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## Comments and Quotes

- Brevity is the fashion
- Purchase Tax and fish foods

### Name It?

ONCE the way to ensure the best reception for your patent medicine was to bestow upon it somebody's name, preferably one adorned with the title Dr or Professor. Names like 'Dr Jollop's Tonic for Tired Blood' and 'Prof Chapman-Harris Corn Cure' became family by-words through the generations. Nowadays, however, the very latest tendency is to name proprietaries with some short expressive syllables meant to be indicative of their purpose or action. The aquarium trade has been no slower than any other manufacturing group in adopting this practice, so that aquarists are finding themselves obliged to enunciate clearly, with care to avoid the dangers of being misunderstood or giving offence, names such as 'Off-it' and 'Snails-gon' at their dealers' counters.

Such names constitute a challenge to inventiveness and for some are an inescapable stimulus for parody. 'I wonder if anyone makes Out-it?' mused one wife with an eye on hubby's cluttered tank stand in her living room. 'Win-all' might be a money-spinning additive for show tanks (until judges began to demand tank-water tests), and think what could be done to rivals' exhibits with 'Stop-it' by aqua-nebbblers. Male guppies can keep their fins crossed that no-one develops the fishy equivalent of the canine 'Keep-off', fighters will loathe the man who puts 'Gluvs-off' on the market and there must surely come a time when egg-eaters and fry-swallowers are thwarted by 'Leev-alon'.

As we see it, there is the danger,

not least from the manufacturers' point of view, that these names will begin to read as if they've all had a dose of 'Sound-alike'. When we find ourselves putting 'Speed-it' in our fish tanks and 'Breed-it' in our petrol tank that will be the day we shall start agitating for a return to the 'Dr Postlethwaite's Superb Remedy for Spinal Deformities in Live-bearers (also cures Ich, Velvet, Fin Rot, etc.)' type of label.

### Tax on Foods

'FOOD, other than live food, for goldfish and other aquarium and pond fish' is liable for the purchase tax applied to pet foods in the budget this year. 'Live food for birds, fish or reptiles' is not liable for the tax. These definitive statements appear in a recent H.M. Customs and Excise notice. Frog-keepers will note that amphibians are not covered for. There's little doubt that Britain's daff-buggers are breathing more easily now they know that the threat of purchase tax on their wares has passed them by. It's bad enough stock-taking once a year around your ponds all dancing with fleas without working out P.T. liabilities per thousand crustaceans as well.

So if we buy a bag of live daphnia we get it tax-free. If we buy a drum of dried daphnia we pay tax. But (and we hate to mention them) what about those dead fleas we can see swirling about in the bag? They're exempt? O.K.—can we have our dried fleas tipped into a plastic bag of water, tax-free, please Mr Dealer? (Next month: what the Customs think about foods for white, Grindal and micro worms.)



# LETTERS

## Feeding Marine Fishes

WITH regard to the feature by Mr A. Deakin in the January PFM and now Mr G. Jennings' letter in the April edition, about feeding marine fish, I must back up Mr McMennamin (PFM, Letters, February). I think he is right about giving the fish a good mixed diet. I have a few marines and I go to a lot of trouble to get food for them. What I feed mine on is Tetramarin flakes, white worms, tubifex, live and freeze-dried, daphnia, shrimp, freeze-dried brine shrimp and anything else I can get for them. I wonder how these two gentlemen would like it if their wives or mothers put the same meal down to them month after month. They would soon be up in arms about it. So let those of us who keep these fish show a little kindness to them and feed them well (and do away with all those plastic plants and toys some people put in with them.)

I agree that special equipment is not necessary. All I bought was a good filter. I use natural sea water with a floor of crushed coral, with large pieces of coral for the back. These make good hiding places for the fish and help to keep the pH right.

One last thing I would say about feeding with live foods is that only a little should be given at a time. I have found that daphnia will live for 5 minutes and tubifex will not get to the bottom if put in a little at a time. I spend at least a quarter of an hour feeding my fish in the evening with live food, after having given them dried food in the morning.

Portrush, Co. Antrim

G. KNIGHT



## Guppies and Roses

IN reply to and in support of Mr R. Wigg's letter 'Guppies and Roses' (PFM, April): here we have indeed a very rare commodity—an expert who writes with authority in the light of his own unlimited experiences with both guppies and roses. I have known Mr Wigg for many years. I rate him among the few top guppy breeders and an expert on veiltail strains, and one has only to visit his rose garden—and what the eye beholds speaks for itself.

