Dickenson; 2. Mr G. Lucas; 3. Mr W. Knight; H1: 1. Mr T. Fraser; 2. Mr A. Taylor; 3. Mr J. Brown; L: 1. Mr D. Reilly; 2. Mr P. Brown; 3. Mr M. Strange; Mz: 1. Mr K. Taylor (Sudbury); 2. Mr D. Langford; 3. Mr R. Leslie; 2. Mr K. A. Adams; 3. Mr S. Cripps (Havers); NC: 1. Mr J. Brown (Gosport); 2. Mr D. Reilly; 3. Mr D. Reilly; 2. Mr G. Lucas (Sudbury); 3. Mrs K. Clarke; NO-M: 1. Mr S. Cripps (Sudbury); 2. Mr R. J. Canning; 3. Mr H. Jackson; NO-T: 1. Mr S. Moye (Havers); 2. Mr T. Fraser; 3. Mrs P. Newbury; O: 1. Mr G. Lucas; 2. Mr B. J. Hard (Havers); 3. Mr D. Langford; 4. C. B. J. Richards; 5. Mr A. Stoughton; 6. Mr S. Bartlett; G: 1 & 2. Mrs P. James (H. Wymondley); 3. Mr S. Cripps; 4. Mr R. Cripps; 5. Mr A. Canning; 6. Mr A. Nunnally; 7. Mr S. Cripps; 8. Mr K. Dowsett; 9. Mr L. Turner; 10. Mr A. Weare; 11. Mr T. Fraser; 12. Mr J. Randall; 13. Mr S. Cripps; 14. Mr J. Jones; 15. Mr S. Cripps; 16. Mr J. Jones; 17. Mr S. Cripps; 18. Mr S. Cripps; 19. Mr S. Cripps; 20. Mr S. Cripps; W: 1. Mr E. Breen; 2. Mr J. Jones; 3. Mr R. J. Canning; 4. Mr J. Jones; 5. Mr A. Weare; 6. Mr B. Webb (Basingstoke); 7. Mr S. Cripps; 8. Mr M. Strange; 9. Mr J. Dickenson (Havers); 10. Mr R. J. Canning; 11. Mr J. Jones; 12. Mr J. Hughes; 13. Mr S. Jackson.

SECRETARY of BLAENAU GWENT FISH CLUB, Mr B. Morgan, reports ever-increasing interest in the Society. A very successful exhibition put on at the local hospital fête made possible for hospital funds. "These new members joined this month and we are pleased to meet anyone interested in the pleasure-tropical fish can give; we extend a cordial invitation

to come along to our meetings. We meet on alternate Tuesday evenings at 7.30 p.m. at the Blaenau Gwent Working Men's Club, Lewis Street, Cwmtillery, Abertillery, Gwent. Meeting dates in the near future are 2nd, 16th & 30th September. We have lectures, slide shows, discussions and visits from other clubs. Although, as a club, we are not very keen on showing, we do have some very good evenings with other clubs in the area. We plan more exhibitions, a trip to Belle Vue, Manchester, for the Aquarist Festival and also our annual dinner near Christmas time." **RUNNYMEDE A.S.** wish to thank all those who helped to make their Open Show such a great success, a total of 27

clubs helping to achieve 629 entries. Mrs S. Parrish (Hounslow) won the Best Fish In Show trophy with a *Ctenopoma kinglakeae*. Mr M. Strange (Basingstoke) won the £10 premium bond for the highest entered class (Class Ca, 47 entries). Sudbury AS won the highest-pointed society trophy (63 points). Ak: 1. Mr J. Shepherd (Runnymede); Aq: 1. Mr R. J. Hard (Havers); 2. Mr R. Paine (Havers); 3. Mr T. Butler (Runnymede); Ba: 1. Mr K. Smith (Runnymede); 2. Mr A. Charles (Basingstoke); 3. Mr R. F. Adams (Salisbury); Bc: 1. Mrs P. Newbury (Gosport); 2. Mrs D. Crouch (Ealing); 3. W. B. S. (Banbury); Ca: 1. Mr M. Strange (Basingstoke); 2. Mr J. Shepherd (Runnymede); 3. Mr G. Cox (H. Wymondley); Cb: 1. Mr G. A. Lucas (Sudbury); 2. C. B. J. Richards (Sudbury); 3. Mr E. C. Farham (Sudbury); Cc: 1. W. B. S. (Banbury); 2. Mr T. Lecuire (Rochampton); 3. Mr R. F. Adams (Salisbury).

most points trophy. Results were:

