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PetFish

Monthly 2s 6d

Vol. 3 No. 10

January, 1969

Subscription rates: £1 15s for 12 issues; 17s 6d for 6 issues (U.S.A. and Canada \$5.00)

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PetFish Publications

Editorial and Advertising Offices

554 Garratt Lane,
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Comments and Quotes

- Some unusual male fish aid research
- Plants or weeds?

'Supermale' Fish

A WHOLE new breed of 'supermale' killifish is being produced in a laboratory in the Downstate Medical School in Brooklyn, New York. These fish have highly developed competitive tendencies that make them more often the winners when in competition with ordinary male killifish for females.

Hundreds of killifish are being used by Dr James B. Hamilton, head of the Anatomy Department, in his research on chromosomal make-up in man. Chromosomes are the small bodies in living matter concerned with the storage and passing on of inherited characteristics. In humans, 46 is the normal complement of chromosomes in practically every cell; two alone of these determine our sex. Both chromosomes in females are X; males have one X and one Y. But about one man in 500 has an extra Y chromosome, giving XYY, and recent discoveries have revealed that a significant proportion of the criminally insane have this extra male chromosome.

It was reported in THE SUNDAY TIMES that Dr Hamilton's supermale killifish are yet one more step from normality, having a YY only chromosomal make-up. They are produced as the offspring of normal XY male killifish that have been so heavily dosed with female sex hormones that they become female, physiologically and anatomically, and can breed with normal males. Some of the offspring of such dosed killies are YY males. Placed in tanks with an ordinary

male and female killifish, these supermales do much more chasing and lunging at the ordinary male than he does to them and are usually the victors when competing for the females.

However, before killifish enthusiasts start dreaming of more and better broods of young, one word of warning. The life expectancy of the human male is normally lower than that of the female and it is suspected that the Y chromosome may be involved in some way. YY male killifish may therefore have a very short life expectancy indeed.

Stop Those Plants!

NOT everyone looks at water plants with the same loving eyes as aquarists. Water plants can choke ditches and other waterways with their prolific growth and so it is inevitable that they should be called 'aquatic weeds' by those to whom the plants are a nuisance. Thus THE CONTROL OF AQUATIC WEEDS is an HMSO publication recently published for the guidance of waterweeders. Among the methods of chemical control of water plants that are discussed in the booklet is the use of the substance maleic anhydride; this puts the brakes on growth of water plants without actually killing them. Fortunately the whole emphasis of management of waterways is on control rather than eradication of water plants; the horrors of lifeless, smelly waters seem at last to be fully recognised.

Since, it has been reported in

NATURE, Britain spends something like 2½ million pounds a year clearing the 'weeds' from inland waterways, all possible methods of control have to be examined. One of the more interesting methods is the possibility of using the vegetarian inclinations

of the grass carp, a Chinese fish that is being used as a food fish in Asia and central Europe. The Ministry of Agriculture has had experiments with these fish going in Britain since 1964. It is not known whether they will breed in this country but they

certainly grow! Young grass carp have been imported from Hungary and in one pond 37 pounds of these youngsters increased in weight to 381 pounds in 20 weeks. In that time they also consumed 7½ tons of water plants!

PET FISH MONTHLY

LETTERS

Monodactylus Survey

EARLY in the new year a study of *Monodactylus sebae* is going to be undertaken at this Study Centre. Only these fish (not the Malayan angel) will be dealt with. Therefore it would be of great help if any readers would give answers to the following questions and send them to me. It is only necessary to put the question number before the answer. Any further correspondence will receive a prepaid reply envelope. Even if this fish has only lived a very short time an answer to any of these questions could be helpful.

- A. Was the fish in a quiet secluded situation, or living room?
1. Was the water salt, brackish or fresh?
2. How many of these fish were there?
3. How many of any other fish were there?
4. Was it more than 2 inches vertically?
5. Was it brown, silver or white between the vertical black lines?
6. Was it brown, reddish brown or silver near its upper and lower tabs?
7. Did it tend to keep its leading edges bent back, straight, variable?
8. Were the black lines clearly defined, ragged, faint, variable?
9. Was the mouth dull brown, dull white, white?
10. Was the stomach normally well-filled, in line with the body, thin?
11. Was the tank less than 24 in. by 12 in. by 12 in.?
12. Was the tank well planted, sparsely planted, no living plants?
13. Was the tank set up with rocks and plants?
14. Was the tank always well lit, poorly lit, occasionally well lit?
15. Was the water temperature maintained at 64-70°, 70-75°, 75-80°F?
16. Was the pH known?
17. Was the DH known?
18. Was the water still, moving, constant or regular water change?
19. Was a filter used?
20. Was ordinary gravel used?
21. Did the *M. sebae* remain in one part of the tank?
22. Did it prefer a position among rocks, plants, open area?
23. Did it chase other species of fish?
24. Was there an Amazon sword or other broad-leaved plant in the tank?
25. Were there rocks for the fish to hide behind?
26. How long did it live? If more than one, try to answer all these questions for each *sebae*.
27. Did it appear to do well at first, then stop eating?
28. At what time of the year was it received?
29. If it lived for more than 6 months, were there any seasonal tendencies?
30. What was your reason for wanting to keep this fish?

There are other factors which will be taken into account, but they will follow on from these. The results will eventually become available to any society, when success has been achieved. Either a film, slides or a lecture, depending on response, can be assured. Also depending on response, further research will be made available in the same way. If there are any ichthyologists or other interested bodies studying along similar lines, I feel sure that much could be gained if contact could be made through PETFISH MONTHLY.

Werneth Park Study Centre,
Frederick Street, Oldham, Lancs.

D. PRATER

Weight it Down!

MAY I just add a word of warning to the information given in the article on *Clarias* (PFM, November)? The author does state 'Aquaria must be covered, for at

Continued on page 413



'I like a bit of rockwork around the tank but this is ridiculous'



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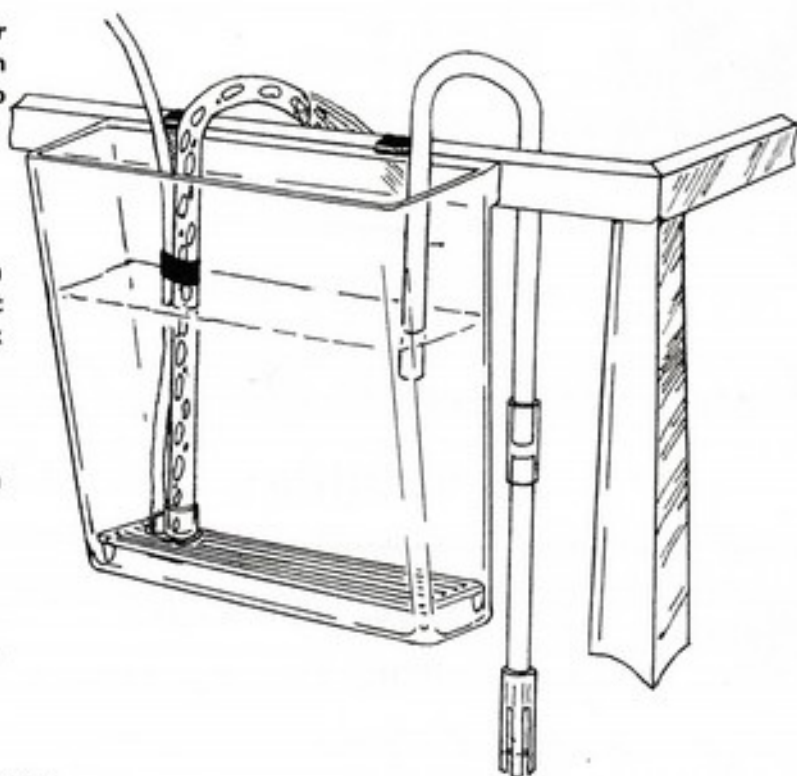
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LETTERS

Small Tanks

Continued from page 410

might the fish will seek a way out', but I think anyone who has kept one of these fish will agree that the tank must not only be covered but that the cover must be weighted. I have had an albino *Clarias* escape from a tank covered only with light-weight glass. I am afraid his disappearance was not noticed at once and by the time he was found he was well dried out. The upset to the family at his loss was such that there is no chance of his successor suffering a similar fate.

Ospington, Kent

J. WEBSTER

At last we can stop feeling like outcasts! Some-one has written in favour of small tanks ('Tom Thumb Tanks', PFM, October)! Quite honestly we would get a larger tank if we had the room, but we live in a small flat and keep a small tank of tropical fishes on a shelf. In fact, our tank is only 16 in. by 8 in. by 8 in. but it looks very attractive with plants and neons, glowlights and harlequins. It's just that people always seem to be so amazed that we could have such a small tank and their attitude is one that makes us feel quite guilty. It was quite difficult to persuade the shop to sell us the equipment to set the tank up as a tropical one and dire disasters were predicted. I think if there wasn't so much emphasis on the bigger tank, with all its extra cost, more people might start the hobby and buy better and larger equipment later.

Westgate, Kent

A. BURROWS

Most Points—Best Fish ?

A question often asked, with a reply from the F.B.A.S. Judges and Standards Committee

SOME little time ago, as editor of our Society's monthly news letter, I received the following letter from a correspondent:

'I think the system of judging the best fish in the show leaves very much to be desired. Surely a fish that has more points than another must be reckoned to be a better fish. Therefore the fish with the highest number of points must be the best fish. In the event of more than one fish having the same number of points, only then would the judges have to get together and decide which is best.'

Having been involved in discussions on this subject many times in the past, I decided to pass this letter to the Judges and Standards Committee of the Federation of British Aquatic Societies, and received the following reply from the well-known judge, Mr C. A. T. Brown, who is also secretary to the J. & S. Committee.

'With regard to the letter "Best fish in the Show" I might agree with your correspondent that the highest pointed fish should be the best fish in show on one condition—this being that one person only judges all the fish. Unfortunately all judges do not judge at the same strength; some point somewhat higher than the average and others lower. While I would agree that the ideal would be for all judges to point the same, they are only human and therefore individualistic, so it follows that where two or more judges are employed there must be some form of discussion between them.

'The method currently in use by the judges is as follows: the fish that obtained first awards are

scrutinised and each judge puts forward the fish that he feels is the best; where there is a majority for a particular fish this becomes the 'Best Fish'. If a number of fish are put forward then further appraisal of these fish would take place, until there was agreement by the judges. In the event that a decision is difficult to make, many factors may be taken into account, such as—is the fish difficult to keep, or is it difficult to get to the show bench without damage? Also, are the fish in question cultivated or wild?—because the more sophisticated cultivated fish has to measure up to a standard, they therefore have a harder time on the show bench. This is the reason why the Committee repeatedly say that fighters should be shown separately from the rest of the labyrinths and angels from the cichlids.

'In retrospect I must point out that not all of the Committee are in favour of a best fish in show award because it is an extremely difficult task and has no basis scientifically, being equivalent to judging a lion against an elephant against a monkey. But it is realised that it does create a large amount of interest and is a means of giving another award, a point which the Committee is in favour of.'

As I feel that these letters deserve far wider publicity than our own modest news letter can give them, I am submitting both to you in the hope that you can publish them.

L. W. JORDAN
Editor, 'Bracknell Harlequin',
Bracknell A.S.

We are grateful to Mr C. A. T. Brown for permission to publish his letter.—EDITOR.



GUPPY

World

ONE of Lenin's dictums was 'Patiently explain', and I am often reminded of this when I open another batch of mail and come across the oft-asked question: 'In a few words, how can I breed good guppies?'. If only some formula existed that could be printed off and enclosed in the s.a.c. supplied by the thoughtful if not seriously thinking inquirers!

Trying to compress over three decades of breeders' experiences and advice in a few words is impossible, and would be similar to trying to learn to drive a car merely from a book or acquire wine tasting from a travel film. (One cannot, on reflection, be so pedantic as to say impossible, but it would make Hercules' tasks puny by comparison.)

In a nutshell the best advice is to read all the literature one can on the subject; join an aquatic group, preferably one specialising in what you are seeking, and glean all one can from fishkeepers who have already been through the mill.

The Chinese have a saying: 'The longest journey starts with but the first step', and many of today's champions commenced with just a few moderate fish and a handful of tanks. Come to think of it, perhaps we could duplicate a formula in answer to that gargantuan question: 'Knowledge, patience and determination'.

Another question often asked by readers of PFM is how to keep moisture out of one's supply of brine shrimp eggs, all being agreed that if these eggs become damp it is detrimental to their hatching potential.

If expense is no object with you then you will have purchased your large supply in its original tin plus replaceable plastic top. The answer here is simply to store the tin in the

'cool' part of the fridge and take out only sufficient for each hatching.

On the other hand, if you belong to the bulk of us and bought your supply in small quantities, I have found that the addition to the container of a proprietary 'desiccant' or drying agent that absorbs moisture, helps. Quite a lot of machinery and instruments are shipped complete with small bags of this desiccant, to avoid rust.

By PETER UNWIN

If you already have some eggs that have become damp don't be tempted to dry them in an oven or before a fire; you will invariably overheat and ruin the eggs. Dry them outside by spreading them out thinly on sheets of newspaper, but please choose a day that isn't windy or you may find the dried grains are everywhere but where you left them!

Though generally free from the disease that infects most other aquarium occupants the guppy has one prevalent complaint: the appearance of small lumps on body and fins. Varying in size, these lumps are often preceded by bloating of the abdomen. Though these cysts can be caused by quite a number of things, I have usually found them to be the yellow grubs or the larval stage of the fluke, *Climostomum marginatum*.

With surgical feats on everyone's mind, I find more and more hobbyists are cutting open these cysts and removing the exposed worm with tweezers—fine if you know what you are doing. But then the average, non-medical guppyite comes unstuck as to what to use as a protective wound dressing.

Though many chemicals would suffice, experience has taught me to use Friar's balsam, purchased from the chemist. Treat yourself to a few of those small sticks wrapped around with cotton wool that the female of the species uses for her make-up and use these to apply the balsam to the wound.

The treated fish can be returned to the aquarium with the assurance that the chemical won't affect any of the other occupants. Repeat the treatment several times until the wound has healed.

What is the most important thing to a guppy breeder? His set up, the guppies or feeding? No doubt you can bring endless answers to mind but statistics show that it is none of these things but is in fact his own name! And that doesn't only apply to fish.

In America, Andrew Carnegie and George Pullman were fighting it out for the supremacy in the railway sleeping car business. Both were trying desperately to obtain the business offered by the Union Pacific Railroad. Carnegie's suggestion of merger was met by frozen stares until he suggested that the new cars would be called 'Pullman' and have the name emblazoned along each coach. Andrew won, and swung Pullman to his side. A man's name!

During the war and in the immediate post-war years the guppy world saw the influx of many and varied new finnage forms in our tanks, and today we have standards for 14 males and five female outlines, but why in the interim period has the flow of new fish virtually ceased? Why, despite better equipment, food and knowledge haven't we been treated to many more new guppy shapes?

The rose society adds many new varieties to its list every year. The reason they are successful is because they allow the grower to call the new variety whatever he wishes, and that is his own name, so long as it doesn't clash with existing ones, o.k. Cannot we take a leaf out of their book, if you will forgive the pun, and start calling our guppies by the breeders' names?

After all, it has been proved that a man's name is to him the sweetest and most important sound in his own language. We've had Hahnel reds, Simpson hi-fins, Gordon platys—why stop now?

THE AQUARIUM CATFISHES—8

Africa's Upside-Down Catfishes



Large snow-white 'polka dots' on a midnight-black body are the outstanding feature of the black clown upside-down catfish of the Congo, Africa. This is only one of the colour varieties of *Synodontis angelicus*

By BRAZ WALKER

ALTHOUGH the Dark Continent is somehow several shades of grey lighter than in Dr Livingstone's day it is perhaps not too surprising, in this land of sports model mules and pachyderms whose noses reach the ground, to find the unconventional creature. Fortunately for the aquarist, among these unconventional creatures is a family of mostly aquarium-sized catfishes among which are certainly some of the most handsome of the world's siluriformes.

Several members of the family Mochokidae either don't know which end is up or simply don't care. Swimming upside down in fact seems to certain members of the family, such as *Synodontis nigriventris*, actually to be preferable to the more usual manner of making piscine headway. This little mud-coloured member of the family was the first to make an appearance on the aquarium scene in enough quantity to be called 'available', but fortunately there are a number of other *Synodontis* species reaching the market, many of which are striking in pattern, finnage and coloration as well as in their odd swimming attitude.