I believe, like my friend, that if the guppy breeder were to develop and produce his stock with the diligence and research and attention to detail of the expert rose-grower, we would find on the show bench not the perfect specimen but maybe fish of a quality much nearer to the standard than are at present exhibited.

This hobby of ours holds its fascination in the uncertainty and unpredictability of any breeding project one undertakes. A new type of guppy is not easily come by. The perfect specimen, like Mr Wigg's yellow rose, is something to dream about and maybe, one day—who knows—Lady Luck may smile on the rose- and the guppy-breeder alike.

Birmingham

PHIL JINKS

## A Judge's Answer

AS I was the judge who awarded Mr Chapman's Aguppy only 52 points, I feel I must answer his letter in PFM (April).

The first prize male guppy at The Aquarium Show '68 was shown by Mr E Davison and not Mr Chapman (PFM December 1968, p. 390). Although I did not judge the guppy class at The Aquarium Show I did, with Mr C. A. T. Brown, closely inspect this guppy, in common with all other first-prize winners when we were awarding the Scanco Challenge Trophy for best in the show. The fish was most probably at its peak on this occasion.

Nearly 4 months later, I was asked to judge a guppy at the Isle of Wight Fish of the Year Show. Although the fish was an excellent size, it had a bent spine, carried its caudal fin like a veiltail goldfish, almost completely lacked colour pigment, and appeared to have difficulty in rising from the bottom of the show jar. All these facts were pointed out at the time when I was questioned after being told that it had won at The Aquarium Show. I certainly did not recognise it as the same fish.

The decisions of the three judges are not so different—guppies have a very short show life and 4 months in a guppy's life is equivalent to 15 years in human terms. Mr Chapman should now be showing the offspring of this fish as they should now be nearing their peak.

Portsmouth

J. STILLWELL  
F.B.A.S. Judge (A)

## Better Directions Please!

I WOULD like to ask all clubs having open shows if they would put the points of the compass on their street directions to the show venue. It would make it much easier for visitors from another town if a sketch showing north, south, east and west directions were included in schedules, etc. I would add that at times I have spent the greater part of an hour finding a show.

Sheffield

E. W. EADON

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# GUPPY

## World

By PETER UNWIN

**H**OW honest is it possible to be when writing criticism? You aim at honesty certainly, but quite often the sort of person you feel you ought to be distorts immediate reactions and even more so censors the final evaluation.

It was refreshing to sit in at the Fancy Guppy Association's Judges' Conference held at Birmingham airport and see and hear experienced guppy breeders from all over Britain both giving and taking it, in the name of better fishkeeping. Of interest to guppy folk everywhere will be the introduction later in the year of no less than three new standards: cofertail and natural-tailed females, and a dovetail male.

The cofertails are the work of Ken Rigby from Liverpool (see this column, February). After much hard work he has successfully produced a female *Poecilia reticulata* with a caudal the shape of the old-time Welsh miner's shovel, hence the name. To those who immediately cry odd 'sport', meaning anything but, Ken has the answer. He offered to supply stock to anyone at the meeting who would like to work with him on perfecting this new strain, thus proving they were not just the odd 'throw-out'.

I say 'new' when referring to the next variety, though in actual fact older readers will recognise the natural-tailed variety as the very first roundtail female accepted by the Association some 10 years ago. Judging by the enthusiasm that greeted this fish the words 'welcome back' would be in order.

The new male is also a 'prodigal son' because it is technically the return of the flagtail though the shape accepted is at present used by our German cousins as Fächer. Whether it was due to the inadequacy of the English language or

simply due to the fact that most delegates present mistrusted 'furrin' words, I don't know, but the suggestion that dovetail be substituted for the present German word for 'fan' seemed to be accepted with more than the usual enthusiasm.

A committee was formed at the Conference to produce a new Standards Handbook containing both the new and old varieties later in the year. Watch this column for details. Meantime shows will continue to use the present outlines.