Section A, class 1, Guppies: 1 & 2, Mr E. Lees (Wythenshawe, 72, 71); 3, Mr Foulton (Northwich, 69). Section 2, class 2, Swordtails: 1, Mr B. Carter (St Helens, 74); 2, Mr B. Mrs Muckle (SG, 72); 3, Mr & Mrs Sutton (Blackburn, 71). Section C, class 3, platys: 1, Mr A. P. Squirrel (Wythenshawe, 75); 2, Carl Norton (SG, 72); 3, Mr K. Houghton (Southport, 71). Section D, class 4, Mollies: 1, Mr K. Houghton (72); 2 & 3, Mr Foulton (70, 69). Section E, class 5, livebearer: 1, Mr & Mrs Baldwin (SG, 70); 2, Mr B. Walsh (Blackburn, 69); 3, Mr K. Wright (SG, 67). Section F, class 6, Small anabantids: 1, Mrs P. Taylor (Merseyside, 68); 2, Carl Norton (67); 3, M. & N. Rimmer (SG, 66). Class 7, Large anabantids: 1, Mr A. Hopwood (Wrexham, 79); 2, Mr K. Sey (Dunlop, 72); 3, Mr C. Sutton (SG, 71). Section G, class 8, Damselfishers: 1, Mr R. L. Payne (Merseyside, 76); 2 & 3, Mr T. E. Davies (Heywood, 73, 70). Section H, class 9, Small cichlids: 1, Mr J. Gabe (SG, 71); 2, Mr K. Houghton (70); 3, Mr & Mrs Gardiner (Blackburn, 68). Class 10, Large cichlids: 1 & 2, Mr B. Crabtree (SG, 79, 73); 3, Mr A. Hopwood (Wrexham, 78). Class 11, Rift Valley cichlids: 1, Mr Wason (Farnworth, 62); 2, Steve Houston (SG, 73); 3, Mr Burgoyne (Farnworth, 72). Class 12, Anguila: 1, Mr A. Manser (SG, 72); 2 & 3, Mrs E. Axon (Ashton-u-Lyne, 67, 66). Section I, class 13, Small characins: 1, Miss S. Goddard (Macclesfield, 77); 2, P. & H. Batchelor (Loyne, 76). Class 14, Large characins: 1, P. & H. Batchelor (72); 2 & 3, Mr & Mrs K. Houghton (71, 70). Section J, class 15, Small barbs: 1 & 3, Mr & Mrs Stock (Farnworth, 74, 72); 2, Mr T. Hampton (Dunlop, 73). Class 16, Large barbs: 1, Mrs Winstanley (Dunlop, 75); 2, Mr & Mrs G. Bond (SG, 75); 3, Mr A. Vaissiere (Mersey, 73). Section K, class 17, Tetras: 1, Mr & Mrs R. Houghton (74); 2, Mr & Mrs Muckle (73); 3, Mr E. Lees (Wythenshawe, 72). Class 18, Minnows: 1, Mr W. Bamber (SG, 72); 2, Mr K. Bickle (Wrexham, 72); 3, Mr J. Selby (Wythenshawe, 70). Class 19, Danios: 1, Mr E. Lees (74); 2, Mr W. Bamber (72); 3, Mr T. Hampton (70). Section L, class 20, Cichlids: 1 & 2, Mr K. Kryger (79, 77); 3, Mr C. Whitsey (Accrington). Section M, class 21, Small tetras: 1, Mr B. W. Carter (St Helens, 74); 2, D. G. & S. Harvey (SG, 72); 3, P. & H. Batchelor (71). Class 22, Livebearers: 1, P. & H. Batchelor (76); 2, Mr & Mrs G. Bond (75); 3, Mr Lough (Wrexham, 74). Loaches: 1, Mr & Mrs Muckle (80); 2, Mr & Mrs Sutton (79); 3, B. & B. Booker (SG, 79). Section N, class 24, Sharks: 1, Mr Avery (Merseyside, 75); 2, Mr & Mrs Baldwin (SG, 73); 3, Mr T. Hampton (71). Class 25, Flying fish: 1, Mr E. Hampson (Wythenshawe, 68); 2, Mrs Vaissiere (67); 3, Mr A. Jenkinson (SG, 62). Section O, class 26, av Female fish: 1, Mr S. Brewis (Farnworth, 74); 2, Mr & Mrs R. Houghton (72); 3, Mr T. Hampton (70). Section P, class 27, Pairs livebearers: 1, Carl Norton (65); 2, Mr B. W. Carter (63); 3, Mr C. Evason (SG, 62). Class 28, Pairs egglayers: 1 & 3, Mr K. Kryger (78, 73); 2, Mr A. Vaissiere (75). Section Q, class 29, Breeders livebearers: 1, Mr B. W. Carter (St Helens, 74); 2, Mr A. Manser (SG, 72); 3, Mr & Mrs G. Bond (70). Class 30, Breeders egglayers, easy: 1, Mr A. Buckley (Bury, 79); 2, Mr K.

The CATFISH ASSOCIATION OF GREAT BRITAIN are anxious to trace one of their major trophies, the Fillpac Teabag trophy. This was last won by Mr Guest, formerly of Hampstead AS, who is believed to be living in the Birmingham area, and any information is requested by Mr A. Haley, 255 Lewisham Way, London, SE4.

Kryger (77); 3, Mr Avery (76). Class 31, Breeders egglayers, hard: 1 & 3, Mr S. Wolstenholme (Heywood, 78, 73); 3, Mr S. Squirrel (Wythenshawe, 74). Section R, class 32, av Tropical: 1, B. & B. Booker (SG, 79); 2, Mr C. Evason (76); 3, Mr D. Gomery (Dunlop, 70). Section S, class 33, Common goldfish: 1, Mr Dawson (Heywood, 70); 2 & 3, Mr C. Whitsey (68, 67). Class 34, Fancy goldfish: 1, Mrs P. Taylor (72); 2, Mr Barlow (Osram, 71); 3, Mr C. Whitsey (70). Class 35, av Coldwater: 1, Mr G. Harvey (SG, 75); 2, Mr Dawson (Heywood, 74); 3, Mr D. Harvey (SG, 73). Section T, class 36, Juniors livebearers: 1 & 3, M. & N. Rimmer (SG, 74, 70); 2, Miss J. Sey (Dunlop, 73). Class 37, Juniors egglayers: 1, T. Brown (Warrington, 75); 2, Mr T. Cooper (Dunlop, 73); 3, B. Leed (Ashton-u-Lyne, 72). Section U, class 38, Ladies: 1, Mrs B. Sey (Dunlop, 76); 2, Mrs Stock (Farnworth, 72); 3, Mrs Lillay (Dunlop, 70). Section V, class 39, Marines: 1 & 2, D. & D. Shaw (Dunlop, 70, 68); 3, Mrs E. Davies (Dunlop, 67). Section W, class 40, Mini jars: 1 & 2, Mr E. Jones (Wrexham, 68, 65); 3, M. & N. Rimmer (64). AFTER a lapse of 2 years from the Show scene, KINGSTON & DAS returned with a very successful Open Show in June that attracted 377 entries of tropical and coldwater fishes and plants. Judges (FBAS) were: Mr A. Blake, Mr R. Fox, Mr R. Forder (plants), Mr D. Lambourne, Mr W. Ryder and Mr J. Stillwell. The Society moved away from the traditional and presented diplomas together with perpetual trophies for the first-placed fish, and this proved very popular. Results of the 32 classes were: Ba: 1, Mr M. West (KDAS); 2, E. & T. Tester (Mid-Sussex); 3, Mr G. Owen (BKA). Bz: 1, Mrs J. Onslow; 2 & 3, Mr B. Sayers (Brighton). Ca: 1, Mr J. Hard (Haslemere); 2, Mr B. Sayers; 3, Mr M. West. Cc: 1, Mr M. West; 2, Mr S. Pope (Croydon); 3, E. & T. Tester. Da: 1, E. & T. Tester; 2 & 3, Mr H. J. Foxley-Brown (Roehampton). Db: 1, Mr J. Owen (BKA); 2, Mr W. F. Sutton (Catfish); 3, Mr K. Groves (Horsham). Dc: 1, 2 & 3, Mr R. Houghton (Brighton). Dd: 1, Mrs M. Nethersell (Riverside); 2, Mr B. Sayers; 3, Mr B. Smith (KDAS). Ea: 1 & 2, C. & J. Richards (Sudbury); 3, Mr R. Shirley. Ez: 1, Mr J. Hughes (Roehampton); 2, Mr B. Manning (Roehampton); 3, Miss K. Sayers (Brighton). F: Mrs G. Sandford; 2, Mrs J. Ellis (KDAS); 3, Mr G. Owen. G: 1 & 2, Mr W. Onslow (Ealing); 3, Mr W. F. Sutton (Catfish). H: 1, 2 & 3, Mrs M. Nethersell (Riverside). J: 1, Mrs M. Nethersell; 2, Mr C. Richards (Sudbury); 3, Mr J. Hughes (Roehampton). K: Mr C. McKay (Sudbury); 2, Mr L. Derrick (Croydon); 3, Mr E. Lough (KDAS). L: 1, Mr K. Groves (Horsham); 2, E. & T. Tester; 3, Mr M. Sandford. M: 1, Mrs Nethersell; 2, Mr L. Jones (Bracknell); 3, Mr C. Lucas (Sudbury). NB-M: 1, E. & T. Tester; 2, Mrs J. Ellis; 3, Mr C. Wood. NO-T: 1 & 2, Mrs J. Ellis; 3, Mr H. J. Foxley-Brown. O: 1, Mr L. Jones; 2, Mr C. Lucas; 3, E. & T. Tester. P: 1, 2 & 3, Mr G. Richards (Sudbury). R: 1, Mr A. Marshall (Basingstoke); 2, Mr P. Roff (KDAS); 3, Mr J. Randell (Haslemere). S: 1 & 3, E. & T. Tester; 2, Mr T. Lecuirot (Roehampton). T: 1, Mr K. Dryden (Croydon); 2 & 3, Mr N. Winford (Croydon). Ua: 1, 2 & 3, Mr F. Pinder. Ub: 1, Mr D. Herman (SPASS); 2, Mrs M. Dudley (SPASS); 3, Mr Pope (Croydon). V: 1, Mr H. Gardiner (Reigate & Radhill); 2, Mr H. Marshall (Basingstoke); 3, Mr J. Pollard (KDAS). W: 1, Mr J. Owen (BKA); 2, Mr B. Herman (SPASS); 3, Mr G. Owen (BKA). XB-M: 1, Mrs G. Sandford; 2, Mr K. Groves (Horsham); 3, Mr D. Lambert (KDAS). XG-T: 1, Mr C. McKay (Sudbury); 2, Mr B. Lough; 3, Mr D. Lambert (KDAS). XU-W: 1 & 2, Mr F. Pinder; 3, Mr G. Harding (SPASS). Za: 1, Mr J. Hughes (Roehampton); 2, Mrs M. Dudley; 1 & 2, Mr R. Shirley (Haslemere). Zc: 1 & 2, Mr J. Hughes; 3, Mr E. Lough. Zd: 1 & 2, Mr J. Hughes; 3, Mr E. Lough.