The bottom-side-up feature of those which use it has been accredited by some to a progressive re-orientation of the gas bladder. It is my experience that, over a period of years, certain species do indeed spend more time in the inverted position, although there is the possibility that at least some of these simply become more accus-

Photographs by the author



Seen swimming in the upside-down position is the featherfin catfish (*Synodontis eupterus*), from the White Nile, Africa. The greatly extended dorsal fin rays are clearly shown.

tomed to the procedure and therefore less reluctant to turn over when there is something to be gained by the act.

Most catfishes are at least partially nocturnal or crepuscular, and the tendency to seek shelter in caves, under piles of brush and debris or under stumps and logs is quite usual. Nature provides her predators with prey and, like youngsters, they 'learn by doing'. Some of these hunters rather quickly learn that caves, stumps and brush piles often harbour potential meals during daylight hours and will often hunt these places. The floor of the cave seems a more obvious lane for such hungry traffic, and by seeking out the most upper crack or cranny against which to press his skyward belly, the upside-down catfish increases his odds of survival.

Reversed Patterns

One of Nature's basic tools for survival is the technique of camouflage. For those who live in reedy portions of the lake or river the camouflage may consist of a series of vertical stripes, such as those on the angel fish (*Pterophyllax*) or the tiger fish (*Datnoides*). It may consist of a capability to become darker or lighter rapidly to match a background as with the flounders. More usual is a dark top side and light-coloured belly, so that to predators below the fish blends with the lightness of the sky and to those above he assumes the darkness of the depths.

Some species (not all) of *Synodontis*, such as *S. nigriventris*, have a reverse pattern of coloration, and this feature almost invariably accompanies the habit of swimming belly up a great deal of the time. Quite a number of *Synodontis* species have almost equally dark pigmentation on dorsal and ventral surfaces and these seem either to spend a great deal of their time swimming

head upward or head downward in corners of the aquarium, against stumps etc., or to have little preference for the conventional or non-conventional swimming attitude.

The point has been raised that the absence or presence of pigmentation on one or the other surface is not a camouflage or concealment process, since experiments show that in some cases at least in fishes normally lacking colour on the lower surface, application of light to this normally unpigmented area over a period of time causes chromatophores to form, thereby darkening the area in question. One could just as easily conjecture that this is Nature's way of adjusting the fish to changes in orientation by the creature, since without our scientific 'tampering' the assumption or 'rule' would ordinarily hold true that light shines toward darkness; therefore the side toward the light (sunlight) would be more likely to be inconspicuous as a dark surface. The point is that, at least in natural environments, if a creature has a pattern that is likely to blend under most circumstances, how he got it really does not matter.

Several species of *Synodontis* have greatly prolonged dorsal filaments when they mature. Certainly the most notable of these in my personal experience started out as a rather nondescript mud-coloured 2-inch fish with a few dark spots scattered over his body. After a few years the fish had flowered into *Synodontis eupterus* of the White Nile. One could hardly mistake this, the featherfin catfish, for any other since the rays of the dorsal fin become almost unbelievably long as the fish ages. The first filament will eventually reach beyond the tip of the upper lobe of the caudal fin. Even the upper caudal lobe also becomes somewhat longer than usual.

Although as with many other species of *Synodontis*

inverted position. The dorsal is at these times spread to its fullest magnificence. The body coloration varies from time to time from yellowish olive to dark olive brown and there are relatively large, round dots covering parts of the body and finnage. The adipose is quite large, and the fish in large sizes is quite heavy-bodied. *Synodontis eupterus* is among the most regal of catfishes and is to be prized by anyone who is fortunate enough to acquire a specimen.

One of the finest examples of what can be done with simple black and white can be seen in the black clown catfish, *Synodontis angelicus*. Adorned with large, snow-white polka dots against a midnight black body, and with distinctive white bars on the black fins, this is an outstanding addition to any collection of tropicals. There are apparently two colour (pattern) varieties of *S. angelicus*, the other of which has smaller polka dots on the body alternating with bars. This unusual pattern gives the fish an overall rather lace-like effect.

Noise Makers

As with certain other catfishes, the mochokids are capable of generating noise, a characteristic which in South Africa has earned them the name 'squeaker'. Some species seem to do this more than others. A large specimen which I had of *Synodontis notatus ocellatus* had the habit of quite frequently 'growling' so loudly that it could easily be heard in a room with several people in conversation.

The same fish had another peculiarity. When purchased, the silvery body had only a single, large black spot midway on each side. As size increased the spot divided and subdivided until each side eventually had five large black dots.

Mochokid catfishes can be easily maintained. Their hardiness and longevity are exceptional. I have kept *Synodontis angelicus* for well over a dozen years.

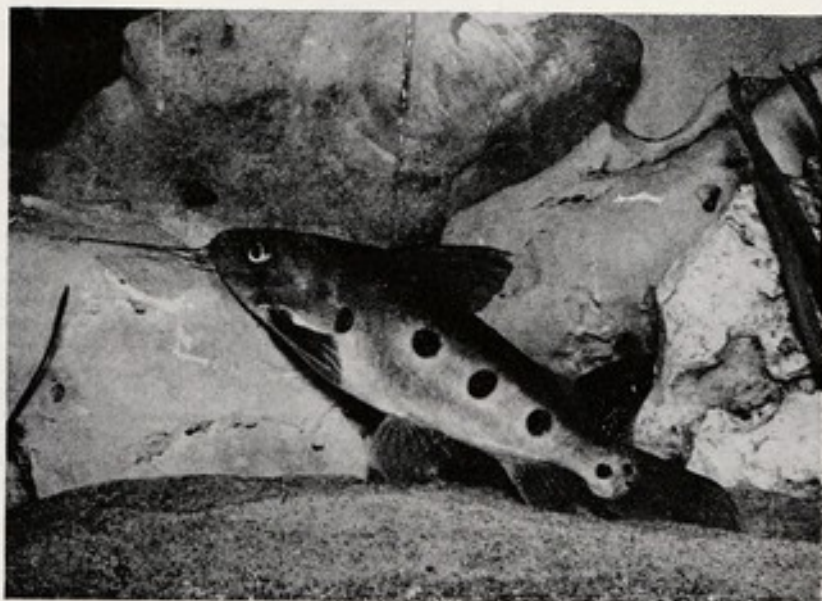
Care is simple for *Synodontis*. If their preferences are to be considered, caves, roots or rockwork should be provided for their retirement. Their mouths are small, so they can be kept with relatively small fishes. There is a certain amount of rivalry between individuals, but if shelter is provided, little harm is done.

Other authors have stated that *Synodontis nigriventris* needs green algae to survive for extended periods in captivity. I have kept this species in semi-dark aquaria for long periods with no ill-effects whatever, and the diet consisted solely of pre-soaked dried dog food. They seemed to fare equally as well as others of the same species that were kept in brightly lit aquaria where they had access to algae at times. As with many other omnivorous fishes, a certain amount of vegetable matter is almost certainly beneficial. Most high-quality dog foods (in the U.S.) have a large amount of vegetable or cereal matter in their content, possibly explaining the effectiveness of these products as fish foods. The longevity of *S. nigriventris* is perhaps less than some of the other *Synodontis* species, but I find no basis for the idea that they must have algae.

All of the *Synodontis* species will accept almost any type of food. Although in Nature some of the bottom-up members probably feed often from the surface, in the aquarium they are more likely to get their share of sinking fish foods such as some of the pellet types or frozen live foods. Boiled oatmeal or other cooked cereal is high in protein and is an excellent basic food that will be greedily eaten. For fishes as well as people, variety is still the spice of life, so a diet of this type should be supplemented.

This family has something for every aquarist, ranging from tiny *Microsynodontis* to 2½ foot (in Nature) giants. It is certainly a choice catfish group.

To be continued



One of the noise-making upside-down catfishes of which the author has had practical experience is *Synodontis notatus ocellatus*, a species from the African Congo

Confusion Between Common and Maroon Clowns

MARINE FORUM



THE common and the maroon clowns are both anemone fish and are sometimes mistaken for each other, but as their temperaments, and ultimate size, are completely different it is as well to differentiate the one from the other. The common clown (*Amphiprion percula*) is a peaceful fish; you could put fifty or more clowns together with a big anemone and they could all live together. You cannot, however, put even three maroon clowns (*Premnas biaculeatus*) together with an anemone unless the third one is very small. The common clowns are also very much smaller; the largest one rarely reaches 3½ in., but the maroons, especially the females, can reach 7-8 in.

It is over the coloration that superficial confusion often arises. Although the name 'maroon' describes the general colour of this species, some *Premnas*, especially the males, do have a very beautiful colour, between an orange and a red that novices may mistake for the orange of the *percula*. However, it is not necessary to become an ichthyologist to learn to differentiate between the two fishes.

The second white band of the common clown is not even and broadens widely while that of the *Premnas* is more evenly laid, like a ring, and does not broaden like that of the *percula*. (Several years ago I received several pairs of maroon clowns from Sumatra on which the three bands, instead of being the usual white, were yellow. I am quite sure they were of the same species, but why those from Sumatra should have yellow bands I cannot understand. It is perhaps due to the food supply.) In both species the colour pattern varies, some colours being very intense while some are quite dull. The locality where the fishes come from undoubtedly plays an important role here as indeed it does with other species. The maroon clown has two spikes under each eye, one long and one short, which the *percula* do not have.

So, if you read or hear that someone's common clown is 5-8 in. long, this is one fisherman's story you can correct. Someone is making a mistake and has almost certainly confused the two species.

LEE CHIN ENG (Djakarta)

Minimum Requirements for Marine Fishkeeping

FOR many years I wanted to keep tropical marine fishes but after reading books and articles in fish-keeping magazines, I came to the conclusion that it was both too difficult and too expensive. Nearly 3 years ago I decided to have a go, although I was not willing to risk money by buying the expensive equipment I was told was essential.

The equipment I purchased was a small plastic tank, some Meersaltz

and a hydrometer. I set up the tank with a layer of gravel on the bottom, mixed the Meersaltz with water until I obtained a reading of 1.025 on the hydrometer and then connected the heater, thermostat and aerator, and waited for the temperature to settle at 70°F (21°C).

Into this tank I placed one yellow-tailed blue damsel fish and everything went fine until about a month later. This was when I took a trip to Skegness and decided to take home some sand for the tank. After boiling and washing the sand I replaced the gravel with it, but the following day the fish died.

About 18 months ago I decided to

have another try, but not to use sand. Instead I used coloured aquarium gravel with a variety of plastic plants to make the tank attractive. The fish I purchased were one yellow-tailed damsel (*Pomacentrus melanochir*), one three-spot damsel (*Dascyllus trimaculatus*) and a clown fish (*Amphiprion sebae*). These fish have since grown and I have had no trouble at all.

I feed the fish on Biol, Tetramin, brine shrimp and Tetramarin Tube Food. The fish will take this tube food straight from the tube as it is squeezed into the water. I have tried to obtain more of this tube food lately but it seems to have gone off the

market. One time I tried feeding with *Daphnia* but the fleas died as soon as I placed them into the sea water.

I have taken marine fish to open shows this year and they have won cards every time; the only problem was how to aerate the water. I solved this by fixing a plastic, battery-operated cocktail mixer through the lid of my plastic tank. To protect the fish from the revolving blades I fixed a plastic cup, which had holes drilled in it, over the blades as a safety guard. This idea works well, and

really keeps the water on the move.

I am experimenting with other tanks and I find that clownfish like the gravity of the water 1.030 or even a little higher; at 1.020-1.025 the white colours of the fish are blotchy with pink, but at 1.030 the pink disappears and the white bands are really brilliantly white.

Many aquarists in the Sheffield area and locally who have seen how simple my set-up is for marines have started themselves—and I think this side of the hobby will become much more popular.

Having kept marines successfully for so long, I often wonder if the equipment usually quoted as a 'must' is really necessary? I have not used any of this special equipment and have had no trouble. I believe the main things are plenty of aeration and careful feeding. When aquarists read about these 'musts', they usually think: 'I will stick to my freshwater fish!'

ALBERT M. DEAKIN



Personal COMMENT

by
ARPEE

SO far as hobbies are concerned my loyalties are divided during the spring and summer, but winter makes me pay rather more than usual attention to the appearance of my tanks. For one thing they are going to feature more prominently as part of the daily background than they do when summer things lure one away from home during the rest of the year, and for another the diminishing light from natural sources needs careful balancing with artificial illumination if the plant life is to progress satisfactorily.

Many converts to the hobby are won during the quieter months, as more visiting seems to go on then, and attractive lay-outs are essential to success; no-one is going to be in the least impressed by the sight of containers of wispy plants and of sickly-looking fish which intermittently peer at the outside world through a soup-like mixture masquerading as water. The first operation might well be to scrape off all that algal growth from the glass: not simply on the front but from the sides and back as well. This gives the whole tank a much fresher look from the start, and any bits and pieces which float away can be drawn off later in the proceedings. Then take a pair of scissors and snip away all dead leaves from the plants. Those with browned ends also look unattractive and may be reduced, since they will never improve. Chief offenders here are the Amazon swords and similar plants, but cryptocorynes rarely need such attention, and are therefore extremely valuable to the lazy aquarist. During the summer a considerable amount of algae may have also grown on rockwork or on cork bark arrangements, and this will have to be treated rather on its merits. In some cases the articles will have to be removed before the growth will part from its anchorage, whilst in

others any strong siphoning-cleaning device will serve to dislodge and carry away the offending material.

Take care, however, when you are scrubbing any rocks or other decorative material, as the brush may contain some domestic detergent and reduce your laudable efforts to disastrous dimensions. It is much better to have special brushes, sponges, cloths etc. set aside for aquarium work, and these should be stored away from the domestic scene, otherwise they will either get misappropriated or contaminated, and I don't know which is worse, possibly the latter, I suppose!

The next operation is a really good poke about with a fishtail dip tube attached to half-inch rubber tubing (this large-bore equipment gives a really powerful suction and is quite essential for a thoroughly good clean-up). The siphoning technique with a fishtail tube is to run it gently across the tank floor to gather up the mounds of mulm which collect in all the depressions, and to lead all this away into a good-sized bucket below the tank. Then, controlling the outflow of water by zipping the rubber tubing between your thumb and index finger, dig the fishtail into the gravel or sand on the tank bottom and gently allow the submerged mulm to travel away without taking the grit with it. This technique takes a little mastering, but it is often surprising just how much muddy stuff comes away from well-established tanks which do not utilise bottom filters.

After this operation it is a good thing to reduce the water level by a third, and to top up with fresh water of equal temperature. The process cannot be regarded as complete without a reappraisal of the lay-out of the tank itself. Look critically at the rocks and other furnishings and decide whether a move of an inch or so here or there might not make a lot of difference to the overall effect. It is quite safe to move things around after a clean-up, as even if there is so much mulm left that your efforts leave the tank looking as though a snowstorm has hit it, this is purely a temporary phase and the water will have cleared within a day or so.

A wise investment at this juncture is a bunch or two of really choice new plants (provided, of course, that you have room for them), or if the tank has really deserved a centrepiece for ages, now is the time to buy one. The converse can also be recommended. If your tanks are

overcrowded with plants you will be surprised how attractive they can look with groups of them out of the way, so don't hesitate to be quite ruthless about this, as overplanted tanks can be very dull things indeed for the viewer. Finally give the whole of the outside of the tank a really good clean with a wash leather. This makes the glass sparkle and provides the inmates, both animal and vegetable, with an opportunity of displaying themselves to greatest advantage.



There was some pretty strong stuff in Comments and Quotes in the August issue of PFM under the title of 'Hobbyists and the Trade'. This contained something of a bitter attack by certain members of the trade on club members, who, in a sort of shamateuristic fashion are alleged to be undermining the genuine trade by entering into cut-price competition with it, and in selling runt-grade fish to it as well! In particular Mr L. B. Katterns is quoted as saying that fish offered to dealers by amateur breeders were never of the size described nor available in the number promised at the time the deal was made.

Now I hate such sweeping generalisations as this, which can do a great deal of harm and very little good. The hobby is made up of individuals, trade and customer alike, and if they vary, these are individual variations, not ones of group. The most astonishing thing about Mr Katterns' remarks is the reference to 'deals' made with amateurs. I utterly fail to understand how someone of Mr Katterns' long experience comes to bemoan the failure of deals with amateurs on matters like this when no customer with any sense ever makes a deal to buy fish which he cannot see with his own eyes in the tank before him. If you buy unseen you are bound by all the rules I know to take the risks inherent in such an arrangement, and if you are let down the remedy is usually in your own hands—complain or shift your custom elsewhere. Isn't this why we get such wretched fish from importations?