One facet of British life that we are justly proud of is that we have one of the finest free lending library systems in the world. All agree on the goodness of books; the general catalogue of printed books in the British Museum Library from 1931 to 1964 runs to no less than 56 volumes, each averaging about 1,000 columns per volume! If you fancy a set for your library you can obtain one for around £400.

To the beginner to guppyatics, eager to learn all he can, the list of books available just on this specialist branch of the hobby isn't impressive in number but what it lacks in quantity it makes up for in quality. To try and reduce my postbag to normality here is a list of recommended books: *PORTRAIT OF A GUPPY* by Larry König (12s 6d); *KNOW YOUR GUPPIES* by Albert J. Klee (7s); *ENJOY YOUR GUPPIES* (Pet Library Ltd.) 3s; *ALL ABOUT GUPPIES* by Leon F. Whitney & Paul Hahnel (15s); *GUPPIES* by Herbert R. Axelrod & Wilfred Whitem; *GUPPIES AS PETS* by Myron Gordon. (Any of these books can be obtained by post from PetFish Publications.)

With the advent of the better weather our thoughts turn to the collection of live food, and what guppy breeder doesn't agree that there is no finer food than cleaned, chopped earthworm? But obtaining regular supplies can be a problem if you don't happen to own your personal 'wormery'.

Another method is to collect them, and lacking the powers of a Pied Piper to charm them out of the ground we have to resort to other methods. Obtain some potassium permanganate from any chemist and mix a half teaspoonful to 2 gallons of tap water; this solution when sprayed on your lawn will bring the worms up out of the soil quicker than the legendary Jason's Armed Men of mythology. Two gallons will suffice to soak about 3 square yards of garden.

Wash the worms well under the tap and don't worry about the solution you have just used, even if the worms have ingested some it will not harm your fish. After feeding freeze the surplus worms in your fridge.

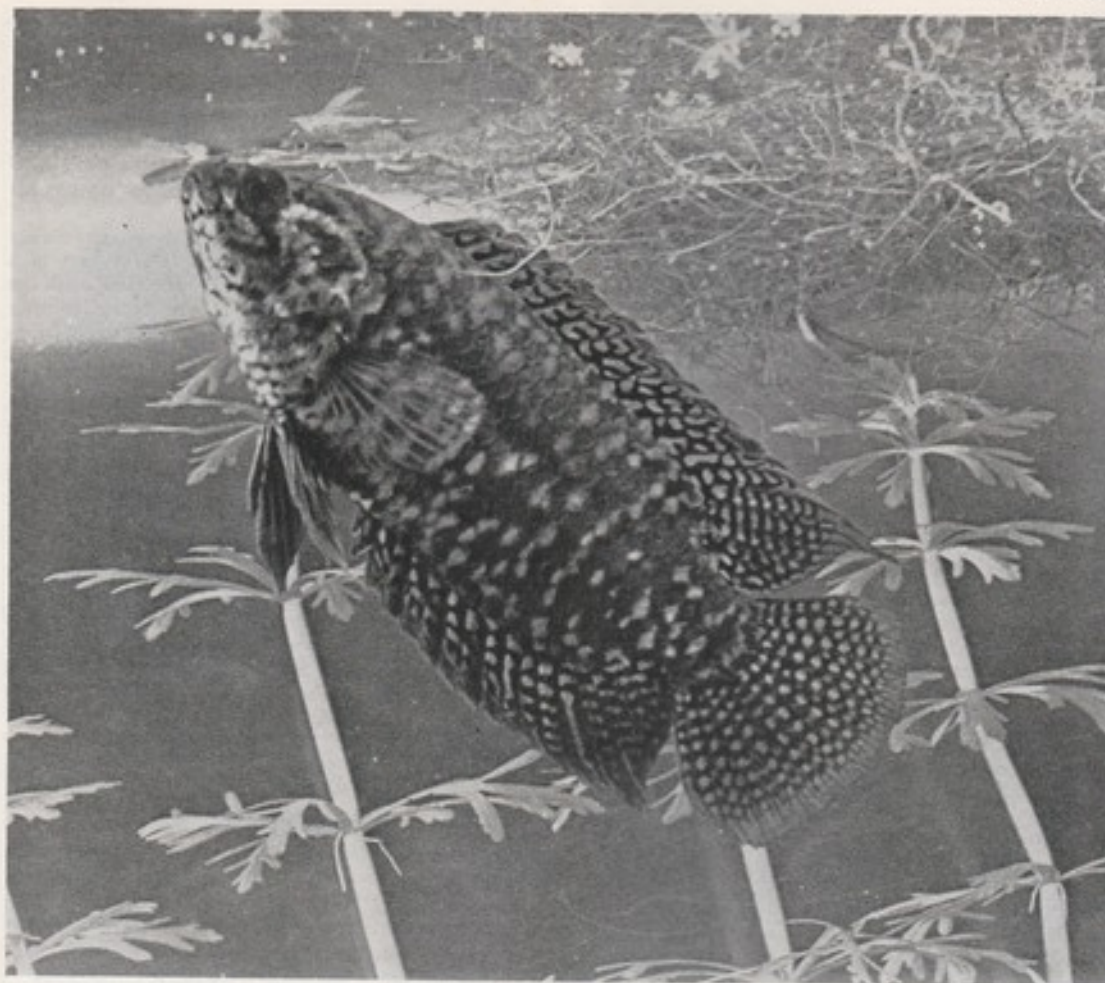
By way of an experiment try this pre-show procedure and banish those second 'blue' cards forever. Three or four weeks before the show, commence to raise the tank temperature slowly until the water is around 80°F (26°C). During this period place your fish in a standard show jar for short periods—this will accustom your guppies to show conditions and banish the fright symptoms so often seen on the bench when fish are not used to cramped quarters.