(Sudbury); 3, Mr R. Shirley. Ez: 1, Mr J. Hughes (Roehampton); 2, Mr B. Manning (Roehampton); 3, Miss K. Sayers (Brighton). F: Mrs G. Sandford; 2, Mrs J. Ellis (KDAS); 3, Mr G. Owen. G: 1 & 2, Mr W. Onslow (Ealing); 3, Mr W. F. Sutton (Catfish). H: 1, 2 & 3, Mrs M. Nethersell (Riverside). J: 1, Mrs M. Nethersell; 2, Mr C. Richards (Sudbury); 3, Mr J. Hughes (Roehampton). K: Mr C. McKay (Sudbury); 2, Mr L. Derrick (Croydon); 3, Mr E. Lough (KDAS). L: 1, Mr K. Groves (Horsham); 2, E. & T. Tester; 3, Mr M. Sandford. M: 1, Mrs Nethersell; 2, Mr L. Jones (Bracknell); 3, Mr C. Lucas (Sudbury). NB-M: 1, E. & T. Tester; 2, Mrs J. Ellis; 3, Mr C. Wood. NO-T: 1 & 2, Mrs J. Ellis; 3, Mr H. J. Foxley-Brown. O: 1, Mr L. Jones; 2, Mr C. Lucas; 3, E. & T. Tester. P: 1, 2 & 3, Mr G. Richards (Sudbury). R: 1, Mr A. Marshall (Basingstoke); 2, Mr P. Roff (KDAS); 3, Mr J. Randell (Haslemere). S: 1 & 3, E. & T. Tester; 2, Mr T. Lecuirot (Roehampton). T: 1, Mr K. Dryden (Croydon); 2 & 3, Mr N. Winford (Croydon). Ua: 1, 2 & 3, Mr F. Pinder. Ub: 1, Mr D. Herman (SPASS); 2, Mrs M. Dudley (SPASS); 3, Mr Pope (Croydon). V: 1, Mr H. Gardiner (Reigate & Radhill); 2, Mr H. Marshall (Basingstoke); 3, Mr J. Pollard (KDAS). W: 1, Mr J. Owen (BKA); 2, Mr B. Herman (SPASS); 3, Mr G. Owen (BKA). XB-M: 1, Mrs G. Sandford; 2, Mr K. Groves (Horsham); 3, Mr D. Lambert (KDAS). XG-T: 1, Mr C. McKay (Sudbury); 2, Mr B. Lough; 3, Mr D. Lambert (KDAS). XU-W: 1 & 2, Mr F. Pinder; 3, Mr G. Harding (SPASS). Za: 1, Mr J. Hughes (Roehampton); 2, Mrs M. Dudley; 1 & 2, Mr R. Shirley (Haslemere). Zc: 1 & 2, Mr J. Hughes; 3, Mr E. Lough. Zd: 1 & 2, Mr J. Hughes; 3, Mr E. Lough. BASINGSTOKE AS had an informative evening when Mr D. Allison of Hendon AS gave a slide show and talk on cichlids. The meeting was well attended and members were able to learn many things about this favourite species. The next meeting proved to be as enjoyable when the Society were entertained by the wit of Mr D. Mills of Ealing AS mixed well with many good tips in his talk on breeding fishes. During this same period members have shown fish in several open shows with a high degree of success; as well as the experienced members several of the newer members including Mr N. Savage, Mr T. Burvill and Mr B. Chapman have been gaining firsts. BRISTOL AS members recently enjoyed a most interesting and successful trip that included a visit to Mr J. Linale's fish house and to Tisbury's fish farm, and at the Society's May meeting a report of the visits was given to

The Breeders-Licebearers class of the FBAS Championship is being held at the HARLOW AQUARIST SOCIETY on 14th September at the Moot Hall, The Stone, Harlow, Essex. The schedule includes all the usual classes including class W for coldwater fish. Schedules from Mr Steve Jordan, 48 Whitewatts, Harlow, Essex: phone Harlow 20098.

the rest of the members. A short talk on metric measurements of volume was then given by Mr H. C. B. Thomas; this helped to clarify the measurements now used on many of the commercial disease cures, etc. Time was also allowed for a discussion on rearing fry, there being fry of 2 and 3 weeks of age on show. After the interval these fry were auctioned and there was a sale of plants.