Most dealers with whom I have discussed the quality of imported fish have admitted in wry terms that the best we can expect is what we get, since the exporter calls the exact tune and takes little or no notice of his customers. Perhaps some importer/retailers are so used to being dictated to by their suppliers that they will accept any rubbish from any supplier, but my experience is exactly to the contrary. If a dealer doesn't like your surplus fish he will decline to buy them or offer you an 'insult' price which you will invariably turn down. And I don't blame him either for declining to accept poor stuff if offered at no notice or next to none at all.

Surely the key to all this is 'understandings', not 'deals'. If you are an amateur and genuinely interested in breeding one particular variety (or more) into an acceptable strain, you should find no difficulty at all in disposing of your surplus to a wide range of dealers. Demand naturally varies from place to place, but prior consultation in this field, as in many others, more often has the desired result than otherwise. As to price, I think that it is here that the amateur can occasionally quibble. Whilst it may appear that it is reasonable to offer trade price for locally bred fish, I often wonder whether this is quite fair. Assuming that the fish are good (and I don't mean 'just acceptable'—I mean good), the seller has a right, in my

view, to a higher price than that offered for imported specimens of indifferent status. For one thing the risks to the dealer are all removed at source and the uncertainty about consignments arriving from afar or not at all is greatly minimised. On the whole I would have thought that the chances of getting really good stock from amongst the amateur breeders were pretty good provided always that top-class prices are offered for top-class fish. No breeder with any self respect will help feather the nests of niggardly dealers who offer runt prices for better than average surplus stock. He will much rather give his fish away or sell them direct from his home. I am not in favour of the latter course of action, but it probably comes more from necessity than choice.

The whole matter of competition, fair or otherwise, is an extremely complex situation, but I suggest that the shamateur trade flourishes principally in areas where the trade has signally fallen down on what its public wants. On this very question there must be great areas of doubt: I wonder continually how the trade really assesses the demand of its customers, and at times I seriously wonder whether it is in the least interested, particularly bearing in mind how hamstrung the dealer is by his sources of supply. It really does seem something of a vicious circle.

All the same it seems a tremendous pity that the sort of complaint voiced by Mr Katterns is not addressed to the audience of fishkeepers through the medium of such as PFM, but is a sermon to the converted of his brethren in the trade. I wonder how many PFM readers will agree with me that they would much rather be taken to task face to face through this magazine than obliquely through a trade journal which they seldom if ever see; I also feel on safe ground in saying that no aquarist with any sense would fail to listen to people like Mr Katterns, who really know their stuff, but who so often isolate themselves from the wider public.



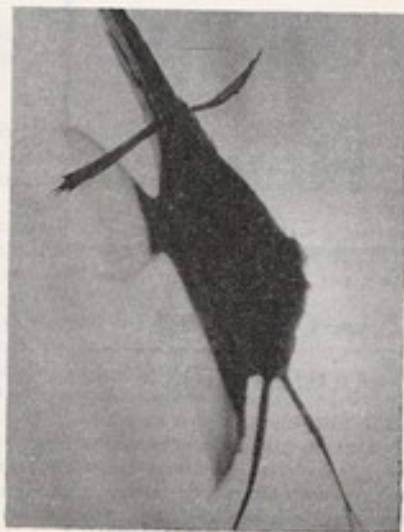
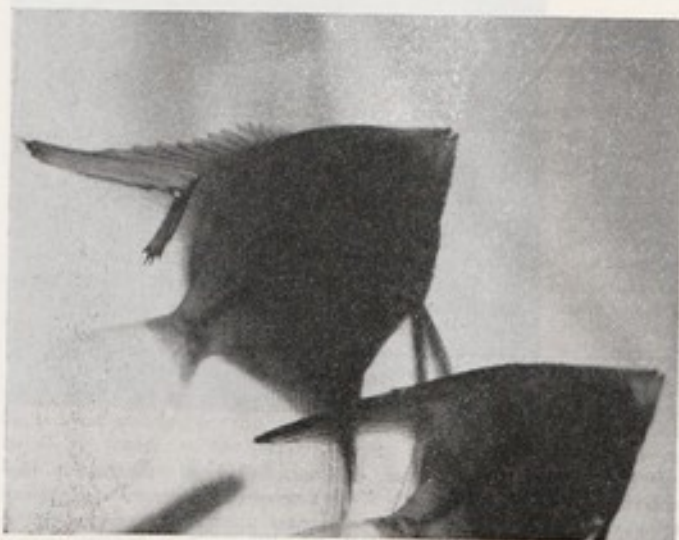
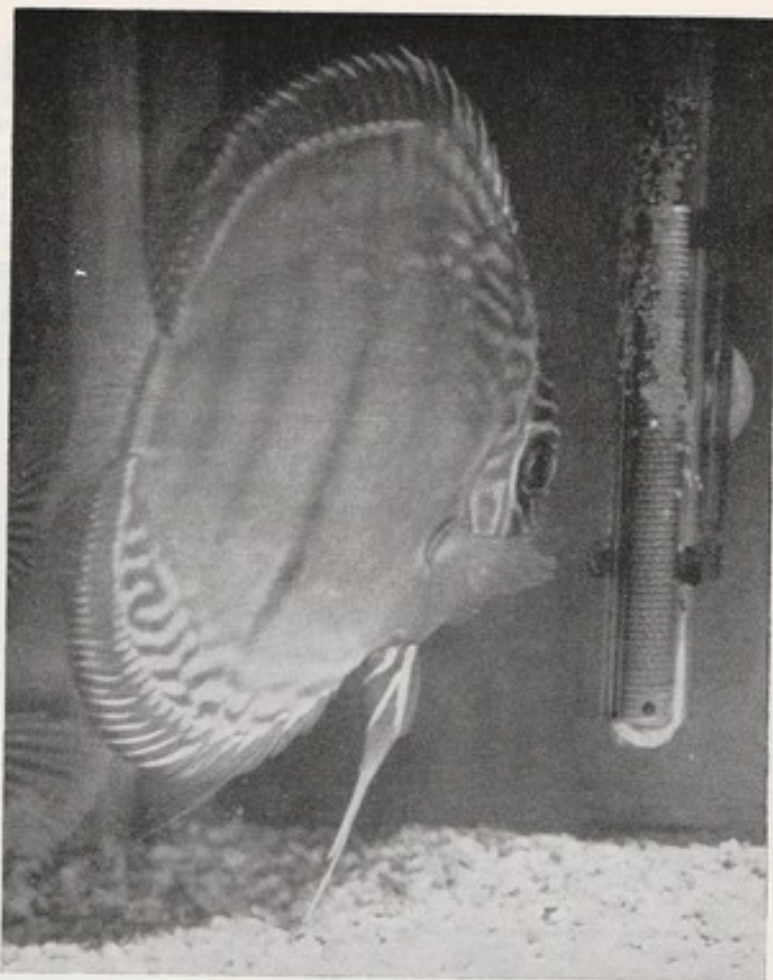
I have looked through past issues of this journal for letters which obviously stemmed from members of the trade, and can find very few indeed. I simply cannot understand this apparent lack of interest. As a customer I am always interested to hear what dealers are thinking—their criticisms as well as their plans, but the deafening silence leads one to believe that the successful don't care about us and the unsuccessful are past caring anyway. From personal contacts I know that this simply isn't true, but the grave deficiency is something only the trade can remedy. I will conclude with a simple question to the trade. When I shop around for household goods and the dealer finds that he hasn't the item I want in stock he will offer, more often than not, to send me a postcard when it comes in; or he will take my telephone number and ring me. How many dealers offer this sort of service to their customers in the fish trade?

If any dealers would care to write to me describing any special facilities they offer their customers as a matter of course I shall be delighted to make mention of them, without prejudice, in a future issue. There are great opportunities for increased co-operation on both sides of the hobby, and I hope that the recent fillip given to the possibilities in this magazine will not pass un-noticed.

Would You Believe It?

Would you believe it? Spawnings from discus fish are not exactly commonplace, and when this pair (belonging to Mr Peter Kinahan of Battersea, London) decided to breed they chose the tank's heater to receive their eggs. A quick change of heater saved the clutch from cooking, and hatching took place

Would you believe it? The angel fish shown below (owned by Mr Jan Szmidla of London, S.E.4) has a pair of pectoral fin-like appendages growing from the base of its dorsal fin. Have any readers seen similar stabiliser-fitted angels?



Folly to be Ignorant

A guppyot enlarges his fish experience

By FRED CAMPBELL

Secretary, Fancy Guppy Association

WHERE ignorance is bliss 'tis folly to be wise', says the proverb. Believe it if you like, but recent experiences have convinced me that there is nothing blissful about ignorance. The revelation came to me at the PFM Aquarium Show last year where I was 'helping out'. Helping out? If anyone needed help it was me.

I am not entirely ignorant; one look at a fish and I can tell in an instant whether it is a guppy or not. This 'specialist' knowledge, however, cuts no ice with certain types of people, as I found to my cost.

It all began with a young lady aged about 14 and absolutely bubbling over with eagerness. She came up to me and said: 'Have you any bananas?'. At least, that's what I

thought she said, but, even though we were in the Royal Horticultural Hall, the question seemed a little out of place. After a brief discussion it transpired that what she had actually said was, 'Have you any piranhas?'. I knew a piranha was a fish and that it had acquired a certain amount of notoriety, but whether we had any or not was something I was not sure about. I was telling the girl I would find out for her when a colleague standing close by shouted 'No, we have some piranhas', and carried her off to introduce her to one.

I was glad to see her go, but my smugness was shortlived. About half an hour later she was back again and this time I thought she wanted to buy ELECTRICITY IN THE AQUARIUM, but

no, nothing so simple as that. I wanted to know if the fish near piranha was an electric eel. I smiled a trifle indulgently and said 'No' but this didn't satisfy the little madam. 'What is it then?', she persisted. The time there was no help available I had to accompany her to the tank myself in some trepidation. Just as I expected, I hadn't a clue what was. She gave me a pitying sort of smile, said, 'It doesn't matter, thank you' and vanished into the crowd.

My next encounter was with a pleasant, middle-aged gentleman. He said: 'I wonder if you could tell me the name of that fish over there, I have never seen one like it before'. I followed him with my fingers crossed, took one look at the fish and said: 'That makes two of us'. Fortunately I was able to enlist the aid of the afore-mentioned colleague who said, rather contemptuously, 'I thought, "That's a puffer". Well, well. And me a railwayman, too.

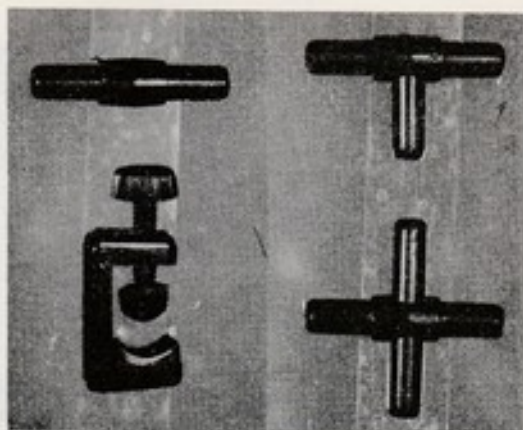
The outcome of all this is that I have decided to take a far more comprehensive view of fishkeeping in the future. I have already made one purchase, a beautiful fish; the man called it 'Jack Dempsey'. I am learning fast—I have no guppies now.

What's New?

Air Control Accessories

CONTROL and distribution of air flow to aquaria from air pumps is made simple with the new range of tubing connectors, three-way and four-way pieces, together with a tubing clamp, from Windmill Products.

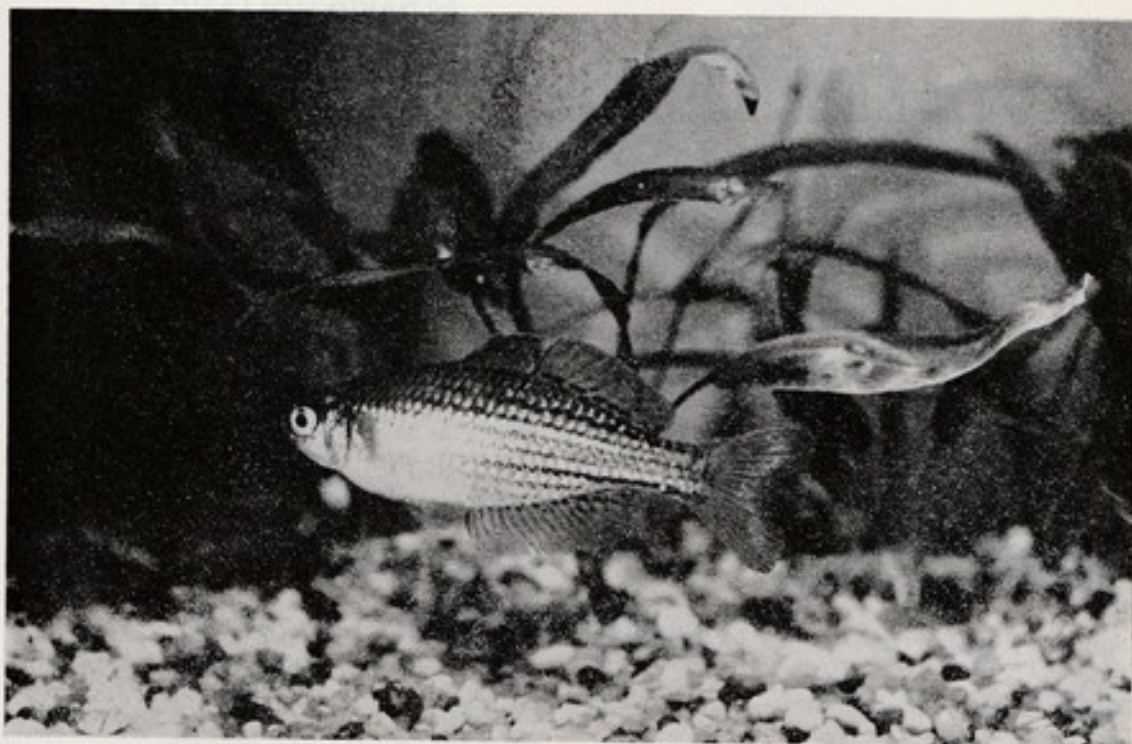
Of British manufacture, these latest plastic accessories are strong, of neat appearance and fit firmly to plastic air line.



These Windmill accessories are dark green in colour: straightway (4d), tee piece (6d), concave clamp (10d), 4-way (6d).

The Australian Rainbow Fish

By J. LEE



A NATIVE of north-east Australia, *Melanotaenia maccullochi* is a very firm favourite for the aquarium and is a beautiful fish when in good condition. There are actually two species of Australian 'rainbows'—*Melanotaenia nigrans* and *Melanotaenia maccullochi*, but the more popular is the *maccullochi*. It is the smaller of the two species and, when full grown, adults reach a size of 3 inches or so. Their usual colour is grey to green with a bluish sheen. On their flanks are seven or eight horizontal reddish-brown stripes; a vivid red patch shows on the gill covers and pelvic and pectoral fins are deep orange-red. The margin of the anal fin is deep red to tan or off-orange colour.

A striking feature about these fish is that they carry a double dorsal fin which is held erect on the back. Sexing, in my opinion, is not difficult as the forward fin is more pointed on the male, more rounded on the female. Females are unmistakable when rounded with eggs and the male in breeding colours shows a beautiful gold ridge along the top of the back when chasing the female.

My breeders were conditioned over a few weeks on *Daphnia*, *Tubifex*, glass worms, white worms and Grin-

Australian rainbow photographed by Mr A. S. Harding (colour transparency: prize-winner in the 1968 PFM Photo Competition)

dal worms. The tank used was a 24 in. by 12 in. by 12 in. painted black on the base and back, leaving both ends and front clear. After being well washed and disinfected it was placed where it received full daylight and a fair amount of sunshine. Old tap water was used, topped up with a little fresh, bringing the water depth up to about 8 or 9 inches. The pH and water hardness were not checked and I did not think this was necessary.

The plants that were used for the spawning site were three small bunches of *ambulia* in the middle, mixed with bushy bunches of *Cabomba*. Eight small *Sagittaria* were placed at the back and some medium-sized Indian ferns floated on the surface with roots trailing. To the tank was added two level teaspoonsful of rock sea salt and a few drops or small measure of Tetracare Black-water Tonic.

Australian rainbows will tolerate a wide range of

Continued on page 426.

The Right Lines for Fish to Swim By

By DAVID HOLLAND M.Sc.