Feed well with as much live food as is possible, but don't feed anything on the day before the show or the show date. A hungry fish is an active fish and one that earns those extra points for deportment.

If you use colour foods remember that many of these darken the fish—if your guppy displays pastel shades, any colour feeding can often be detrimental.

Finally, as you place the jars on the bench give them a quick wipe with a window leather kept moist in a plastic bag—nobody likes a dirty glass.

Attention to detail is often cited as a sign of genius—to come out top in today's competitive field you often have to be just that.



# The Banded Climbing Perch

(*Ctenopoma fasciolatum*)

By RUDOLF ZUKAL

Photographs by the author

Translation by F. MARSH

THIS is a fish of majestic beauty. The fact that it is avoided by many aquarists is probably because of its reputed pugnacity though I must stress that this is not a trait that I have ever observed in my own fish. Specimens of the banded climbing perch were brought to Europe from the Congo area of tropical west Africa (chiefly from the shallow, thickly overgrown waters near Leopoldville) in 1912, and at that time were described as *Anabas*. We first came to propagate the fish on its re-introduction to the Continent in 1952.

Opposite: Male *Ctenopoma fasciolatum* making the bubble nest within a raft of bladderwort

Below: At first the male chased the female away if she approached his nest but at no time did he cause any injury to her. The bulging abdomen of the female is easy to see in this picture

*Ctenopoma* is an African genus of the labyrinth fishes (family Anabantidae), though the labyrinth breathing organ is here not very highly developed. A thick-set looking fish (for although fairly elongated it is very deep-bodied), it is very supple in its movements. Characteristics are the fairly large mouth and a dorsal fin stretching way beyond the anal. In colouring, it is not unlike the paradise fish (*Macropodus opercularis*), with eight to ten dark horizontal bands on a greenish-yellow ground and a light-blue speck on each gill cover. Males grow to about 3 in., have larger dorsal and anal fins than the female and are brighter in colouring.

For breeding and rearing a temperature of around 80°F (27°C) is required.

We have here a very hardy species. They cannot be classed as real predators, and I have never noticed anything to counter this, but they do require live food of a suitable size, and obviously if there are small guppies in the same tank these are going to be



snapped up in hunger. Slightly larger fish are not hunted for food. I kept a male and three females of this species in an 18 gallons tank with *Colisa lalia*, *Colisa chuna* and *Trichogaster leeri*, and I never saw the perch attack their tank companions. On the contrary, they seemed fairly timid and kept themselves hidden in the plants. The other fishes came to feed near my hand but the *Ctenopoma fasciolatum* never did and they stayed nervously in the background.