THE Best Fish in Show at the

REIGATE & REDHILL AS Open Show was a Synodontis clarias exhibited by Mrs M. Nethersell (Riverside, Catfish Association). Rest of results as follows:

Ad: 1, Mr R. Paine (Haslemere); 2, Mr R. Hard (Haslemere); 3, Mr J. Bassall (Gosport). B: 1, Mr J. Hughes (Rochester); 2, Mr G. Gann (SKA); 3, E. B. T. Tester (Mid-Sussex). Bz: 1, Mrs P. Newbury (Gosport); 2 & 3, Mr J. Bellingham (Tonbridge). Ca: 1, Mr T. Burvil (Basingstoke); 2, Mr B. Nicholls (Mid-Kent); 3, Mr P. Dearing (Crawley). Cr: 1, Mr A. C. Rolfe (Horsham); 2, Mr K. S. Dooval (Havant); 3, E. B. T. Tester. D: 1, Mr B. Sayer (Brighton & Southern); 2, Mrs M. Nethersell; 3, Mr P. Brown (Littlington). Db: 1, Mrs P. Newbury; 2, Mr Feak (Brighton & Southern); 3, Mr B. Nicholls. Dc: 1, Mr Feak; 2, Mr D. Pope (Croydon); 3, Mr Groves. E: 1, Mr J. Hughes; 2, E. B. T. Tester; 3, Mr C. Saunders. Ea: 1, Mr S. Wills (Reigate & Redhill); 2, Mr T. Woolley (Surrey); 3, Mr D. Pope. E: 1, Mrs G. Sandford (Reigate & Redhill); 2, Mr R. Paine (Haslemere); 3, Mr J. H. Jackson (Basingstoke). G: 1, Mrs M. Nethersell; 2, Mr T. Woolley; 3, Mr B. Nicholls. H: 1 & 2, Mrs M. Nethersell; 2, Mr M. Rooney (Brighton & Southern); 3, 1, Mr A. Peart (Tonbridge); 2, Mr J. G. Marshall (Gosport); 3, Mrs P. Newbury. K: 1 & 2, Mrs I. Bellingham; 3, Mrs P. Newbury. L: FBAS Championship class: 1, Mr K. F. Grove (Horsham); 2, Mr K. Usher (Doncaster); 3, Mr A. C. Rolfe (Horsham). M: 1, Mr J. Brown (Croydon); 2, Mrs B. Lough (Kingston); 3, Mr T. Burvil (Basingstoke). NB-M: 1, Mr J. Brown; 2, Mr C. Brook (Indi); 3, Mrs J. Owen (BEA). ND-T: 1, Mrs P. Newbury; 2 & 3, Mr K. Usher.

O: 1 & 3, E. B. T. Tester; 2, Mr B. Mrs Nurse (Croydon). P: 1, Mr T. Woolley; 2, Mr J. Randall (Haslemere); 3, Mr A. Chaplin (Basingstoke). Q: 1, Mr B. Nicholls; 2, Mr K. Usher; 3, Mr T. Woolley. R: 1, Mr T. Woolley; 2, Mr J. H. Jackson; 3, Mr C. Lewis. S: 1, Mr K. S. Dooval; 2, Mr J. Woods; 3, Mr T. Stacey. T: 1 & 2, Mr K. Usher; 3, Mr K. Dryden. U: 1 & 2, Mr J. Randall; 3, Mr R. Hard (Haslemere). V: 1, Misses D. & S. Jackson (Basingstoke); 2, Mr & Mrs Pannell (Southern Ind). W: 1, Mr N. Winford (Croydon); 2, Mr E. Rinstead (Portsmouth); 3, Mr T. Woolley. XB-M: 1, Mrs P. Newbury; 2, Mr G. Brown; 3, Mr T. McKenna. XO-T: 1, 2 & 3, Mr K. Usher. Z: 1, Mr J. H. Jackson; 2, Mr T. Woolley; 3, Mr R. Shirley (Haslemere).

MEMBERS of SOUTH PARK AQUATIC (STUDY) SOCIETY would like to thank all those who visited their 5th annual invitation coldwater show. While the 114 fish were being judged by Mr J. Bandell, Mr G. King, Mr J. Linale and Mr J. Pollard, Mr E. Wyman gave a very informative talk illustrated with colour slides on his recent trip to Japan. Awards were kindly presented by one of the Society's founder members, Mrs J. Smith. Results were:

Voltail: 1, Mr W. G. Cook; 2, Mr B. Cook; 3, Mr T. Longstaff. Bristol-

type shubunkin: 1 & 2, Miss C. Morris; 3, Mr W. Leach. Cross-water: 1, Mrs M. Dudley. Branchhead: 1, Miss D. Morris; 2 & 3, Mr T. Litty staff. Bubble-eye: 1 & 2, Mr D. Semour. Parrotale: 1, Mr M. D. Chase; 2, Mr R. Smith; 3, Mrs M. Dudley. Common goldfish: 1, Mrs M. Dudley; 2, Mr F. Pinder; 3, Mr T. Longstaff. London shubunkin: 1 & 2, Mrs F. Whitington; 3, Mr W. Leach. Orange: 1, Mr J. Pinder; 2, Mr E. Birkhead. Broadtail roost: 1 & 2, Mr D. Longland. Fawn: 1, Mr J. A. Pollard; 2, Mr G. Herring; 3, Mr D. Seymour. Comet: 1, Mr V. B. Hunt; 2, Mrs M. Dudley; 3, Mr T. Longstaff.

Golden breeders: 1 & 2, Mr T. Longstaff; 2, Mr G. Herring. Nemo B Foreign: 1, Mr V. B. Hunt (Croydon); 2, Mr E. Birkhead (Bitterling); 3, Mr R. L. Trim (Golden rudd). Centrarchidae: 1, Mr E. Rinstead; 2, Mr T. Longstaff; 3, Mrs M. Dudley. Koi: 1, Mr D. Harman; 2, Mr S. Henman; 3, Mr R. Harman.

Trophies for Best Basic Variety Goldfish and Best Fish in Show were awarded to Mr W. G. Cook for his voltail.