Fig. 1

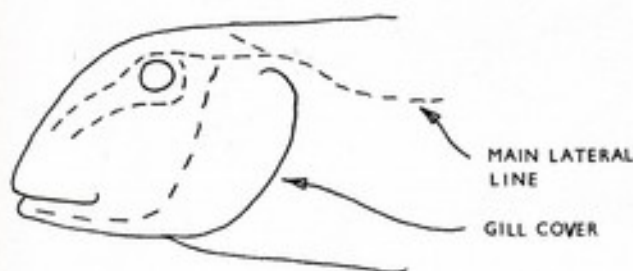


Fig. 2



Fig. 3

A FEATURE of fishes well known to and readily recognised by most aquarists is the lateral line. The line is usually seen as a faint mark running along the flank of a fish from the gill covers to the tail (Fig. 1). A particularly clear example is provided by the angel fish. In some fishes such as the swordtail, cherry barb and many of the tetras, the lateral line is marked by a strong band of colour. If you are unfamiliar with its appearance, just spare the time to examine the next corpse you remove from one of your tanks, and you should be able to see what we are talking about.

Since the lateral line is present on nearly all fishes it must surely have a function of some importance to the individual fish, and this in fact turns out to be the case. Basically, it is a sensory organ which detects water movements around the body. There is more of it though than just the familiar lateral line. The system also runs in several tracts on the head region of most fishes, usually only visible as a series of pits. Fig. 2 shows the basic arrangement on the head, but of course there are many variations.

Now that we have seen the extent of the lateral line system, how does it work? A fish swimming through the water sets up a particular flow pattern around its body, and this characteristic water movement registers on the lateral line system. The close presence of another fish, a rock, branch or some other object distorts the normal pattern (Fig. 3), and these disturbances are also received by the lateral line. Signals from all over the lateral line system are transmitted to the brain by special nerves, and together they tell the fish of any nearby object. The lateral line organ on the head is particularly important in sensing obstacles in front of the fish.

You as a terrestrial animal can experience similar pressure differences when you face into a wind. The part of your head facing directly into the wind provides the greatest resistance, and thus feels the strongest wind pressure. The side of your head, however, does not impede the wind and you hardly feel any wind effects there at all.

The lateral line itself is a long enclosed canal just below the skin, opening at intervals to the outside world by short, vertical branches. The entire canal is filled with mucus, which moves to and fro in response to external water movements. In turn the motion of the mucus is recorded by sense organs, called neuromasts, on the floor of the canal (Fig. 4).

The top part of each neuromast (Fig. 5) is the cupola, a gelatinous mass which sways with the motion of the

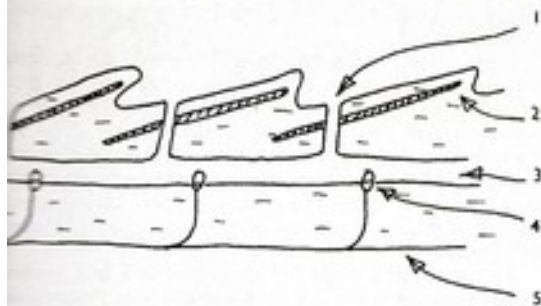


Fig. 4. Sectional diagram of part of lateral line showing: 1, canal opening; 2, hind edge of scale; 3, lateral line canal; 4, sense organ (neuromast); 5, lateral line nerve

Fig. 5. Neuromast sense organ from lateral line (shown greatly enlarged): 1, cupola; 2, 'hair' process; 3, sense cells; 4, nerve fibres

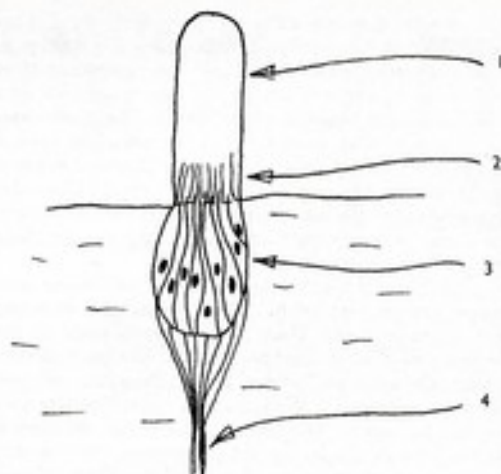


Fig. 5

mucus, or waves in the breeze as you might say. The longer and thinner the cupola, the more sensitive is its response. Beneath it lie the sensory cells, each of which has a hair process into the base of the cupola. When the sensory cells are stimulated, they send messages to the brain via special nerves. The brain is like an operations centre. It receives simultaneous messages from neuromasts all over the body and interprets them according to their collective meaning.

Not all neuromasts are totally enclosed. In many fish species, the ones on the head lie in shallow pits or canals, directly exposed to the outside world. They are far more sensitive than those on the lateral line canal, since there is no mucus to act as a buffer between the water and the cupola.

With this knowledge in hand you should now be able to appreciate some of the various things that fishes do. Like us a fish has several perceptive senses, which are mostly interdependent. Although I will be discussing the role of the lateral line organ, we must not forget the importance of the other senses. Just to illustrate; if someone put a block of hot metal on a wet floor, you would see the steam rising and hear it hissing, and if you touched it you would feel the heat. Three different senses would reach the same conclusion—hot! However, each sense on its own would say the same thing.

The most obvious function of the lateral line is navigational. The lateral line acts as a short range warning system. For instance, one of my tanks at home is full of tiger turbs. Occasionally, for a short period of time, every fish goes absolutely wild, darting here, there and everywhere—not in panic, just high spirits. Yet throughout their wild sportings they never bump into each other. This illustrates the speed at which the lateral line system functions.

Again, everybody has seen at one time or another a shoal of fish, tetras or danios for example, swimming round an aquarium, twisting and turning in unison. In his case each fish is using the flow pattern of those nearest to station itself in the shoal.

Sometimes we see fish swimming in a stream, matching their speed against the current so that they keep in the same place. One would quite naturally suppose that they keep their eyes on nearby objects and use them as land-

marks. To a large extent this is quite true. Experiments with blind fish have shown, however, that so long as the fish can occasionally touch the bottom, they can still maintain their position in the stream. Clearly the lateral line system is reading the current and enabling the fish to stay in one spot.

An important but slightly different function of the lateral line may well surprise you. Did you know that many fish use it when feeding and hunting? In the same way that they locate and identify solid objects to avoid bumping into them, they can also locate and identify food organisms and particles.

The pet fish you have proudly trained to feed from your fingers is probably using his neuromasts every bit as much as his eyes. The close vision of a fish is not nearly as good as you may imagine. Think about it for a moment. Sometimes a fish will see a food particle fall to the tank bottom. When it moves in to take it, the fish sucks in the general vicinity of the particle, but does not always get it first time. If, however, the particle was a moving animal, it would be a different story, for the lateral line system would enable the fish to locate it accurately. Similarly, the fish feeding from your fingers is attracted not only visually, but also by the movements in the water.

In one experiment, fish were trained to snap at glass rods while they were being fed. Our native minnow was found to be particularly sensitive. When a glass rod $\frac{1}{4}$ mm. in diameter was vibrated with an amplitude of 2 mm. anywhere within 10 mm. of its head or trunk, it could locate it and snap at it. Before we go any further let me put these measurements into perspective for you. The length of those lovely, big, pink daphnia, from the pond you will not even show to your best friend, is anything up to $3\frac{1}{2}$ mm. Young daphnia, freshly hatched from the adult are probably no smaller than the $\frac{1}{4}$ mm. just mentioned. So what chance has a poor daphnia when there is a minnow about?

From here it is but a short step to the use of the lateral line system in hunting. We have already seen that a fish can locate a moving object with ease. Now if a moving object is identified as another fish, this means one thing to a predator—food! Take our native pike for instance. This savage killer has both an extremely sensitive lateral line system and a keen pair of eyes. These two organs to-

gether enable it to pinpoint its prey with deadly accuracy. The pike's basic hunting technique is similar to that of many predatory fishes. First, the movement of its prey catches its eye at a distance. Then it uses its eyes and lateral line to home in on its target. The marvellous thing though is that, even without the aid of its eyes, a pike can still capture other fish, as for instance when it hunts in murky water or in the dead of night. I can also assure you there are many completely blind pike swimming about in our canals and lakes, and few of these appear to be on a starvation diet.

A further function of the lateral line is well worth considering before we finish. What about the courting couple in your tank? What is the significance of the quivering fins of an excited pair of fish? We have all seen two fish sidle up to each other, spread their fins out, and shake from nose to tail. Well, first the quivering sets up a characteristic water movement. Then the neuromast response to this sends the sex hormones roaring into action, and we all know what can follow. There always has to be an exception, of course. The phlegmatic female

guppy provides it, by doing her best to ignore her fin-splitting suitor.

Closely akin to the courting display are the fighting actions of two male fish. What better example could be provided than the Siamese fighter? Again, fins are spread out wide and the fish tremble side by side. The fin spreading makes each fish look bigger to its sparring partner, and the trembling sets up the water movements that act on the lateral line system. In both courting and fighting display, the two senses, sight and lateral line, play an integral part.

To the human observer, the lateral line is a hidden organ, working below the surface of the skin. Perhaps we are little aware of it because we have no strictly comparable sense. All in all though, to a fish it is vitally important, for it is a navigation aid, a feeding aid, a hunting aid, a courting aid and a fighting aid all rolled into one. I have given only a few examples of its use, but you can probably go on to produce more. Maybe now you can answer some of your own questions, about blind cave fish for instance.

The Australian Rainbow Fish

Continued from page 423

temperatures from 65° to 80°F (18–27°C), although they do best at around 70° to 75°F (21–24°C). I've actually got this species to spawn at quite a few different temperatures; the first spawning was at 71°F and they have bred at 75°F, 78°F and just over 80°F—on one occasion they bred at a temperature as low as 68°F. It is a very tolerant fish indeed and very hardy. It is easy to keep as well as being peaceful and a good community fish.

Over the years of keeping them in my tanks I have found that they are not fussy about food. They will take any dried food that's offered and seem to relish all live foods as when feeding time comes round they are one of the first fish to dart forward and take their share of what is dropped in the aquarium.

A pair were put into the breeding tank at night and they spawned 3 days later. At the time of spawning the temperature was 71°F (21°C). The warm sun settled on the front of the tank and as the rays penetrated right through the plants the fish were sparked off into excitement and within the next few hours spawning took place. On this occasion I did not do what I do usually—take the breeders out. They were left alone.

After 2 days, eggs were seen hanging in amongst the plants and the parents did not bother about them. They are fairly large eggs of a yellowish or golden colour. I did not see a lot of eggs—I believe this species drops them in short relays over a period of time or days. I do not remember ever seeing eggs with fungus on them at all. Later, the fry could be seen hanging from the plants and clinging to the sides all over the glass. 'Mother' and 'father' just seemed pleased and watched unconcernedly about it all. Tiny fry were seen to fit past their parents' mouths but there was never any sign of cannibalism. As a matter of fact, one got the impression, while watching, that when the male or female decided to move, they seemed to move very gently as if

to allow the baby fish to pass or move about in comfort. This is very pleasing to any aquarist because as we all know, it is a rare sight.

Australian rainbows are one of the few fishes that can be left with their young after spawning. Like another hardy little fish that tolerates the same range of temperatures, the White Cloud Mountain minnow, I've never seen them touch their young. If preferred, the fry can be reared in the same tank as their parents without being molested or devoured; provided, of course, that the parents are not being starved and are getting their usual meals.

The fry were started on a nice rich culture of Infusoria which had been made from ripe banana skins. They thrived on this diet with the addition of Liquifry (egg-layer) and the yolk of an egg. After a few days they were taking brine shrimp—rather greedily I thought as their little stomachs used to bulge and show red after every feed on the shrimps. After a week had gone by some of the bigger fry were taking micro worms and very fine sifted Bemax, along with an occasional feed of egg powder. As the fry seemed to grow very rapidly, it was not long before they were taking Grindal worms, which I would put in a small worm feeder in the centre of the tank, held steady by the plants.

It was a sight to see all the young fish shoal underneath picking the Grindal worms off as they dropped beneath the plants into the mouths of the young rainbows. Often an amusing battle would take place between two of them tugging on the same worm. Their rapid growth continued and when they were about 1 inch long they were approaching the halfway stage and taking *Daphnia*, *Tubifex*, white worms and larger foods—not exactly a beautiful sight as they swam together, because they were only just beginning to show their colours, but it was surely a very pleasing sight, and no fin-nipping going on at all.

This fish is not difficult to breed—it could come in the beginners' class—and with a little gentle handling and common sense it can make a good start to breeding egg-layers. With this nice, sensible, good-mannered fish, all that is required is a roomy tank, a healthy sexed pair of rainbows, plenty of light and plenty of sun.



Transatlantic TOPICS

By JIM KELLY

fish under such conditions). Al has given us what he refers to as the 'fundamental laws of frustration' for the aquarist. Here then, is Klee's Creed:

- (1) Dirt automatically expands to fill the size of the filter allotted to your aquarium.
- (2) If anything can go wrong with your fish tank, it will.
- (3) Nothing in this hobby is as simple as it seems.
- (4) If one aquarium is good, two must be twice as good.
- (5) Everything you need costs more money than you can afford.
- (6) If everything is going well in your fish house, then you are probably overlooking something.
- (7) It is the fundamental law of aquarium experimentation that nothing quite works out like you planned.
- (8) It is much easier to get into the hobby than get out of it.
- (9) Whatever you have to do in your aquarium, you will always have something else, somewhere, to do first.
- (10) If you fool around with a tank long enough it will eventually leak.

* * *

Latest U.S.A. craze for fishkeepers
...Stick picture postcards round your fish bowl then as the goldfish swim round and round they will think they are really going places.

* * *

Calgary, Alberta, Canada, centre of the ranching industry, is well known for its annual 'Stampede'. It is also well known in aquatic circles for the beautiful Amazon sword plants grown by one of the members of the Calgary A.S. When asked, the fishkeeper had the following advice to offer: leave the tank lights on your Sword plant (*Echinodorus intermedius*) 24 hours a day; best growing mixture is equal parts of peat and loam under fine gravel.

Every so often the plant must have a resting period, when it is placed in a cooler tank, devoid of fish and under a subdued light (cool being around 65°F (18°C)). After 'suffering' these conditions for about a month it is returned to the community aquarium and all the large, outside leaves are trimmed off. The plant will then run riot, sending out fresh runners and lush growth.

To facilitate easy movement between tanks, our Canadian grower keeps all his swords in pots, the tops being covered with gravel to stop the loam and peat underneath from floating up and fouling the aquaria.

* * *

Dorothy Stinson, member of the Indianapolis Aquarium Society, is noted for her fine sense of fun; recently she published in her magazine Tropical Topics some remarks heard in the pet store of Marianne Stevenson. In these depressing times of rising costs, I publish the sayings in the hope they will raise a smile to the face of our readers.

'Gee, those small neons would look lovely in the tank with our LARGE angel fish, don't you think?'

'My snail is having cramps, have you a cure? He keeps pulling in and out of his shell.'

'That's the fish I want, the one with a smile on its face.' (pointing to a shoal of khuli eels).

'The gourami must be sick, it keeps blowing bubbles on the top of the tank.'

'Remember that new tank I bought? It leaked water all over my wife's new rug. Do you purchase used tanks, please?'

'I'll take some of that seaweed for my aquarium.'

The question all aquatic dealers dread (usually from a very young person): 'How can I tell a boy fish from a girl fish?'

And it's no use you making the remark about one wearing pink shoes!

* * *

The State of Florida, covering an area of 58,666 square miles, is famous for many things and it wasn't by accident that it received the nick-

Continued on page 430

AT the turn of this century, in the south-eastern portion of California, the River Colorado overflowed into the surrounding low-lying countryside and formed a lake some 50,000 acres in extent. What had been before just an area of shallow salt flats no deeper than a cup of water became the Salton Sea—280 feet below sea level and covering the land for nearly 300 square miles—small wonder they now call it the Imperial Valley.

To-day it has become the favourite hunting ground for the aquarist, eager to catch the huge mollies found swimming there, and even if these fish elude his nets he can still come away satisfied with a large supply of plankton, a food without equal according to the local aquarists.

The mollies have been known to top 6 inches and their colours are brilliant to behold. When home, our hunters find that the addition to the home aquaria of one teaspoon of Epsom salts plus two teaspoons of cooking salt helps the fish to settle down and thrive.

Before you decide to book the next plane to Los Angeles, let me warn you that on arrival in the City of the Angels, your trip to the mollie breeders' heaven isn't over. You still have 160 miles of hell to traverse to the sea in a climate so hot it can curl paper until it resembles dried snake-skin.