The fish were not quite fully grown when I noticed that a female was full of eggs and ready to spawn. So I immediately prepared a 6 gallons tank. Several *Ambulia* plants were placed at the back of the tank and a clump of surface plants was floated on the water. Normal tapwater, which had

a neutral pH value and a hardness of 10 DH, was heated to 80°F (27°C). The male was put in that evening and the female early on the following day. When the male saw his partner, he spread out his fins and within seconds his colouring had altered to an iridescent dark brown with a blue gleam over his back as the light caught it. The dorsal suddenly turned a rusty-brown colour.

The male started nest-building the same day. While he was engaged in this he was also hunting the female and ramming her in the rear, and when she came near the nest he would spread his fins and push at her. Although I have read in the literature that the female is bitten and has her fins torn, in my experience the male's thrusting movements are not spiteful and the female was



## The Spawning Sequence

Top left: As the pair approach one another the body of each is curved so that they are in a suitable posture for the embrace

Top right: Here the male is seen to be bent completely around the female's body so that his head appears at the right and his tail fin is showing at the left of her



Centre: The pair rise gently towards the surface, immediately beneath the nest, and as the male's embrace tightens the female makes a convulsive movement and the male commences to invert them both by rolling over



Bottom: In the inverted position of the pair of fish the eggs are released and a cluster can be seen rising from above the male's vent. Both fish of the pair photographed collected the eggs jointly after spawning and placed them in the nest



## Transatlantic TOPICS

\*\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*

By JIM KELLY

SINCE their introduction in 1960 by Thelma and Thomas Simpson, of Gardena, California, the hi-fin swordtails that bear their name have increased in popularity. Catching on quickly over here, the fish were included by the Federation of British Aquatic Societies in their additional 1964 booklet of CULTIVATED TROPICAL FISH SHOW STANDARDS.

Despite this, information about these new imports was a little slow in appearing at first, but now, with more and more breeding these livebearers, information from practical experiences has not only confirmed that these are showy fish but also that they are wonderful jumpers! Many aquarists have learned this fact the hard way when they found them gasping out their last on the floor of their fish rooms.

Male hi-fins are apt to bully each other and if kept in a community aquarium should be there as a single variety; run as many females with them as you like. Algae forms an integral part of their diet if you want them to thrive. If algae isn't available then substitute lettuce, cooked peas or chopped spinach.

Chilling must be avoided because of the swordtail's predisposition to that complaint called 'shimmying'. Temperatures between 73° and 80°F (23-26°C) seem to suit them the best. Don't forget these fish prefer several small meals rather than one large helping.

At birth sexing is difficult, a task not made any easier by the large broods reported from some females of the species—from 100 to 200 fry have been reported!

\* \* \*

Much prominence has been given 'over there' to animals, usually

introduced by man, that have turned villainous. *Tilapia* species were introduced into southern American waters some years ago in the mistaken belief they were safe (famous last words), and that these fish would provide good sport for keen fishermen. In practice they proved to be as exciting as a lavatory brush!

The fear of them spreading was played down by the experts who argued that the onset of really cold weather would kill them off, but the *Tilapia* proved that they could not only adapt to waters near freezing but that they could thrive on it.

Another unwelcome visitor has been the *Clarias batrachus*, the walking catfish that Braz Walker wrote about so vividly (see PFM November, 1968). Here again, the experts were wrong and tried to right things by poisoning the water in which the catfish were found. All the *Clarias* did was to leave these stretches of water and walk overland until they found more suitable accommodation!

The State of Florida has come in for more than its fair share of these illegal immigrants. State Law so far has prohibited the importation of only the piranha and the tiny, but deadly, *Vandellia cirrhosa*, or candiru catfish, the latter being the most feared of all the South American fishes, and I haven't forgotten the piranha. Attracted by urine in the water, the candiru will firmly embed themselves in the urethral openings of most animals including man—making bathing especially dangerous.

One man who is concerned with the problem is Dr Robins; in a recent statement he said: 'I don't think we need new laws, we have enough already, but I would like to

see a clear warning printed and given to every buyer of tropical fish about the dangers of freeing pets in natural waters'.

To which utterance, our own St Helen's Council, already experiencing this problem with a local canal, would probably add . . . 'Amen!'

\* \* \*

Though all aquarists are fish watchers at heart I reserve the term for those folk especially in the U.S., who like to look at an aquarium but are not very concerned about making it a hobby. That 'watching' is catching on fast is shown in the following reports . . .