SALISBURY & DAS held their 11th annual Open Show in June this year in the City Hall, Salisbury. Although a large number of other shows were staged that weekend, 16 Societies exhibited. The Best in Show award went to the P. variatus exhibited by Mr R. Onslow and the FBAS Cham-

Yorkshire Association's Plans

Secretary of THE YORKSHIRE ASSOCIATION OF AQUARISTS SOCIETIES, Mr W. D. Gilding, writes: "The YORKSHIRE ASSOCIATION OF AQUARISTS SOCIETIES are this year holding their first Yorkshire Festival on a national scale. Since the Association changed its name to allow Societies out of Yorkshire to become affiliated, it has trebled in size. Regular monthly meetings are held alternately for management and delegates, permitting a very close liaison with Society members. Yorkshire also has its own panel of judges. Their Judges and Standards Committee meet every month, besides regular meetings with other Federation Judges within the Confederation of United Kingdom Aquarists. They also run a judges training scheme, which every judge has to take part in,

the idea being to raise the standard of judging to the highest possible degree. With things moving so fast these days, it is almost a job to keep one's head above water, although with the increasing interest in the Yorkshire Association it would seem that they are definitely moving in the right direction. We do not often hear of Yorkshire in the news. I think this is possibly due to the organisation, which keeps all their members up to date with regular articles of news concerning the Association. The amount of time involved by the people in office is almost endless. I know for a fact that some of them are out almost every night of the week. Being so keen in this way proves only one thing. That is—the determination to succeed or at least try and please everyone concerned".

manship award for Class Ya, tropical marines, went to Mr L. A. Wilkins.

Results were: Add: 1. Mrs L. Durrant; 2. Mr A. Chaplin; 3. Mr T. L. Woolley; 4. Mr R. F. Adams; 5. Mr T. L. Woolley; 6. Mr R. Durrant; 7. Mr T. L. Woolley; 8. Mr R. F. Adams; 9. Mr T. L. Woolley; 10. Mr R. Durrant; 11. Mr T. L. Woolley; 12. Mr R. F. Adams; 13. Mr T. L. Woolley; 14. Mr R. Durrant; 15. Mr T. L. Woolley; 16. Mr R. F. Adams; 17. Mr T. L. Woolley; 18. Mr R. Durrant; 19. Mr T. L. Woolley; 20. Mr R. F. Adams; 21. Mr T. L. Woolley; 22. Mr R. Durrant; 23. Mr T. L. Woolley; 24. Mr R. F. Adams; 25. Mr T. L. Woolley; 26. Mr R. Durrant; 27. Mr T. L. Woolley; 28. Mr R. F. Adams; 29. Mr T. L. Woolley; 30. Mr R. Durrant; 31. Mr T. L. Woolley; 32. Mr R. F. Adams; 33. Mr T. L. Woolley; 34. Mr R. Durrant; 35. Mr T. L. Woolley; 36. Mr R. F. Adams; 37. Mr T. L. Woolley; 38. Mr R. Durrant; 39. Mr T. L. Woolley; 40. Mr R. F. Adams; 41. Mr T. L. Woolley; 42. Mr R. Durrant; 43. Mr T. L. Woolley; 44. Mr R. F. Adams; 45. Mr T. L. Woolley; 46. Mr R. Durrant; 47. Mr T. L. Woolley; 48. Mr R. F. Adams; 49. Mr T. L. Woolley; 50. Mr R. Durrant; 51. Mr T. L. Woolley; 52. Mr R. F. Adams; 53. Mr T. L. Woolley; 54. Mr R. Durrant; 55. Mr T. L. Woolley; 56. Mr R. F. Adams; 57. Mr T. L. Woolley; 58. Mr R. Durrant; 59. Mr T. L. Woolley; 60. Mr R. F. Adams; 61. Mr T. L. Woolley; 62. Mr R. Durrant; 63. Mr T. L. Woolley; 64. Mr R. F. Adams; 65. Mr T. L. Woolley; 66. Mr R. Durrant; 67. Mr T. L. Woolley; 68. Mr R. F. Adams; 69. Mr T. L. Woolley; 70. Mr R. Durrant; 71. Mr T. L. Woolley; 72. Mr R. F. Adams; 73. Mr T. L. Woolley; 74. Mr R. Durrant; 75. Mr T. L. Woolley; 76. Mr R. F. Adams; 77. Mr T. L. Woolley; 78. Mr R. Durrant; 79. Mr T. L. Woolley; 80. Mr R. F. Adams; 81. Mr T. L. Woolley; 82. Mr R. Durrant; 83. Mr T. L. Woolley; 84. Mr R. F. Adams; 85. Mr T. L. Woolley; 86. Mr R. Durrant; 87. Mr T. L. Woolley; 88. Mr R. F. Adams; 89. Mr T. L. Woolley; 90. Mr R. Durrant; 91. Mr T. L. Woolley; 92. Mr R. F. Adams; 93. Mr T. L. Woolley; 94. Mr R. Durrant; 95. Mr T. L. Woolley; 96. Mr R. F. Adams; 97. Mr T. L. Woolley; 98. Mr R. Durrant; 99. Mr T. L. Woolley; 100. Mr R. F. Adams.

Mr P. J. Jackson; 4. Mr T. L. Woolley; 5. Mr T. L. Woolley; 6. Mr T. L. Woolley; 7. Mr T. L. Woolley; 8. Mr T. L. Woolley; 9. Mr T. L. Woolley; 10. Mr T. L. Woolley; 11. Mr T. L. Woolley; 12. Mr T. L. Woolley; 13. Mr T. L. Woolley; 14. Mr T. L. Woolley; 15. Mr T. L. Woolley; 16. Mr T. L. Woolley; 17. Mr T. L. Woolley; 18. Mr T. L. Woolley; 19. Mr T. L. Woolley; 20. Mr T. L. Woolley; 21. Mr T. L. Woolley; 22. Mr T. L. Woolley; 23. Mr T. L. Woolley; 24. Mr T. L. Woolley; 25. Mr T. L. Woolley; 26. Mr T. L. Woolley; 27. Mr T. L. Woolley; 28. Mr T. L. Woolley; 29. Mr T. L. Woolley; 30. Mr T. L. Woolley; 31. Mr T. L. Woolley; 32. Mr T. L. Woolley; 33. Mr T. L. Woolley; 34. Mr T. L. Woolley; 35. Mr T. L. Woolley; 36. Mr T. L. Woolley; 37. Mr T. L. Woolley; 38. Mr T. L. Woolley; 39. Mr T. L. Woolley; 40. Mr T. L. Woolley; 41. Mr T. L. Woolley; 42. Mr T. L. Woolley; 43. Mr T. L. Woolley; 44. Mr T. L. Woolley; 45. Mr T. L. Woolley; 46. Mr T. L. Woolley; 47. Mr T. L. Woolley; 48. Mr T. L. Woolley; 49. Mr T. L. Woolley; 50. Mr T. L. Woolley; 51. Mr T. L. Woolley; 52. Mr T. L. Woolley; 53. Mr T. L. Woolley; 54. Mr T. L. Woolley; 55. Mr T. L. Woolley; 56. Mr T. L. Woolley; 57. Mr T. L. Woolley; 58. Mr T. L. Woolley; 59. Mr T. L. Woolley; 60. Mr T. L. Woolley; 61. Mr T. L. Woolley; 62. Mr T. L. Woolley; 63. Mr T. L. Woolley; 64. Mr T. L. Woolley; 65. Mr T. L. Woolley; 66. Mr T. L. Woolley; 67. Mr T. L. Woolley; 68. Mr T. L. Woolley; 69. Mr T. L. Woolley; 70. Mr T. L. Woolley; 71. Mr T. L. Woolley; 72. Mr T. L. Woolley; 73. Mr T. L. Woolley; 74. Mr T. L. Woolley; 75. Mr T. L. Woolley; 76. Mr T. L. Woolley; 77. Mr T. L. Woolley; 78. Mr T. L. Woolley; 79. Mr T. L. Woolley; 80. Mr T. L. Woolley; 81. Mr T. L. Woolley; 82. Mr T. L. Woolley; 83. Mr T. L. Woolley; 84. Mr T. L. Woolley; 85. Mr T. L. Woolley; 86. Mr T. L. Woolley; 87. Mr T. L. Woolley; 88. Mr T. L. Woolley; 89. Mr T. L. Woolley; 90. Mr T. L. Woolley; 91. Mr T. L. Woolley; 92. Mr T. L. Woolley; 93. Mr T. L. Woolley; 94. Mr T. L. Woolley; 95. Mr T. L. Woolley; 96. Mr T. L. Woolley; 97. Mr T. L. Woolley; 98. Mr T. L. Woolley; 99. Mr T. L. Woolley; 100. Mr T. L. Woolley.