* * *

American aquarist, editor and author, Albert J. Klee, spent some time last summer struggling to catch fishes in that inhospitable part of South America that boasts mosquitoes the size of cichlids and for entertainment has the head-hunting Jivaro Indians. Not without a sense of humour (you need one to collect

'SWORD PLANTS' IN SOUTH AMERICA

New Amazon Sword Species

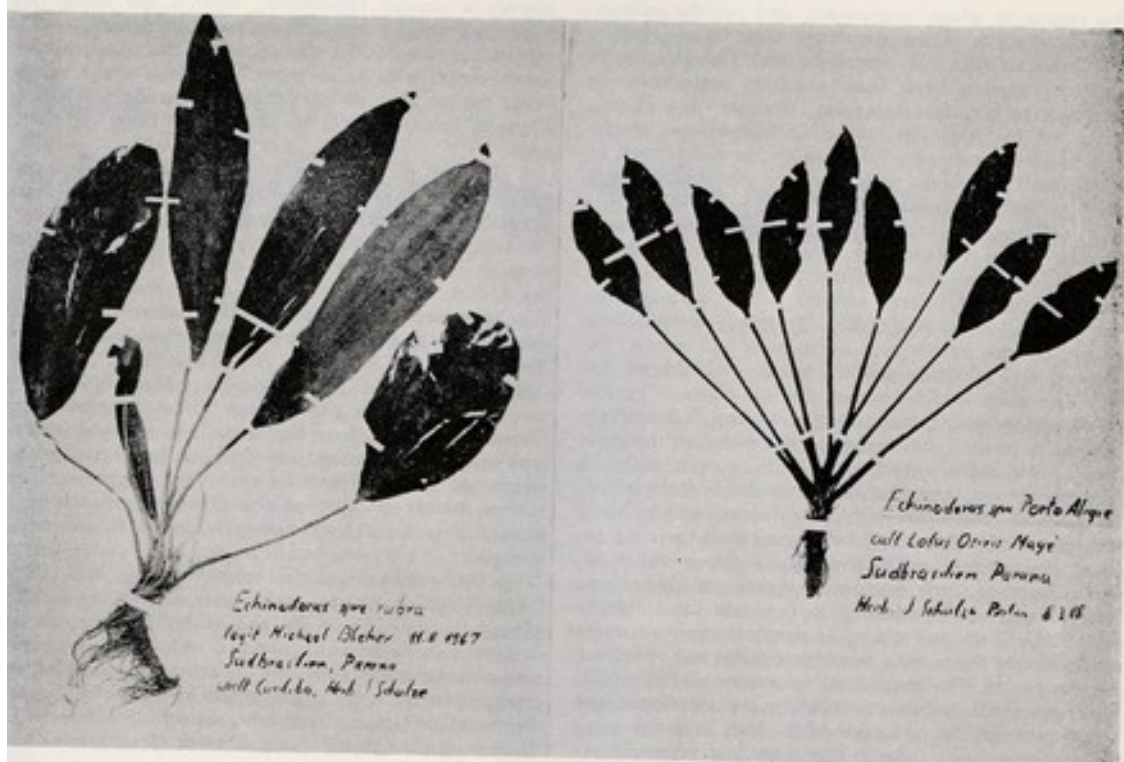
By Dr JOACHIM SCHULZE

Translation by F. MARSH

ON the South American survey made in the summer of 1967 jointly with Mr Thomas Horeman the opportunity arose in the first place to study *Echinodorus* species, and several other kinds of plants important to the aquarist, in their natural habitat and by this means to gain information about the best conditions for cultivation in the aquarium.

On a survey limited to a few weeks, one cannot count on making many new botanical discoveries. To achieve that would need years and one would even need to transfer one's place of residence to the home of the plants. However, owing to the excellent help of the well-known water plant and tropical fish exporters Lotus Osiris, in Magé near Rio de Janeiro, we had the good luck

Specimens of *Echinodorus species rubra* growing in an aquarium



Photographs of a herbarium specimen of *Echinodorus* species *rubra* (left), collected in south Brazil, and of *Echinodorus* species *Porto Alegre* (right), cultivated by Lotus Osiris Company. Such dried specimens are used by botanists to support descriptions of plants awaiting identification or recognition

to discover the habitat of several new species in S. Brazil. As they were very beautiful species and useful for our aquaria, descriptions of these not yet botanically determined plants will be included in my articles.

To begin with, some preliminary remarks about the conception of 'new' in the aquarist world should be made. When plant catalogues from specialist businesses and reports in aquarists' journals use the word new, we must carefully distinguish between botanical newness and aquarist newness. Many of the aquarium plants newly reported in recent years have already been known to botanists for decades, and the newness is limited merely to the successful application to and culture for the first time in aquaria. Often it is not known under what name a plant has been classified earlier, and to avoid the difficulty of offering for sale a plant without a name, the plant is in short given a new name. The addition of 'species' to the commercial name must not be forgotten to distinguish a commercial name from a valid botanical name. Hence some time before the last war the beautiful *Echinodorus Martii* was found in Goiás/Brazil by the river Araguaia near Leopoldina, and because in the first instance the plant could not be identified, it was imported under the commercial name *Echinodorus Leopoldina*. When the correct information had been found in the specialist rarities, then the identity of the plant as *E. Martii* would have been established on the basis of its description in 1881 and aquarists would have been spared the confusion of the new name.

But if a truly hitherto un-named species is involved, one

speaks for a relatively long period of a 'new species', because it takes a long time for a new plant to become universally known. Here is a difference from what happens with the advent of a new fish species, whose reputation spreads like wildfire; plants break through to fame less quickly.

The four new southern species of *Echinodorus* to be described are, in my view, not only new in the aquarium sense but also botanically new, for they accord with none of the published descriptions of *Echinodorus* species. The designations employed here are purely commercial names (with the suffix 'species') and in fact the plants were attributed to the Lotus Osiris Company in Magé, from whom some of the plants in the photographs originate. I am also obliged to this firm and to the proprietress Frau A. Bleher for giving me the pressed sprays illustrated.

Commercial names often change with the marketing of the plants, and sometimes large water plant houses display the shameful ambition if possible to connect their own business name with a new species. Such desire for prestige is out of place, because it leads only to further confusion. The commercial name should be only a temporary expedient, so that the plants may be studied and identified, the commercial name as soon as possible being replaced by the correct botanical name.

We cannot yet arrive at such a definite conclusion with the four species to be referred to here as *Echinodorus* species *rubra*, *E. species undulata*, *E. species Porto Alegre* and *E. species opacus* because as yet we know only

the vegetative plant components, and not the inflorescence and seeds. These structures must be included in the characteristics for determination. Descriptions of southern species have been carefully considered by reference to botanical literature. Hauman¹ has already described for Argentina alone 12 *Echinodorus* species and Arechavaleta² three for Uruguay, to which must be added further species with southern distribution from the large named class-revisions.

The name *Echinodorus species rubra* was chosen because of the reddish tinge, which at times can clearly be seen, in young leaves of this plant. It is a splendid, beautiful plant for large aquaria, which distinguishes itself from our broad-leafed Amazon sword plants clearly by the mostly rich dark-green leaf colour, the stronger leaf structure and the sturdy club-shaped leaf with less deep undulations of the leaf edges. The leaf blade of large specimens reaches 20-30 cm., infrequently 40 cm., in length, and leaves grow to 6 cm., at the most 8 cm., wide. Characteristically, the widest point is found in the upper part, at about two-thirds of the length of the leaf. True inverted ovoid leaves, which being foreshortened and strongly broadened have their widest point also somewhere in the second upper leaf-third, were, however, only seldom observed in *Echinodorus species rubra*, as for instance in the right-hand outside leaf of the illustrated spray. Generally there is a narrow elliptical leaf shape with the widest point not occurring symmetrically. The leaves have five main veins, of which the three middle ones are particularly well developed and stand out from the underside of the leaf. Both the outer primary veins run near to the wavy leaf edge. Extraordinarily striking also are the very regular, extensive parallel venation.

All primary veins spring from the leaf base, in which a clear difference from *E. Martii* can be noticed because in the latter at least two, and with large old leaves commonly four (that is, two pairs), of primary veins spring from the middle vein. The leaf stalks remain mostly shorter than the leaf-blades and reach 15 to 20, seldom 30 cm. The upper side of the leaf stem is flattened, the under side rounded. The leaf stems are clearly winged and the wings cross over one another at the leaf base. At the lower end the stems are up to 5 mm. thick and spring from a strong, fairly long, cylindrical rhizome.

This description is valid for the submerged growth form, which occurs in Nature and was cultivated in the aquarium. By growing the plants out of water for quicker propagation, cultivated specimens were obtained that

display a similar appearance, though the leaves are somewhat stockier and the waviness of the leaf-edges sometimes missing. In the aquarium the plant quickly forms shoots with 15 or more buds from which some times up to five daughter plants can be cultivated. Flowers, however, have up to now not been known to me.

I obtained *E. species rubra* for the first time several years ago at the water plant gardeners' Alfred Blaas near Munich under the designation of *E. species Schweden*, because the plant must have been imported to western Europe at first through Sweden. In England and the U.S.A. the plant is known as the melon Amazon. We have now tried to solve the mystery of the first discovery of this plant and received valuable clues from Frau A. Bleher.

The great probability is that Herr Hans Griem was the discoverer of the plant. Herr Griem migrated from Germany to Brazil long before the last war and undertook many expeditions into the interior there in the service of the aquarist. To tropical fishkeepers he is known mainly because of the *Hyphessobrycon* species named after him (*Hyphessobrycon griemi* Hoedemann) in 1957.

We have scrutinised the correspondence with Herr Griem, his quotations and his business papers. He offered the plant about the end of the fifties under the designation *Echinodorus species*, without any commercial name added, but took his exact knowledge of the origin of the plant to the grave with him in 1963. Nevertheless Herr Griem disclosed a distribution reference, 'Origem sul do Brazil' (origin South Brazil), which at least marked the approximate area.

Recently the plant has been collected, together with the other three new kinds, in the south and distributed through an agent in Sao Paulo. Unfortunately it is not possible at the moment to establish to what extent the present collecting activity actually goes back to the information from Herr Griem, or whether independent new findings have been added.

To be continued

References

- 1 Hauman, L. Les Alismatacées Argentines, ANAL. MUS. NAC. BUENOS AIRES 27 (1915). p. 307, pp. 309-18.
- 2 Arechavaleta, J. Flora del Uruguay, Alismáceas, ANAL. MUS. NAC. MONTEVIDEO 4 (1903). pp. 64-68.

Transatlantic Topics

Continued from page 427

name Sunshine State and that its emblem is the orange blossom because amongst other things it was the first part of the country to produce oranges.

Boasting more lakes than any-

where else in the U.S.—30,000 of them, it also has the oldest cypress tree (about 3,500 years old), near Sanford, and the longest escalator at Busch Gardens in Tampa.

Now it boasts the first full-scale production of albino snails! Two years ago, Carl Immeke, of Miami, started searching in his fish tanks and pools and isolated any snails he found that were of lighter colour than their brethren. Applying simple

breeding techniques he now produces them in the hundreds, all breeding true albino.

* * *

Last year has seen feverish activity in U.S. Government Departments in an attempt to try and save much of their life species in danger of extinction. I fondly hope that MAN was included on their list?

BEGINNER'S GUIDE TO FISHKEEPING

More about

Aquarium 'Electrics'

By D. & J. BROWN

LIGHTING for an aquarium not only gives the set-up a nice appearance but it is essential for success with plant life. A happy medium has to be attained in its use, however, both too much and too little light being bad.

The methods of electric lighting are by incandescent lamps (bulbs or striplights) or fluorescent (including two rather special types: Grolux and Kolorite). A single incandescent lamp has disadvantages as fitted in the aquarium hoods usually available. This form of lamp gives heat as well as light, it illuminates only certain parts of the tank, it is exposed to water condensation (and violent aeration can spray water into the holder or on to the light glass with the risk of broken lamp glass going into the tank).

Striplights are tubular (either 221 mm. or 284 mm. long), with an electrical contact at each end fitting into the skeleton holder that can be bolted into the hood. These give even distribution of light, although here again there is a risk of tube breakage (we favour the use of plastic 'lamp guards' to cover the tubes).

We advocate the use of low-voltage lighting, which is safe, economical, easy to instal and cheap to replace. A transformer is used to convert the mains supply, say 240 volts A.C., to, say, 6 or 12 volts D.C., the 5 watt bulbs being used in screw holders.

Fluorescent lighting is well known as being without heat formation and cheap to run, but its great drawback for aquarium use is that when it is switched on the tubes flash after their night's inanimation: think of a human being in semi-darkness being exposed to a searchlight flashing twice! We believe this effect to be harmful as the frightened fish dash around the tank and, even if they do not knock against rocks etc., are liable to damage each other.

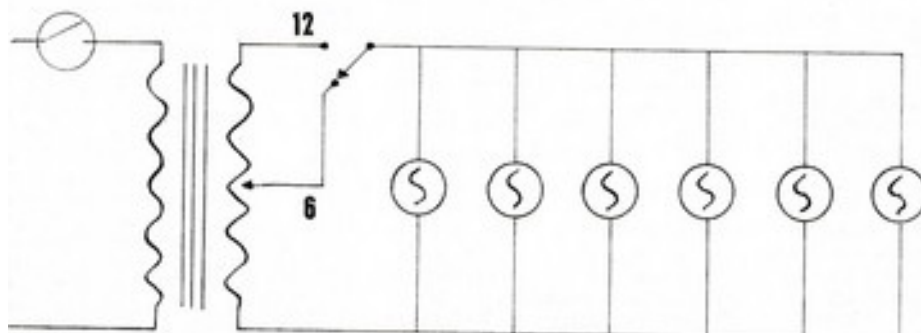
We have both low-voltage lighting and striplights in use, and have fitted the circuits with a dimmer so that the switching on and switching off processes have more natural results. Dimmers can be obtained for fluorescent tubes but these are probably too expensive for general use. Recently available are devices known as silicon-controlled-rectifiers, used in drill speed-controllers, and we are experimenting with those in the hope that a simple circuit to dim the lights in an efficient and inexpensive way can be developed.

Wiring for lighting is done with twin 1/044 cable, although if fluorescent tubes are used it is better to wire with three core 1/044 (twin with earth), the green wire being volted to the metal hood of the aquarium.

If lighting sockets are mounted on a wood block together with the heater and thermostat sockets these should be of different sizes so that there is no risk of mistakes in their use.

The last commonly used aquarium electrical apparatus to be mentioned is the aerator—either a vibrator or a piston pump. The former is basically a small air compressor in which an electric coil attracting a movable yoke is the origin of mechanical movement whereas the latter is driven with a small electric motor.

Both types of aerator are mechanically sound pieces of equipment, the commonest fault developing with vibrators being noise emission. The usual remedy for this is replacement of the internal diaphragm or adjustment of the moving part. When in doubt, however, either contact the supplier of the aerator or the manufacturer.



Low-voltage lighting circuit, showing the transformer (left) used to supply 6 volts or 12 volts via the dimming switch to any number of 12 volt, 5 watt bulbs that the transformer can accommodate (six are shown here, with the switch in the dimmest 6 volt position)

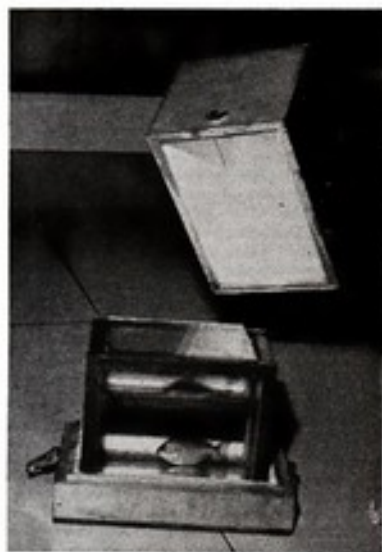
Aqua-Tip

Transporting fish entries

complete with show tank



MR Len Smith, latest Council Member of the Federation of British Aquatic Societies to be appointed and member of Bethnal Green A.S., demonstrates in these photographs how he has solved benching problems for his fish at shows. The fish (here a piranha is being shown) is transported in a show tank within a handy wooden case lined with expanded polystyrene, all ready for benching once the two snap fasteners at the ends of the box are flipped open and the lid is lifted off. This avoids risks from exposure to water changes and temperature changes as well as doing away with disturbance of the fish that can occur on transfer from jar to tank.