Mr T. L. Woolley; 4. Mr R. S. Gibbs; 5. Mr R. S. Gibbs; 6. Mr R. S. Gibbs; 7. Mr R. S. Gibbs; 8. Mr R. S. Gibbs; 9. Mr R. S. Gibbs; 10. Mr R. S. Gibbs; 11. Mr R. S. Gibbs; 12. Mr R. S. Gibbs; 13. Mr R. S. Gibbs; 14. Mr R. S. Gibbs; 15. Mr R. S. Gibbs; 16. Mr R. S. Gibbs; 17. Mr R. S. Gibbs; 18. Mr R. S. Gibbs; 19. Mr R. S. Gibbs; 20. Mr R. S. Gibbs; 21. Mr R. S. Gibbs; 22. Mr R. S. Gibbs; 23. Mr R. S. Gibbs; 24. Mr R. S. Gibbs; 25. Mr R. S. Gibbs; 26. Mr R. S. Gibbs; 27. Mr R. S. Gibbs; 28. Mr R. S. Gibbs; 29. Mr R. S. Gibbs; 30. Mr R. S. Gibbs; 31. Mr R. S. Gibbs; 32. Mr R. S. Gibbs; 33. Mr R. S. Gibbs; 34. Mr R. S. Gibbs; 35. Mr R. S. Gibbs; 36. Mr R. S. Gibbs; 37. Mr R. S. Gibbs; 38. Mr R. S. Gibbs; 39. Mr R. S. Gibbs; 40. Mr R. S. Gibbs; 41. Mr R. S. Gibbs; 42. Mr R. S. Gibbs; 43. Mr R. S. Gibbs; 44. Mr R. S. Gibbs; 45. Mr R. S. Gibbs; 46. Mr R. S. Gibbs; 47. Mr R. S. Gibbs; 48. Mr R. S. Gibbs; 49. Mr R. S. Gibbs; 50. Mr R. S. Gibbs; 51. Mr R. S. Gibbs; 52. Mr R. S. Gibbs; 53. Mr R. S. Gibbs; 54. Mr R. S. Gibbs; 55. Mr R. S. Gibbs; 56. Mr R. S. Gibbs; 57. Mr R. S. Gibbs; 58. Mr R. S. Gibbs; 59. Mr R. S. Gibbs; 60. Mr R. S. Gibbs; 61. Mr R. S. Gibbs; 62. Mr R. S. Gibbs; 63. Mr R. S. Gibbs; 64. Mr R. S. Gibbs; 65. Mr R. S. Gibbs; 66. Mr R. S. Gibbs; 67. Mr R. S. Gibbs; 68. Mr R. S. Gibbs; 69. Mr R. S. Gibbs; 70. Mr R. S. Gibbs; 71. Mr R. S. Gibbs; 72. Mr R. S. Gibbs; 73. Mr R. S. Gibbs; 74. Mr R. S. Gibbs; 75. Mr R. S. Gibbs; 76. Mr R. S. Gibbs; 77. Mr R. S. Gibbs; 78. Mr R. S. Gibbs; 79. Mr R. S. Gibbs; 80. Mr R. S. Gibbs; 81. Mr R. S. Gibbs; 82. Mr R. S. Gibbs; 83. Mr R. S. Gibbs; 84. Mr R. S. Gibbs; 85. Mr R. S. Gibbs; 86. Mr R. S. Gibbs; 87. Mr R. S. Gibbs; 88. Mr R. S. Gibbs; 89. Mr R. S. Gibbs; 90. Mr R. S. Gibbs; 91. Mr R. S. Gibbs; 92. Mr R. S. Gibbs; 93. Mr R. S. Gibbs; 94. Mr R. S. Gibbs; 95. Mr R. S. Gibbs; 96. Mr R. S. Gibbs; 97. Mr R. S. Gibbs; 98. Mr R. S. Gibbs; 99. Mr R. S. Gibbs; 100. Mr R. S. Gibbs.

In Brief...

A NEW Society has been formed in Jersey—the **JERSEY AQUARIST CLUB**. Several open meetings have been held with attendances of about 45 people, 30 of whom are members—which number is expected to double within the next few months. Meetings are held on the last Wednesday of the month. Secretary is Mrs P. Durrant, 24 Devonshire Place, St Helier, Jersey (phone Central 35966) and visiting aquarists are most welcome to attend meetings. Contact with mainland aquarium societies is also sought with a view to exchanging newsletters, etc.

A LECTURE on fish showing by Mr M. Strange of Basingstoke was much enjoyed by members of **MID-SUSSEX AS**. Mr C. Corbin and Mr J. Burtles judged the monthly table show; class winners were: F, Mr P. Dearing; novice, Mr P. Dearing; L, Mr D. Istead; Lz, Mr A. Eaffe; junior, A. Roffe; T, Mr A. Holmes; junior, D. Isted; novice, E. Stamper. W, Mr D. Istead. Visitors are welcome to attend meetings at the Fox and Hounds, Haywards Heath, Secretary, Mr B. Slade, Sandown, Bolney Road, Sandoye (Haywards Heath 33747) will give further information.

... **MR Cyril West (FBAS)** judged the **BRIGHTON & SOUTHERN AS** table show in July. Class winners were: killies: Mr B. Sayer (75 points, *Cym. nigripinnis*); Labyrinths: Mr G. Clarke (75, honey gourami); Corydoras: Mr & Mrs Rooney (80, *C. melanostius*). Miss K. Sayers won in the plants class. Members of the Society have been saddened to hear of the death of fellow member Mr A. Riley.

... **THE July table show at WEYMOUTH AS** resulted in complete success for Mr J. Hodder who won first, second, third and fourth places in the coldwater class. Members were entertained by a showing of Mr R. Esson's 'Non-U Goldfish' FBAS slide/tape lecture and report it well worth seeing.

... **THE home team won the KILLINGWORTH leg** of the 4-way inter-club show with 92 points (2, S. Shields, 75; 3, Bimbi, 57). The best fish in show award went to Mr & Mrs D. Renton (Killingworth, flying fox, 80 points). The next leg will be held at S. Shields.

... **THE LIMERICK AQUATIC CLUB** (incorrectly named in our March issue Quinnaville AS) have held a most interesting competition for the Best Aquarium in Limerick. The three appointed judges went from house to house judging the 38 tanks in the homes of competitors. The winner, Mr Amby O'Flaherty of Weston, Limerick, received the Dan Ryan Perpetual Cup and also a trophy.

... **PLEASE** note alteration to date of **HOYLAKE AS** Open Show. It has been necessary to change the date to the 14th September from the preceding week.

... **SUFFOLK A & PA** have recently completely revised the Association rules. After completing this major task the members settled down to listen to a most interesting lecture by the president, Mr W. G. H. Card, on heaters and thermostats new to, or soon to appear on, the market.

... **A TALK** by Mr T. Collier on breeding angels has given the 25 members of **BISHOPS CLEEVE AS** present a great deal of helpful information.

... **GREAT YARMOUTH & DAS** think they may be one of the first societies to benefit directly from the EEC. Editor of the club magazine, Mr R. Andrews, has been conducting research into white spot. This has involved consulting an eminent scientist working for the EEC in Luxembourg who has helpfully supplied laboratory reports and findings from his own experiments. Mr Andrews' lecture to the Society has, he hopes, finally settled many club debates on the subject and a number of 'old wives' tales'.

... **A TALK** on anabantids by Mr D. Bennet was given to 26 society members of **COVENTRY P & AS**. At this meeting, Mr Ted Sheehy, former club chairman, was presented with an oil painting in appreciation of his work on the Society's behalf.

Dates for Your Diary

6th September. **FBAS** General Assembly, 2.30 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

7th September. **BETHNAL GREEN AS** Open Show, Bethnal Green Institute, 229 Bethnal Green Road, London, E.2. Schedules: Mrs S. Hedges, Kai Korner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL; phone 01-590 3239.

7th September. **BUXTON & DAS** Open Show, Pavilion Gardens, Buxton, Banishing noon-2.0 p.m. Details: Mr E. T. Blount, 18 Elizabeth Avenue, Fairfield, Buxton, Derby, SK17 7RS.

7th September. **KILLINGWORTH AA** Open Show, 'Communicare', Killingworth Township, Schedules: Mr D. Hickman, 14 Crumstone Court, Londreadows, Killingworth, Newcastle, NE12 0SZ.

7th September. **WELLINGBOROUGH & DAS** Open Show, Weavers Road Sports Centre, Weavers Road, Wellingborough, Northants. Show schedules: Mr D. Boucher, 1a George Street, Wellingborough, Northants.

7th September. **BISHOPS CLEEVE AS** Open Show, The Community Centre, Brooklyn Road, St Mark's, Chesham, Gloucester. Schedules: Mrs J. Bishop, 36 Clarence Square, Chesham, Glos.

13th September. **BRISTOL AS** Cold water Open Show, Schedules: Mr E. N. Bowden, 12 Stoneleigh Walk, Knowle, Bristol BS4 2RL; phone 775365.

14th September. **HARLOW AS** Open Show, Moot Hall, The Stow, Harlow, Essex. Schedules: Mr S. Jordan, 48 Whitelands, Harlow (phone: Harlow 20008).

14th September. **HOYLAKE AS** Open Show, YMCA, Market Street, Hoylake, Merseyside. Schedules: Mr D. W. Morris, 9 Pump Lane, Greasby, Wirral, Merseyside, L49 3PW.

14th September. **CLEVELAND AS** Open Show, Church Hall, Whitby Road, Gainsborough, Cleveland. Details: Mr. S. Welford, 60 West Road, Loftus, Saltburn, Cleveland.

14th September. **21st THREE COUNTIES GROUP** Open Show (to be run by Basingstoke AS, Bracknell AS, Didcot AS, High Wycombe AS and Reading AS), Reading University, 52 classes including special 8-class

little section. Details: Mr M. Strange, 10 Laddon Court, Neville Close, Basingstoke, RG21 3JL; phone Basingstoke 87039.

14th September. **TORBAY AS** Open Show, Torquay Town Hall, Details: Mr J. R. Davis, 43 Haldon Road, Torquay, Devon.

20th-21st September. **DUBLIN AQUA SHOW** The Debate Hall, Inchicore, Dublin 8. Schedules: Mr M. Cassidy, 258 The Donaghies, Grange Road, Raheny, Dublin 6.

21st September. **ZENITH AS** first Open Show, Firmigans Hall, Easton, Cleveland. Banishing 12.00 p.m. Schedules: Mr C. Cox, 10 Snowdon Crescent, Redcar, Cleveland (Redcar 71636).

21st September. **CHESTERFIELD & DAS** Open Show, Clay Cross Social Centre, Chesterfield Road, Clay Cross, nr Chesterfield, Derbyshire. Details: Mr P. Morton, 56 Salisbury Crescent, Newbold, Chesterfield.

21st September. **HUCKNALL & BULLWELL AS** Open Show, Details: Mr J. R. Westcott, 9 Royce Avenue, Westville, Hucknall, Notts.

27th September. **GOLDFISH SOCIETY OF GREAT BRITAIN** Open Show, Sutton Adult School, Benhill Avenue, Sutton, Surrey. Schedules: Mrs M. Dudley, 163 South Park Road, Wimbledon, London, SW19 8RX.

28th September. **SOUTH LEEDS AS** Open Show, The Coen Exchange, Leeds. Schedules: Mr T. Aitwick, 37 Southcroft Gardens, Leeds 10.

28th September. **NEWBURY & DAS** Open Show, The Plaza, Market Place, Newbury, Berks. Schedules: Mr S. Carridge, 8 South End, Thatcham, Newbury.

28th September. **NORTHAMPTON & DAS** Open Show, The Drill Hall, Clare Street, Northampton. Schedules: Mrs D. Taylor, 25 Rawley Crescent, New Duston, Northampton, NN5 8PU.