REVISION to two rules was made at a recent meeting of the **MIDLAND AQUARISTS LEAGUE**. Rule 7 now reads: 'Home Society to provide M.A.A.S. judge where possible and abide by M.A.A.S. standards where not specified by these rules'; the breeders class is to consist of six to a brood with an age limit of 12 months at the time of the show. Nuneaton has now joined the League, making a total of seven member Societies (Atherstone, Coventry, Leamington, Northampton, Nuneaton, Rugby, Bedworth). The season will run from March to October on the following rota: March, livebearer breeders, cichlids and anabantids, Atherstone. April, egglayer breeders, barbs and characins, Northampton. May, livebearer breeders, a.v. guppies and a.v. coldwater, Coventry. September, egglayer breeders, a.o.v. livebearer and a.o.v. tropical, Bedworth. Oc-

tober, livebearer breeders, catfish and loaches, rasbora, danios, killies, minnows, Rugby. Secretary of the League is Mr Roger Winter (Northampton), 24 New Town Road, Northampton NN1 5LB.

CHESTER & D. A.S. members have been enjoying a full and varied programme over the past few months. Many members from both Societies attended the inter-club quiz and table show held with Northwich A.S. A visit to Chester Zoo and a talk on the upkeep of the aquarium by Mr Fred Williams proved very popular. Club nights have also included a talk on pencil fish by club member Mr Peter Tomlinson, and a talk by member Mr Roger Dutton on photo-

THE Kings Hall Open Show to be held at Lower Clapton Road, London, E.9 on 23rd February is sponsored by Hackney Borough Council and will utilize the whole area of the Hall. At the Borough's Show held last November only part of the Hall was used for aquaria so a very full display is expected next month. Details of entry etc. are obtainable from Mr A. Collins, 11 Arrowsmith Road, Hainault, Essex.

Mr P. F. Capon of Southend, Leigh & D.A.S., reporting on the inter-club match with BLACKWATER A.S., tells us that a member of the latter club has had the experience of getting *Hygrophila polysperma* to flower. So unusual an occurrence is this that Professor De Wit in his book *AQUARIUM PLANTS* advises anyone who gets flowers on his 'Hygro' to send flowering material to the Laboratory for Plant Systematics and Plant Geography of the Agricultural University at Wageningen, Holland, for identification purposes.

graphing aquatic subjects, illustrated with a selection of his own slides including those showing microphotography, individual fishes and complete furnished aquaria. Even experienced members were puzzled by some of the plant leaves incorporated by chairman Mr Eric Stokes in a plant-leaf quiz and a discussion on the merits of trying to simulate the natural habitats of various plants aroused a lively discussion. For next year a number of experienced lecturers in the north-west have been invited to the club and anyone who would like to join in these activities will be made most welcome and

should apply to the secretary, Mrs A. Dutton, The Limes Farm, Tarvin, Chester.

BLACKWATER A.S. held their first inter-club challenge match during November with three other clubs. Mr Skilton of Galleywood compiled the quiz and after an exciting evening the home team just won the trophy with 43 points to 39 (Southend) (Billerica, 30 and Witham, 14). Mr E. Niccol of Thurrock judged the 82 entries in the table show and made awards to: Barbs, 1, Mr Murphy (Billerica); 2, Mr Willet (Witham); 3, Mr Orford (Southend). Tetras, 1, Mr Edwards (Southend); 2, Mr Bird (Blackwater); 3, Mr Cornwall (Witham). Labyrinths, 1, Mr Edwards (Southend); 2, Master J. Devall (Blackwater); 3, Master S. Kempen (Blackwater).

MEMBERS of the FANCY GUPPY ASSOCIATION scored well at the Berlin International Guppy Show, N. & D. Court took a second and a trophy in the breeders' class bottom weeds; Mr M. Delingpole took six places, four of which were breeders' teams; Mr S. Croft took three places; Mr P. W. Jinks took third in the short-tail breeders; Mr D. Curry four places in the single classes of delta, black veil, yellow and the new colour class; Mr H. Vinal gained a place in the breeders' delta class.

REPORTS of several months' successful activities come from **AIREBOROUGH & D. A.S.** New members continue to swell the Society's numbers and to enjoy first-class lectures such as that given by Mr R. E. Legge, zoo superintendent at Belle Vue, Manchester. Mr Legge's lecture was illustrated with slides and at a subsequent meeting club members Mr Ken Emms and Mr Ken Bateman entertained members with slides they had taken themselves.

At the inter-society show that Aireborough held, Mr L. Thompson of Miscenden was awarded the best in show for his severum cichlid. Details of the results were as follows:

Guppies: 1, Mr Dickson (Swillington); 2, Mr Thickboom (Pontefract); 3, Mrs Whitfield (Kighley), A.O.V. livebearer: 1, Mrs Robinson (Aireborough); 2, Mr R. Lister (Aireborough); 3, Mr Reeve (Miscenden). Barbs: 1, Mr and Mrs Stinger (Swillington); 2, Mr B. Stokes (Doncaster); 3, Mr Allopp (Halifax). Catfish and loach: 1, Mr P. Reynolds (Swillington); 2 and 3, Mr R. Lister (Aireborough). A.V. pairs: 1, Mrs Whitfield (Kighley); 2, Mr R. Lister (Aireborough); 3, Mr P. Reynolds (Swillington). Characins: 1, Mr Brown (Miscenden); 2, Mr Allopp (Halifax); 3, M. E. Kay (Aireborough). Anabantids: 1, Mr R. Taylor (Aireborough); 2, Mr Brown (Miscenden); 3, Mr Dickson (Swillington). Cichlids: 1,

Mr L. Thompson (Miscenden); 2, Mr P. Barrin (Aireborough); 3, Mr R. Taylor (Aireborough). Carps and minnows: 1, Mr. Kay (Aireborough); 2, Mr P. Barrin (Aireborough); 3, Mr W. Naylor (Aireborough). A.O.V.: 1, Mr Carey (York); 2, Mr Naylor (Halifax); 3, Mr Smith (Kighley). A.V. breeders: 1 and 2, Mrs R. Robinson (Aireborough); 3, Mr Brown (Aireborough). Furnished mini-jars: 1, Mr Naylor (Halifax); 2 and 3, Mr Shields (Halifax).

The points table reads: Aireborough 29, Swillington, Halifax 11; Miscenden 8; Kighley 5; York 3; Pontefract, Doncaster 2.

DETAILED results have now been received of the very successful **REIGATE & REDHILL A.S.** open show. Entries were received from 20 clubs (including some from Bath and Portsmouth and equally far-distant societies) and totalled 519 in 25 classes. Several of the classes attracted heavy entries—including anabantids of which there were over 50. Club members agreed after the show that holding it on a Sunday encouraged a number of competitors to make the day a family outing, and that a larger hall must be obtained for this year's fixture!

Detailed results were the following.

Club furnished sparis, tropical: 1, Harlow A.S. (76); 2, Portsmouth A.S. (74). Club furnished, coldwater: 1, Reigate & Redhill (58); 2, Portsmouth (63). Individual miniature furnished: 1, Mr K. Appleyard (Thurrock, 86); 2, Mr T. Walker (Guldford, 76); 3, Mrs J. Salisbury (Harlow, 74). A.V. pairs: 1, Mr C. Chisholm (Croydon, 81); 2, Mr K. Appleyard (Thurrock, 86); 3, Mr F. B. Young (R. & R., 78). A.V. sword-tail: 1, Mr A. J. McCarthy (Catford, 78); 2, Mr R. Smith (Tottenham, 77); 3, Mr W. Evans (Uxbridge, 25). A.V. models: 1, Mr J. S. Wilson (Catford, 87); 2, Mrs M. Nicoll (R. & R., 80); 3, Mr P. Tee (Brighton, 76). A.V. guppy: 1 and 2, Mr C. Beets (Portsmouth, 78, 80); 3, Mr C. T. Manzing (Kingston, 77). A.O.V. livebearer: 1, Mr R. Cooper (Kingston, 84); 2, Mr B. Pearson (Froilance, 76); 3, Mr T. J. Summers (Uxbridge, 28).

A.V. barb: 1, Mr R. McMullen (R. & R., 81); 2, Mr T. Walker (Guldford, 81); 3, Mr C. West (Mid-Sussex, 80). Characins, Xanostoma and Anostoma: 1, Mr P. A. Grovesman (Romneye, 80); 2, Mrs M. Nicoll (R. & R., 76); 3, Mr F. T. Mathiasen (Tonbridge, 78). A.O.V. characins: 1, Mr B. Macanionnigh (Tottenham, 81); 2, Mr K. Jackson (Harlow, 81); 3, Mr E. Cox (Worthing, 78). Danios, Rabbits, minnows: 1, Mr R. J. Baker (Tonbridge, 80); 2, Mr A. J. McCarthy (Catford, 78); 3, Mr M. A. Carter (Brackwell, 77).

Angels: 1, Mr P. A. Grovesman (Romneye, 75); 2, Mr W. Brookfield (R. & R., 74); 3, N. & S. Packman (R. & R., 73). Dwarf cichlids: 1, Mr C. Chisholm (Croydon, 79); 2, Mr J. Marshall (Croydon, 28); 3, Mr B. Pearson (Froilance, 77). A.O.V. cichlids: 1, Mrs Pawley (Kingston, 78); 2, Mr J. Cox (R. & R., 78); 3, Mr and Mrs Stillwell (Portsmouth, 77).

ST GEORGE'S HALL, BRADFORD, will again be the venue of the **National Furnished Aquarium Exhibition** that Keith Barraclough is sponsoring on 18th-22nd June. Details of entry will be announced shortly.

WHEN Mr E. J. Leach, a warrant officer and diving instructor in the Army, lectured to MERSEYSIDE A.S., club members were enthralled with the film showing Mr Leach's pupils diving in the waters off the coast of Teatin (the island where the musical "South Pacific" was filmed) surrounded by marine angelfish and parrot fish. Mr Leach explained that angelfish are both fearless and curious and constitute rather a nuisance to the divers as they will swim up to peer through the divers' masks.

Egglaying toothcarps: 1, Mr T. Walker (Guldford, 82); 2, Mr B. J. Pawley (Kingston, 81); 3, Mr R. Macanionnigh (Tottenham, 76). A.V. catfish: 1, Mr C. Chisholm (Croydon, 81); 2, Mr N. L. Gregory (Bath, 80); 3, Mr J. Wright (R. & R., 78). Siamese fighters: 1, Mr D. C. M. Darvas (Thurrock, 76); 2, Mr J. Wright (Bath, 78); 3, Mr S. Mooney (Tottenham, 77). A.O.V. anabantid: 1, Mrs M. Nicoll (R. & R., 81); 2, Mr S. Mooney (Tottenham, 82); 3, Mrs G. Carter (Brackwell, 81). A.O.V. tropical egg-layer: 1, Mr S. Mooney (Tottenham, 82); 2 and 3, Mr P. Tee (Brighton, 81, 78). Breeders livebearers: 1, Mr G. Greenhall (Kingston, 77); 2, Mr C. Beets (Portsmouth, 78); 3, Mr J. D. Wilson (Catford, 74). Breeders egg-layer: 1, Mr H. S. Wood (Croydon, 77); 2, Mr T. Walker (Guldford, 74); 3, Mr J. D. Wilson (Catford, 77).

Coldwater, Siplatids and comets: 1, Miss D. Morris (R. & R., 80); 2, Mr R. M. Whittington (R. & R., 81); 3, Mr W. Leach (R. & R., 80). Twintails: 1 and 2, Miss D. Morris (R. & R., 80, 84); 3, Mr J. Lisle (Romford, 81). Common goldfish and London shubunkins: 1 and 2, Mrs P. Whittington (R. & R., 81); 3, Mr T. W. Leach (R. & R., 81). A.O.V. fancy goldfish: 1 and 2, Miss D. Morris (R. & R., 78, 76); 3, Mr R. M. Whittington (R. & R., 78). Nettle and foreign: 1, Mr and Mrs Stillwell (Portsmouth); 2, Mr B. Macanionnigh (Tottenham); 3, Mr V. B. Hunt (Portsmouth). Coldwater breeders: 1 and 2, Mr J. Lisle (Romford, 84, 81); 3, Mr R. M. Whittington (R. & R., 80).

Special awards were made to Mr S. Mooney (Tottenham, F.B.A.S. award for best a.o.v. tropical egg-layer); Harlow A.S. (Rundle Hill trophy for best club furnished aquarium, tropical); Mr J. D. Wilson (Catford, T. F. H. Shield for best livebearer); Mr J. D. Wilson (Catford, Carrington Cup for best tropical fish); Mr B. Macanionnigh (Tottenham, Gaydogs Cup for best characin); Miss D. Morris (R. & R., the Daphne Morris Cup for the best twintail); Mr C. Beets (Portsmouth, the G. B. Bass Cup for best fancy guppy); Mrs M. Nicoll (R. & R., the 1968 Committee Cup for a nominated class, anabantid); best fish in show and Mr and Mrs Stillwell (Portsmouth).

The winter programme for the club's meetings has lectures, discussions and film shows, and the usual table show held every meeting. The club meets on every other Monday at Somers Hall, Slipshoe Street, Reigate and newcomers are very welcome.

MERSEYSIDE A.S. members brought their showing season to a most successful climax with their visit to the B.A.F. Mr Norman Kirby and son took a second in the dwarf cichlid pairs class and a third for single gouramis and single catfish. Chairman Mr Fred Mulla took a second in the gourami pairs class and a third in the catfish pairs and show secretary Mr John Robinson a first in the class for single characins. Mr Ken Parkes was, of course, the outstandingly successful competitor. He was awarded a first for his pike cichlid and the trophy for pairs of barbs for his tinfol barbs (for the third year running). Mr Bill Kelly continues the tale in the club's magazine: "When this pair of fish were judged separately they were assessed as being 'Best Fish in Show' and 'Second Best in Show'. Having won the Best in Show award, that fish was then eligible for entry in the Champion of champions' class... and was placed second. A truly magnificent result, well earned by years of experience and persistence (not to mention hard work) in growing the larger barbs and exhibiting them at shows all over the North and Midlands'.

Society membership now totals 113 and members have been enjoying some excellent lectures. Slide/tape lectures by Mr Jim Kelly on the Marineland of Florida and 'A Matter of Breeding' were very popular. Mr E. J. Leech kept his audience fascinated with his lecture on 'Dangerous Sea Animals' and the Society's president, Mr R. Leggs, had many amusing anecdotes to tell on studying coastal marine life and collecting rockwork and driftwood.

BRISTOL T.F.C. were able to report a very successful year at their recent A.G.M. The Society's open show proved again to be very popular and a committee has been formed to plan details for 1969 (show secretary, Mr E. Newman, 71 Somerdale Avenue, Knowle, Bristol 4, will be announcing details as soon as possible). Members scored many successes in other open shows during last year and were pleased to be able to supply judges to several shows including Cheltenham and Barry. Members were able to hear a very high standard of lectures at club meetings and a comprehensive programme of talks, slide shows and table shows is arranged for 1969. Coach outings were made last year to various aquatic establishments and to The Aquarium Show at the Royal Horticultural Hall, London. Anyone who would like to join in these activities should contact the secretary, Mr W. Holland (416 Whitchall Road, St. George, Bristol 5) or attend a meeting

held on the third Tuesday of the month at the Black Horse Hotel, West Street, Bristol 1 at 7.30 p.m.

Other officers elected at the A.G.M. were: chairman, Mr L. Littleton; vice-chairman, Mr A. Kimber; asst. secretary, Mr C. McGrath; treasurer, Mr R. Toose; reporting secretary, Mr R. Chapman; programme officer, Mr G. Gale; librarian, Mrs P. Chapman; auditors, Mr G. Furber and Mr B. Clarke. Award winners for the 1968 table shows were: open section, Mr F. Brown (runner-up Mr A. Hinks); novice section, Mr M. Heard (runner-up Mr A. Hinks).

SHOW secretary of **BETHNAL GREEN A.S.**, Mr Len Smith, wishes to thank everyone who helped to make the Hackney Show a success. Sponsored by Hackney Borough Council, the 'Fur, Feather & Aquarium' Show proved very popular and there was a highly satisfactory number of entries for judges Mr A. G. Jessopp, Mr D. Ellis and Mr Tomkins to inspect. The home team won the Club Awards shield and the best in show award was made to Mr A. Millhouse (Bethnal Green A.S.) for a *Pimelodella*. Details of the results follow.

Inter-club furnished aquaria (20 entries): 1 and 2, Walthamstow; 3, Tottenham. Individual furnished aquaria (6 entries): 1, Mrs Barry (B.G.); 2, Mr K. Applewood (Catford); 3, Mr J. Salsbery, London. Shubunkins (8 entries): 1, Mr R. Stroudwick (Tottenham); 2, Mr V. Voysey (G.S.G.B.); 3, Mr G. Mason (B.G.). Singetail comets (2 entries): 1, Mr D. Smalley (Walthamstow); 2, Mr J. Linale (Romford); 3, Mr H. Berge (Ilford). Twinstails with dorsals (15 entries): 1, Mr J. Linale (Romford); 2 and 3, Mr H. Berge (Ilford). Native coldwater (2 entries): 1 and 2, Mr V. Voysey; 3, Mr B. Mather (Walthamstow). Twinstails without dorsals (3 entries): 1, Mr J. Linale (Romford); 2, Mr R. Berger (Ilford); 3, Mr D. Smalley (Walthamstow). Foreign coldwater (6 entries): 1 and 2, Mr V. Voysey; 3, Mr G. Owen (Catford).