4th October. **BRITISH AQUARIST STUDY SOCIETY AGM & Conference**, Zoological Society Headquarters, Regent's Park, London, 2.15 p.m. Symposium on Livebearing Toothcarps. Tickets (£1.25) from Mr A. F. Keens, Hightlife, Old Hill, Woking, Surrey.

4th October. **EAST LONDON AQUATIC & FONDKEEPERS** Open Breeders Show, Schedules: Mr M. Pearson, 42 Peckway, Ilford.

6th October. **SCUNTHORPE & DAS** Open Show, Details: Mr L. Burr, 6 Selsby Road, Scunthorpe, S. Humberside.

11th-12th October. **BRITISH AQUARISTS' FESTIVAL**, Belle Vue, Manchester.

12th October. **VAUXHALL MOTORS AC** Open Show, Schedules: Mr A. D. Parrot, 15 Hollybush Road, Luton.

19th October. **CHELMSFORD AS** Open Show, Spoonfield Community Centre, Chelmsford. Schedules: Mr J. R. Fountain, 10 Brograve Close, Gallywood, Chelmsford, Essex.

THE BRITISH AQUARIST STUDY SOCIETY is holding its Annual General Meeting and Conference on 4th October at the Zoological Society of London Headquarters, Regent's Park. The afternoon conference starts at 2.15 p.m., when a symposium will be held on the livebearing toothcarps. Main speaker is Mr James Chambers of the British Museum (Natural History). Tickets at £1.25 each (including tea) are available from Mr A. F. Keens, Hightlife, Old Hill, Woking, Surrey.

19th October. **BRITISH CICHLID ASSOCIATION AGM**, The Bay Hotel, Seaborn, Sunderland, 2.00 p.m. Details: Mr I. Sellick, 280 Northridge Way, Hamel Hemstead, Herts, HP1 2AU.

24th-26th October. **THE AQUARIUM SHOW '78** at the Royal Horticultural Society's Old Hall, Vincent Square, London SW1. Presented by the Federation of British Aquatic Societies. Aquarium society fishkeeping exhibits invited. Details from the organizer, PFM, 554 Garratt Lane, London SW17 0NY; phone 01-947 2805.

26th October. **BKKS AGM**, RHS Hall, Vincent Square, London, SW1.

28th October. **DONCASTER & DAS** Open Show, Spondsworth Miners Welfare Hall, Wellfax Road, Woodlands, nr. Doncaster. Schedules: Mr A. Fessey, 20 Hills Close, Southborough, Doncaster, DN5 7NW, South Yorks.

2nd November. **BLACKBURN AQUARIST WATERLIFE SOCIETY** Open Show, Windsor Hall, Blackburn. Details: Mr T. Burton, 21 Henry Street, Rishton, nr. Blackburn, BB1 4JJ.

9th November. **GLOSSOP AS** Open Show, Adult Education Centre, Talbot Street, Glossop, Derbyshire. Details: Mr S. Turner, 58 Arundel Street, Glossop; phone Glossop 4409.

9th November. **HALIFAX AS** Open Show, Forest Cottage Community Centre, Caulin Lane, Gillingworth, Halifax. Schedules: Mr D. Shields, Cobblestones, Gairist, King Cross, Halifax; phone Halifax 80718.

16th November. **BRADFORD & DAS** Open Show, East Bowling Unity Club, Leicowater Street, Bradford 4. Schedules: Mr D. Suggen, 18 Southwans Crescent, Great Horton, Bradford 7.

22nd Nov. **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

22nd November. **FUR, FEATHER & AQUARIA SHOW**, King's Hall, 39 Lower Clapton Road, London, E.5. Schedules: Mrs S. Hedges, Kai Korner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL; phone 01-590 3239.

30th November. **HORSFORTH AS** Open Show, New Civic Hall, Bradford Road, Stanningley, nr. Pudsey, Yorks. Details: Mr C. Cams, 15 Thornleigh Grove, Leeds, LS9 8GR.

6th December. **FBAS** Annual General Meeting, 2.30 p.m., Conway Hall, Red Lion Square, Holborn, London, WC1.

Meetings and Changes of Officers

GOSPORT & DAS, Chairman, Mr O. Haines; treasurer, Mrs P. Turner; show manager, Mr I. Clarke; secretary, Mr D. J. Turner (60 Ocean Close, Sow Estate, Fareham, Hants.); show secretary, Mrs K. Clark (36 Cambridge

Road, Lee-on-Solent, Hants.); **ROEHAMPTON AS**, New show secretary, Mr. T. La Cuisse, 261 Clarence Lane, Roehampton, London, SW15 5PZ.

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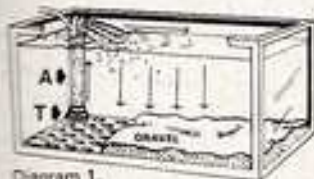


Diagram 1.

How it works

The CV Filter purifies the aquarium water using the natural biological ability of the gravel or coral sand. The filter is therefore designed to make the water circulate through the gravel. When air is pumped into air release turret T the bubbles cause water in the airlift tube A to rise so that the aquarium water will circulate through the gravel. (See diagram 1.)



Details of special Filtration Column

Diagram 2.

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Diagram 3.

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It is possible to extend the filters (or make them smaller) by cutting along the lines of columns either to join to further plates or to reduce the size of the existing plate. (Diagrams 4a to 4c.)



Diagram 4a.



Diagram 4b.



Diagram 4c.

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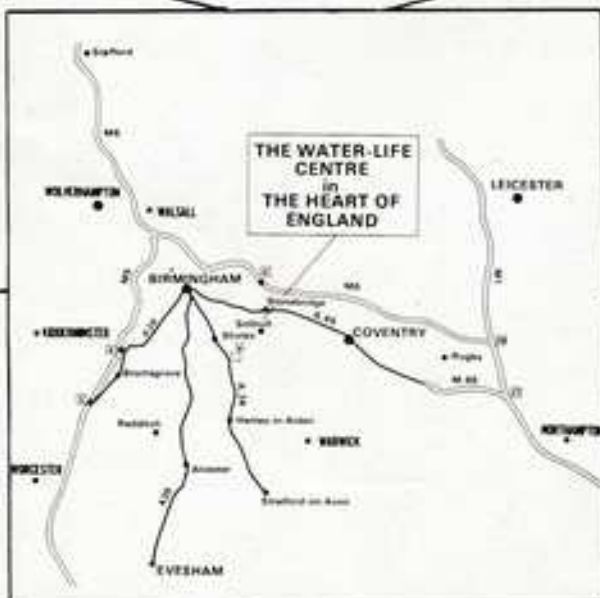
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