A.v. sword (21 entries): 1, Mr F. E. T. Smith (Catford); 2, Mr A. Jamieson (Catford); 3, Mr B. Mather (Walthamstow). A.v. snail (3 entries): 1, Mr J. Wilson (Catford); 2, Mr G. Martin (B.G.); 3, Mr A. Kinsey (Independent). Danios, raddies, rainbows (12 entries): 1 and 2, Mr E. Lough (Catford); 3, Mr T. Gower (B.G.).

A.s. dwarf cichlid (13 entries): 1, Mr B. G. Dunn (Southend); 2, Mr L. Curry; 3, Mr T. Mann. A.v. fighter (13 entries): 1, Mr R. Mooney (Tottenham); 2, Mr B. G. Dunn (Southend); 3, Mr L. Dunn (Harlow). A.v. toothcarp (17 entries): 1, Mr A. Tucker (Southend & B.K.A.); 2, Mr B. G. Dunn (Southend); 3, Mr S. Mooney (Tottenham). A.v. pike (14 entries): 1 and 2, Mr F. Young (Reigate & Redhill); 3, Mr R. Knock (B.G.). A.s. cichlid (10 entries): 1 and 2, Mr A. Jamieson (Catford); 3, Mr R. Taylor (Walthamstow). A.v. barb (20 entries): 1, Mr R. Taylor (Walthamstow); 2, Mr R. Knock (B.G.); 3, Mr F. Young (Reigate & Redhill). A.s. tropical (22 entries): 1, Mr G. Martin (B.G.); 2, Mr J. Colford (Froelance); 3, Mr R. Knock (B.G.).

A.s. Characina (17 entries): 1, Mr H. Wood (Croydon); 2, Mr A. Jamieson (Catford); 3, Mr R. Owen (Catford). A.s. characin (11 entries): 1, Mr A. Millhouse (B.G.); 2, Mr T. Mann; 3, Mr F. Kendrick

(Froelance). A.s. labryinth (23 entries): 1, Mr J. Wilson (Catford); 2, Mr F. Young (Catford); 3, Mr F. Kendrick (Froelance). Catfish or loach (14 entries): 1, Mr A. Millhouse (B.G., best in show); 2, Mr G. Greenhalf (Kingston); 3, Mr A. Jamieson (Catford).

Brooders coldwater (8 entries): 1 and 2, Mr J. Linale (Romford); 3, Mr D. Smalley (Walthamstow). Brooders livebearers (21 entries): 1 and 2, Mr B. Mather (Walthamstow); 3, Mr B. G. Dunn (Southend). Brooders egglayers: 1, Mr S. Mooney (Tottenham); 2, Mr F. E. T. Smith (Catford); 3, Mr J. Wilson (Catford).

AT the last table show of 1968, Mr J. Hughes of **ROEHAMPTON A.S.** won the J. Hughes Cup with the highest total of points from the year's table shows. Two other cups, won by Mr J. Waller (first, characin) and Mr A. Morgan (first, a.v. catfish) were presented at the subsequent meeting when a presentation was also made to Mr D. Yorke of a table lighter for his services to the club.

The position of show secretary has been taken over by Mr J. Hughes and Mr V. Thompson has become a committee member. Included in the programme of meetings for the first half of 1969 are talks by Mr D. Smalley (15th January), Mr J. Morrice (25th February), Mr F. Katrinzky (25th March) and Mr F. Tomkins (7th May). A warm welcome is extended to all prospective new members and visitors who would like to attend one of these meetings, on alternate Wednesdays at the Minstead Gardens Old People's Clubhouse, Danebury Avenue, Alton Estate, Roehampton.

AT the inter-club competition to which **HORSFORTH A.S.** invited **KEIGHLEY A.S.**, there were 10 classes in the table show and awards were made as follows:

Catfish and loach: 1, Mr C. Corn (Horsforth); 2, Mr Bickle (Keighley); 3, Mr Audley (H.). Livebearers: 1, Mr B. Burnap (K.); 2, Mr C. Corn (H.); 3, M. Bickle (K.). Barbs: 1 and 2, Mr Girdham (H.); 3, Mr Burnap (H.). Anabantids: 1, Mr B. Lancaster (H.); 2, Mr H. M. Smith (K.); 3, Mr F. Densley (K.). Cichlids: 1, Mr White (K.); 2, Mr Bickle (K.); 3, Mr B. Lancaster (H.). Pike: 1, Mr White (K.); 2, Mr F. Densley (K.); 3, Mr M. Pollard (H.). A.v. breeders: 1, Mr Burnap (K.); 2, Master J. Dugdale (H.). Characina: 1, Mrs P. Hall (H.); 2, Mr White (K.); 3, Mr B. Lancaster (H.). A.s.v.: 1, Mr H. M. Smith (K.); 2, Mrs J. Dickinson (H.); 3, Mr White, Junior a.o.v.; 1, Master White (K.); 1 and 2, Master D. Shaw (H.).

The best in show award was made to Mr White of Keighley and the final points' result was: Keighley, 32; Horsforth, 27. The table show was but a part of the evening's entertainment. This has also included a most varied selection of films, mostly supplied by Mr Braz Walker, of tropical fish, freshwater and marine, of a public aquarium in the States, of reptiles and other allied aquatic subjects. A pic and pea supper rounded off the activities and made a most enjoyable evening for all who attended.

FROM over 300 entries received from 24 societies, Mr D. Kennedy of Bradford received the best in show award for his Oscar at the HALIFAX A.S. seventh open show. The F.N.A.S. judges were Mr R. M. Faircliff, Mr B. Pengilly, Mr J. M. Skinner and Mr F. Taylor and the winners were as follows.

- Guppies: 1, Mr J. Greenwood (Halifax); 2, Mr M. Ward (Mixerden); 3, Mr D. W. Smith (Tadcaster). Swordtails: 1, Mr C. J. Burnap (Aireborough); 2, Mr and Mrs Bone (Huddersfield); 3, Mr D. R. Studden (Loyne). Mollies: 1, Mr J. Greay (Suttonbrow); 2, Mr T. Bickel (Keighley); 3, Mr D. R. Studden (Loyne). Platys: 1, Mr and Mrs T. Webb (Salford); 2, Mr R. Wilkinson (Halifax); 3, Mr J. Greay (Suttonbrow). Characins, small: 1, Mr R. Wilkinson (Halifax); 2, Mr D. Shields (Halifax); 3, Master Lacey (Aireborough). Characins, medium: 1, Mr N. Turner (Mixerden); 2, Mr A. G. Whyte (Halifax); 3, Mr D. Kennedy (Bradford). Characins, large: 1, Mr J. Murray (Salford); 2, Mr and Mrs J. Howard (Barnsley); 3, Mr A. G. Whyte (Halifax). Barbis up to 100mm: 1, Mr and Mrs J. & H. Dennis (Workop); 2, Mr D. W. Smith (Tadcaster); 3, Mr J. Greay (Suttonbrow). Barbis over 100mm: 1, Mr R. Taylor (Aireborough); 2, Mr I. Watson (Suttonbrow); 3, Mr A. G. Whyte (Halifax). Rasboras, dario and minnows: 1, Mr A. B. White (Keighley); 2, Mr S. Ludlum (Mixerden); 3, Mr D. Fryer (Halifax). Shorls and flying foam: 1, Mr A. G. Whyte (Halifax); 2, Mr A. B. White (Keighley); 3, Mr D. Kennedy (Bradford). Anabantids: 1, Mr R. Taylor (Aireborough); 2, Mr and Mrs Bone (Huddersfield); 3, Mr and Mrs J. Howard (Barnsley). Corydoras: 1, Mr D. Kennedy (Bradford); 2, Mr A. G. Esteva (Top Ten); 3, Mr D. W. Smith (Tadcaster). Catfish a.o.v.: 1, Mr Helm (Horsforth); 2, Mr D. Fryer (Halifax); 3, Mr T. Bickel (Keighley). Loaches: 1, Mr W. Parkin (Huddersfield); 2 and 3, Mr and Mrs T. Webb (Salford). Angels: 1, Mr K. Wheeler (Mixerden); 2, D. & R. Studden (Loyne); 3, Mr H. G. Naylor (Halifax). Dwarf cichlids: 1, Mr and Mrs J. & H. Dennis (Workop); 2, Mr P. Barrett (Aireborough); 3, Mr H. G. Naylor (Halifax). A.o.v. cichlids: 1, Mr D. Kennedy (Bradford); 2, Mr P. Barrett (Aireborough); 3, Mr L. Thompson (Mixerden). Toothcarps: 1, Mr and Mrs J. & H. Dennis (Workop); 2, Mr D. W. Smith (Tadcaster); 3, Mr D. Jackson (Rotherham). A.o.v. tropical: 1, Mr H. G. Naylor (Halifax); 2, Mr D. R. Studden (Loyne); 3, Mr S. F. Helm (Horsforth). Breeder's egg-layers: 1, Mr and Mrs J. & H. Dennis (Workop); 2, Mr D. W. Smith (Tadcaster); 3, Master A. Kaye (Huddersfield). Breeder's livebearers: 1, Mr H. Gardner (Aireborough); 2, Mr C. J. Burnap; 3, Mr R. Wilkinson (Halifax). Pair, egg-layers: 1, Mr W. Parkin (Huddersfield); 2, Mr H. G. Naylor (Halifax); 3, Mr and Mrs J. & H. Dennis (Workop). Pair, livebearers: 1, Mr M. Jones (Valley); 2, Mr R. Wilkinson (Halifax); 3, Mr and Mrs J. & H. Dennis (Workop). Fancy goldfish: 1 and 2, Mr E. W. Eaden (Sheffield). A.o.v. coldwater: 1, 2 and 3, Mr E. W. Eaden (Sheffield). Furnished jars, without fish: 1 and 2, Mr D. Shields (Halifax); 3, Mr H. G. Naylor (Halifax).

COLWYN BAY & D.A.S. report that they now have a 16 mm. sound projector available for hire, with professional applications to the secretary, Mrs P. M. Hault, 75 Cambrian Drive, Rhos-on-Sea, Colwyn Bay, Denbighshire; phone Colwyn Bay 48756.

Badge of the Month



THE HARLOW AQUARISTS SOCIETY was founded in February, 1964 and until March of last year the Society's meetings took place in a men's hairdressing saloon owned by one of the founder members. The black widow badge was chosen for its distinctive shape and made by hand by a Society member. Secretary is Mr J. B. Duncan, 113 Little Pynchons, Harlow, Essex.

MEMBERS OF NEWTOWNABBEY A.S. thoroughly enjoyed their visit to the last of the five inter-club shows organised by Short & Harlands A.S. (Co. Antrim), although as a new Society they were only 'spying out' the opposition for their participation in 1969. There was a very large attendance for this well-organised event. Mr Laughton of St. Annas showed slides and gave a talk while Mr P. M. Pearson from Newtownabbey judged the entries; and secretary Mr Robert McDonald tells us that it is felt that this event run throughout last year has really helped to foster closer ties between clubs. The results of this last meeting were: 1, Bangor, 331 points; 2, Belfast Tropicals, 324; 3, Edenvale, 313; 4, St. Annas, 312; 5, Short & Harlands, 298. The overall winners have yet to be announced.

ENTRIES for the MIXENDEN T.F.S. were a record this year at 347; 23 societies competed, 13 from Yorkshire and 10 from Lancashire. The best in show award went to Mr P. Barrett of Aireborough (C. severum, 90 points). Judges were Mr J. M. Shinner, Mr D. Dundford, Mr M. Jones. Detailed results were:

- Guppies: 1, Mr D. W. Smith (Tadcaster, 95); 2, Mr J. Greenwood (Halifax, 74); 3, Mr M. Ward (Mixerden, 71). Swordtails: 1, Mr and Mrs Bone (Aireborough, 75); 2 and 3, Mr and Mrs Bone (Huddersfield, 60, 68). Platys: 1, Mr R. Wilkinson (Halifax, 75); 2, Mr A. G. Esteva (Top Ten, 71); 3, Mr and Mrs Webb (Salford, 70). Mollies: 1, Mr Bickel (Keighley, 77); 2, Mr M. Ward (Mixerden, 75); 3, Mr J. H. Brown (Mixerden, 74). Small barb: 1 and 2, Mr F. Gregory

- (Orem, 80, 79); 3, Mr A. Beasley (Orem, 77). Large barb: 1, Mr Wilkinson (Halifax, 74); 2, Mr Burnap (Aireborough, 74); 3, Mr S. Poole (Mixerden, 69). Small characins: 1, Mr D. Kennedy (Bradford, 81); 2, Mr M. Jones (Valley, 79); 3, Mr D. Shields (Halifax, 78). Medium characins: 1, Mr N. Turner (Mixerden, 88); 2, Mr Robinson (Aireborough, 81); 3, Mr J. Wain (Huddersfield, 74). Large characins: 1, Mr J. Whately (Aireborough, 80); 2, Mr J. Howard (Barnsley, 74); 3, Mr D. Jackson (Rotherham, 71). Angels: 1, Mr Robinson (Aireborough, 71); 2, Mr L. Thompson (Mixerden, 70); 3, Mr M. Jones (Valley, 69). Dwarf cichlids: 1, Mr P. Barrett (Aireborough, 80); 2, Mr G. Poole (Mixerden, 78); 3, Mr Bickel (Keighley, 70). A.o.v. cichlids: 1, Mr P. Barrett (Aireborough, 80); 2, Mr L. Thompson (Mixerden, 70); 3, Mr D. Kennedy (Bradford, 78). Fighters: 1, Mr M. Jones (Valley, 75); 2, Mr A. Beasley (Orem, 73); 3, Mr D. W. Smith (Tadcaster, 70). A.o.v. anabantid: 1, Mr J. Howard (Barnsley, 75); 2, P. & H. Gordon, 73; 3, Mr D. Dixon (Swillington, 71). Toothcarps: 1, Mr D. Jackson (Rotherham, 78); 2, Mr L. General (Tadcaster, 71); 3, Mr J. Roberts (Nelson, 74). Shorls and flying foam: 1, Mr N. R. Gibson (Huddersfield, 81); 2, Mr A. B. White (Keighley, 76); 3, Mr D. Kennedy (Bradford, 77). Dario, minnows & rasboras: 1, Mr F. Gregory (Orem, 76); 2, Mr A. B. White (Keighley, 75); 3, P. & H. Gordon, 73. Corydoras: 1, Mr R. Robinson (Aireborough, 78); 2, Mr A. G. Esteva (Top Ten, 71); 3, Mr P. Reynolds (Swillington, 72). A.o.v. catfish: 1 and 3, Mr A. G. Esteva (Top Ten, 68); 2, Mr Bickel (Keighley, 67). Loaches: 1, Mr W. Parkin (Huddersfield, 70); 2, Mr and Mrs Webb (Salford, 70); 3, T. & W. (Belle Vue, 77). Breeder's egg-layers: 1, Mr Robinson (Aireborough, 82); 2, Mr A. Beasley (Orem, 76); 3, Mr F. Gregory (Orem, 74). Breeder's livebearers: 1, Mr P. Barrett (Aireborough, 79); 2, Mr M. Jones (Valley, 74); 3, Mr Robinson (Aireborough, 74). Pair, egg-layers: 1, Mr B. Parkin (Huddersfield, 81); 2, Mr S. F. Helm (Horsforth, 75); 3, Mr F. Gregory (Orem, 73). Pair, livebearers: 1, Mr Burnap (Aireborough, 79); 2, Mr D. Shields (Halifax, 75); 3, Mr D. R. Studden (Loyne, 68). A.o.v. tropical: 1, Mr H. Naylor (Halifax, 72); 2, Mr S. F. Helm (Horsforth, 70); 3, Mr A. G. Esteva (Top Ten, 64). Children, tropical or coldwater: 1, L. Davies (Horswood, 70); 2, P. Hodgkinson (Gorton, 75); 3, C. Longbottom (Mixerden, 71). Fancy goldfish: 1 and 3, Mr P. Moorehouse (Bradford, 80, 77); 2, Mr Eaden (Sheffield, 78). Common goldfish: 1, Mr C. Ellis (Valley, 78); 2 and 3, Mr Eaden (Sheffield, 77, 76). A.o.v. coldwater: 1 and 2, Mr Eaden (Sheffield, 79), 76; Furnished jars: 1 and 2, Mr D. Shields (Halifax, 78, 77); 3, Mr H. Naylor (Halifax, 76).

RESULTS of the inter-club table show held between SOUTHBEND, LEIGH & D. A.S. and THURROCK, BASILDON and EAST LONDON SOCIETIES were:

- A.o.v. tropical: 1, Mr E. Nicoll (Thurrock); 2, Mr Hartings (Thurrock); 3, Mr Green (East London). A.o.v. coldwater: 1, Mr R. Stradwick (Thurrock); 2, Mr R. Dodkins (East London); 3, Mr S. Bendle (Thurrock). Characins: 1, Mrs Armitage (East London); 2, Mr J. Boss (East London); 3, Mr M. Goodall (Southend). Mollies: 1, Mr D. Durant (Thurrock); 2, Mr W. Corby (East London); 3, Mr G. Green (East London). Mr A. G. Jessop and Mr Stewart of the F.R.A.S. were judges and East London received the highest points with a total of 18. However, in the aggregate of points over the four rounds of the competition Thurrock won the inscribed gavel and took with 49 points (2, East London, 45; 3, Southend, 44; 4, Basildon, 41).

The lecturer on this occasion was the Editor of PETFISH MONTHLY.

OFFICERS elected for 1969 at the **BRENT A.S. A.G.M.** were: president, Mr T. D. Smith; vice-president, Mr Laurie Pavitt, M.P.; vice-president, Mr B. Elliston; chairman, Mr L. Smith; vice-chairman, Mr T. Butler; secretary, Mr R. Fox (22 Harvest Road, N.W.6); show secretary, Mr J. Oschner; treasurer, Mr G. Brown; committee members: Mrs E. Butland, Mr T. D. Smith, Mr B. Fellows, Mr D. Dolling, Mr M. Potter, Mr J. Raymond. Five other officers were elected to non-committee posts.

Section 5 of the Denis Smith Award trophy was won by Mr J. Raymond with 50 points, followed by Mr R. Fox with 36. The leaders in this division are Mr R. Fox (123); 2, Mr J. Raymond (93); 3, Mr C. Swindon (79). Mr T. D. Smith won the Brent Open Show Championship with 292 points (2, Mr C. Swindon, 63; 3, Mr R. Fox, 34). The Brent Overall Championship is now drawing to a close, with Mr T. D. Smith leading with 354 points; (2, Mr R. Fox, 157; 3, Mr C. Swindon, 142; 4, Mr J. Raymond, 105).

155 people attended the Society's very successful dance that was held to celebrate the inauguration of the Aquarium Show '68 and at which members were delighted to receive their president, Mr Laurie Pavitt, M.P., as guest of honour, together with Mr A. G. Jessopp, chairman of the F.B.A.S. and many other dignitaries in the aquatic world. A very ambitious and exciting programme has been planned for the coming year, not least of which will be the lectures given by Mr Colin Swindon who is travelling from Northern Canada down to South America meeting people on behalf of the Society and to whom club members send seasonal greetings. Anyone wishing to join in would be assured of an extremely warm welcome at club meetings—every Tuesday in the large hall, St. Francis Church, Ellesmere Road, London, N.W.10 at 7.45 p.m.

MR Ken Seaman has won the **ILFORD & D. A. & P.S.** annual home aquaria competition (2, Mr Dennis Woodley; 3, Mr George Irish). Members have recently enjoyed a talk by Dr R. O. B. List on the care and cultivation of aquatic plants; his experiences both in this country and abroad provided a great deal of very useful information. The club's annual prizegiving and a film show is to be held on Monday, 13th January (the second Monday of the month) and anyone who would like to join the club's members will be very welcome at St Laurence's Church Hall, Barkingside. Further information is available from the secretary, Mr Ron Ruth, 103 Heath Road, Chadwell Heath, Romford, Essex.

SOME of the more unusual 'filler' stories in the national dailies need to be read with a fair degree of caution, so it is good to have them verified by a reliable eye-witness. Mr David Holland of NOTTINGHAM & D. A.S. reports in the club's monthly bulletin that the stories of the St Helen's 'tropical fish canal' are all true. The warmth, tested by Mr Holland on a visit to the area in mid-August 1968, varied then from 23 to 27°C (71.5-78.5°F) and is supplied as a by-product by Pilkington's Glass Works. Along with native fishes such as roach, chub, gudgeon and carp are thousands of guppies and at least four different kinds of cichlids. Anglers, who use leather gloves to remove the cichlids from their lines because of the spiny fin rays to their dorsals, report that angel fish and blue gouramis are also present. Mr Holland saw a shoal of fry and caught over 100 tilapias with one sweep of the net.

In Brief

...**CHANGE** of secretary for **SUNNYBROW A.S.** New secretary is Mrs C. Grimshaw, 6 St Philips Road, Gorton, Manchester 18.

...**NEW** headquarters of **WEDNESBURY A.S.** are at the Kings Hill Tavern, Mill Street, Wednesbury, as usual on the first Monday of the month.

...**THE MANCHESTER SECTION** of the **FANCY GUPPY ASSOCIATION** meet in the Social Room, the Drill Hall, 3 Stretford Road, Manchester 15 (entrance in Upper Cambridge Street with excellent car parking facilities). Meetings are usually on first Sunday in the month—at the November meeting Mr K. Rigby, the Chairman of the Judge and Standards Committee lectured on recent guppy standards and there was a fish show—new members will be most welcome.

...**A TALK** and slide show by Mr Fred Parsons of Farnborough and a coach trip to The Aquarium Show in London are among recent activities of **BASINGSTOKE A.C.** The following annual awards have been made: Championship class: 1, Mr F. Lange; 2 and 3, Mr A. Blake. Points Cup: 1, Mr A. Blake; 2, Mr F. Lange; 3, Mr A. Marshall. Breeders' final competition: 1 and 3, Mr R. Ridley; 2, Mr A. Marshall. Breeders' Cup: 1, Mr A. Marshall; 2, Mr R. Ridley; 3, Mr T. Errey.

BRISTOL A.S. will be celebrating fortieth anniversary in 1969 and the A.G.M. was brought forward in order that the new committee could start to organise activities from the beginning of the year. Club meetings have been well attended and members heard Mr L. Emery's slide illustrated talk on his own experience in fishkeeping. As an experienced coldwater breeder of all goldfish varieties except for moors and bubble-eyes, Mr Emery dispenses information and humour in a most entertaining way and then ably dealt with a barrage of questions. In the table show at this meeting Mr Erne won the first, second and third awards for 3 in. shubunkins; in the cichlid class the ladies had a close sweep with first and second award going to Mrs C. Allinson and third Miss H. Morgan. Members are still congratulating fellow club enthusiast Mr H. Jago for his successes at the B.A.F. Out of nine entries he secured three firsts, three seconds and one third award.

...**THE BIRMINGHAM SECTION** of the **FANCY GUPPY ASSOCIATION** meeting at Glet Farm Community Centre, Glet Farm Road, Stechford, Birmingham 33, joined by visitors from the Newport section, enjoyed a taped lecture by 'the one and only' Mr Jim Kell. 15 exhibitors benched 122 fishes in the table show and the newest member (a 'fugitive' from M.A.P.S.) won the best fish in show award. 'We done, John Witts' writes our informant.

...**OFFICERS** elected to serve **SOUTHEND, LEIGH & D.A.S.** for 1969 are: president, Mr D. Edwards; vice-president, Mr R. Passmore; secretary, Mr R. Wallings (93, Salisbury Avenue, Westcliff-on-Sea); treasurer, Mr D. Cheswright; table show secretary, Mr R. Passmore; librarian, Mr A. Huxter; refreshment secretary, Mr E. Bloxham P.R.O., Mr D. Finch; journal editor, Mr P. F. Capon; assistant editor, Mr R. D. Orford; committee member, Mr L. Mitchell.

...**COLWYN BAY & D.A.S.** continue to increase their membership and report varied and successful activities—a Hallowe'en party which no-one wanted to leave; taped lecture and film on labyrinths, films on hermit crabs and sticklebacks; the inauguration of a tank-decoration competition; fast-growing circulation of their magazine 'Pisces' and successful first club table show: 1, Mr J. E. Hault; 2, Mr C. Taylor; 3, Mr D. C. Jones.

MR Bernard Crompton (Salford) and Mr Ian Wood (Bury) were judges at the inter-club show when SALFORD A.S. were hosts to BURY A.S. at their own headquarters, The Royal Hotel, Church Street, Pendleton. Winners from the 61 entries were: Single (egg-layers) Mr G. Edmunds; single (live-bearers) Mr S. A. Foley; pairs, Mr J. Shepherd; breeders team Mr J. Shepherd.

...TWO members of NEW FOREST A.S. offered to assist judges Mr D. Letts and Mr R. Moseley at the November meeting so that they might start to learn some of the mysteries of judging. Show winners were: barbs, Mr C. Knapp; cold-water, Mr R. Travers; specials, Mr L. Menhennett. Earlier in the evening Mr B. Poole of Poole A.S. had presented a slide show on popular tropical fishes.

...THE *C. schwartzi* belonging to Mr Roy Biggs of Runnymede A.S. won the best fish in show award when EALING & D.A.S. were host to Runnymede and Riverside A.S. Mr Harry Towell judged the 12 fishes from each society. Results were: characins: 1, Mr Harman (Riverside); 2, Mr Shanks (Runnymede); 3, Mr R. Biggs. Cichlids: 1, Mr Grosvenor (Runnymede); 2, Mr Goss (Runnymede); 3, Mr Simonds (Riverside). Barbs: 1, Mr R. Savage (Ealing); 2, Mr J. Healey (Ealing); 3, Mr Grosvenor. *Corydoras*: 1, 2 and 3, Mr R. Biggs.

...TONBRIDGE & D.A.S. members greatly enjoyed a film show on marine fishes given by Mr P. Burgess of Tunbridge Wells. The last film showed details of Cdr. Cousteau's recent experiment of living on the sea bed.

...MR M. MASON of Portsmouth A.S. gave an excellent lecture on the breeding of *P. kribensis* to members of BRIGHTON & SOUTHERN A.S. supported by some first-class colour slides of the parents, eggs and hatched fry. In the table show for breeders, Mr Soper won the new V. Aldis trophy presented by member Mr Aldis to a very appreciative club. Other results were: Livebearers: 1, Mr J. Kail; 2, Mr D. Soper; 3, Mr T. J. Croucher. Egg-layers: 1, 2 and 3, Mr D. Soper.

...QUESTIONS about plants proved to be the most numerous of those fired by members of BRADFORD & D.A.S. at the panel of experts at a recent meeting. Mr Dennis Carr took the chair and Mr Cawthrop, Mr Goodison, Mr Foden and Mr Rudd answered the questions.

...MEMBERS of RUGBY & D. A.S. have been enthusiastically supporting the club's table shows recently with entries of 70 and over (much to the delight of show secretary Mr H. Harris). Winner of the home aquaria competition was Mr F. Underwood (2), Master D. Boulton; 3, Mr P. Knowles).

... LEADING points positions in the YORK & D. A.S. competitions are: Open class: 1, Mr G. Pygott (62); 2, Mr M. H. Cooper (42); 3, Mr P. Carey (30). Novice class: 1, Mr A. Hargreaves (62); 2, Mr P. Maud (21); 3, Mr P. Waddington (17). Junior class: 1, Master R. Thiel (49); 2, Master M. Rhodes (39); 3, Master P. Carey (31).

... LEAMINGTON & D. A.S. have a new time and venue for club meetings—these are now held on the first and third Tuesday of the month at 7.45 p.m. at Trinity Hall, Trinity Street, Leamington. The new accommodation is much more spacious and comfortable and refreshments can now be provided.

... BOURNEMOUTH A.C. recently enjoyed an illustrated talk on freshwater life by Mr H. Earl and Mr L. James and a very interesting evening at which the main feature was 'Question Time'. Amongst those invited to answer questions was Mr G. Jennings, who dealt with marine queries.

... APPOINTMENTS of joint secretaries of the FEDERATION OF SCOTTISH AQUARIUM SOCIETIES have been made: general secretary: Mr B. W. Fraser (121 Farne Drive, Simshill, Glasgow S4); minute secretary: Mr Alex Cleland (48 Brachead, Bo'ness, West Lothian).

Dates for Your Diary

26th January. WEIRS A.C. first Open Show. Weirs of Cathcart, Glasgow. Details from Mr A. Loudon, 36 Allison Street, Glasgow, S.2.

21st February. The KINGS HALL OPEN SHOW. Lower Clapton Road, London, E.9. (Sponsored by Hackney Borough Council). Details from Mr A. Collins, 11 Arrowsmith Road, Hainault, Essex.

2nd March. KEIGHLEY & D. A.S. first Open Show. Victoria Hall, Keighley. Schedules from Mr A. Asquith, 46 Dalenside Road, Riddlesden, Keighley.

9th March. HUDDERSFIELD T.F.S. Open Show. Drill Hall, St. Paul's Street, Huddersfield.

16th March. TOP TEN AQUARISTS Tropical Fish Show and Exhibition. Huddersfield Town Hall. Details from Mr L. Kaye, 6 Totties, Holmfirth.

12th April. EAST DULWICH A.S. first Open Show. St Barnabas Parish Hall, Dulwich Village, London, S.E.21.

26th April. THURROCK A.S. Open Show.

1st-3rd May. SOUTHBEND, LEIGH & D. A.S. Open Show. The Municipal College, Victoria Circus, Southend-on-Sea near Southend (Victoria) station. Further details from Mr R. Passmore, 39 Grafton Road, Canvey Island, Essex.

11th May. WORKSOP A. & Z.S. Open Show. North Notts College of Further Education, Blith Road, Worksop.

18th May. MERSEYSIDE A.S. Open Show. Montrose Social Club.

18th May. RAINWORTH & D. A.S. Open Show. At Showrooms, E. Taylor & Sons, West End Garage, West Gate, Southwell.

18th May. MIDLAND AQUARISTS LEAGUE (Coventry Pool and Aquarium Society hosts). Foleshill Community Centre, Foleshill Road, Coventry.

15th June. BRIGHTON & SOUTHERN A.S. Open Show (provisional).

18th-22nd June. Second NATIONAL FURNISHED AQUARIUM EXHIBITION. St George's Hall, Bradford.

21st June. BRACKNELL & D. A.S. Open Show. The Priestwood Community Centre, Priestwood Court Road, Bracknell. Details from Mr Len Little, 126 Shepherds Lane, Bracknell.

22nd June. COVENTRY POOL & AQUARIUM SOCIETY Open Show. Foleshill Community Centre, Foleshill Road, Coventry. Schedules from Mr C. J. Grant, 26 Cecily Road, Coventry.

22nd June. ALFRETON & D. A.S. Open Show. Alfreton Hall, Alfreton, Derby. Details from Mr S. Hill, 35 South Street, Riddings, Derby.

20th June. MEDWAY A.S. third Open Show. St John Fisher School, Chatham, Kent. Show secretary, Mr G. A. Craft, 75 Dargats Road, Walderslade, Chatham, Kent.

6th July. LEAMINGTON & D. A.S. fourth Open Show. Details from Mr P. Thomas, 199 Brunswick St., Leamington Spa, Warks.

6th July. HIGH WYCOMBE A.S. Open Show. Bovingdon Green Hall, Nr Marlow, Bucks.

6th July. LYTHAM A.S. Open Show. Lowther Pavilion, Lowther Gardens, Lytham, Lancs.

20th July. GOSPORT & D. A.S. third Open Show.

18th-10th October. BRITISH AQUARISTS' FESTIVAL, Belle Vue, Manchester.

20th October-2nd November. THE AQUARIUM SHOW '69 at the Royal Horticultural Society's Old Hall, London, S.W.1.

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Continued on page 4



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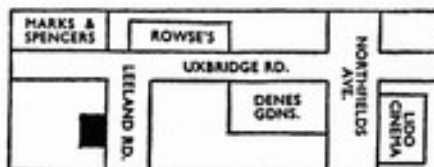
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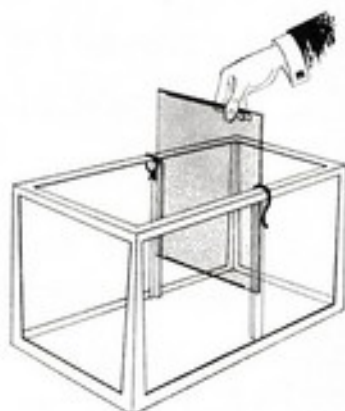
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