At the factory of Machinery Builders Inc., in the Bronx, New York, machinist John Maggi has installed two aquariums of assorted species to serve as a kind of coffee break. Workmen taking a breather from their labours 'break the monotony' by watching the actions of the fishes in the tanks sited in an anteroom to the main work area.

Moving to Chicago, The Jolly Service Laundromat there has installed an aquarium in their business to take the minds of their waiting customers away from the thump of the washers. The firm reports that watching the antics of the fish has an hypnotising effect and is good for trade.

Another use for 'watching' comes from a famous New York child photographer. He finds that his tanks soothe his restless subjects. Watching the fishes produces a reflective, slack-jawed expression on the faces of the kids that puts them at their photogenic best!

From the Creedmoor Mental Hospital on Long Island, one of the doctors writes that the fish have a tranquillizing effect on the patients akin to the sound of soft music.

Another fish tank situated in the hospital office helps to ease business pressures. After one spell of contemplation a member of the staff was heard to remark: 'You look at the fish and wonder what the hell you are doing in this business!'

Rupert Brooke had the right idea: 'And in that Heaven of all their wish—there shall be no more land, say fish'.

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



## Personal COMMENT by ARPEE

THERE was a Safety Officers' meeting at the office the other day, and this always leaves me with a feeling of utter insecurity because, under the scrutiny of the eagle eye, the most apparently infallible arrangements are revealed to be almost as bad as useless. Perhaps, on the whole, this isn't a bad thing, as it snaps us out of that sort of complacency which can lead to real danger and tragedy. Not unnaturally I took a look around my installation of aquaria and was hardly reassured by what I saw.

In the first place I had experienced the odd shock from one aquarium frame for a week or so, and there was no obvious source of trouble, so I took especial stock of this situation. The heater and thermostat were not old and were working satisfactorily; moreover there were no awkward electrical connections that could have come asunder. The overhead strip-light was also in good shape and could not be faulted, but the wire leading to the switch had at some time been joined and covered with insulating tape. Although there was no damage to this, the joint lay on the glass cover of the tank where condensation often appeared, and I wondered whether this was the weak link. I cut the old join out and inserted a pair of plastic line connectors into the circuit, finally covering them with a generous layer of insulating tape. The trouble ceased. The cost was about a shilling.

The idealist will, of course, condemn me roundly for permitting a join in an electrical circuit at all, particularly when it is near to water or potentially so. I accept the criticism, but there is nearly always, for some good reason, a gap between what is essential and what is desirable. The wise aquarist will go over his whole installation at least once a year and completely renew any lengths of wire which look at all suspect, and I usually do this when my activities are at a minimum, so that the smallest possible number of tanks goes out of commission at any one time.

Looking a little further I noticed that in one or two tanks there were some ominous bits of electric light bulb that had sunk to the bottom and remained undetected ever since that correspondence about exploding light bulbs in this column last year. I need hardly emphasise how dangerous these bits would be when washing the sand during a periodic major refurbishing—they could have cut my hands to ribbons, as I usually manhandle the sand pretty thoroughly to get it as clean as possible.

The layout of some of the tanks was also subject to criticism, in that there were one or two awkward spots where fish might get injured on craggy rockwork, or where they might get inextricably trapped. These got some attention. I was reminded of the necessity for this by the loss of a large angel, which, some months ago,

got jammed between the base of a rock and the sand. A piece of cork bark alongside seemed to have inhibited its movements so severely that it had only jammed itself further and further against the overhanging rock in its struggles to free itself. There was a really nasty patch rubbed away at the top of its head, and it appeared that it had died of shock.

Very special care has to be taken when siting aquaria to ensure that human traffic (and that of domestic animals, too!) does not give rise to any safety hazards. Trailing wires are terrible attractions, especially for the enquiring hands of children, and it is recommended that you take a good look at the environment before even putting a tank in a room, as if children's games are likely to take place in it, it can hardly be regarded as a good bet from the safety point of view. This mainly applies to the tropical tank, as there are certainly less hazards to life from the coldwater tank unless it is illuminated electrically. If you are driven from the home to the fish house by these warnings, you haven't finished being careful, by any means.



Perhaps the most difficult thing to assess when starting a fish house is just where you will finish and the time will come when the number of tanks you have running is rather more than you bargained for. This points the way to the need for estimating your power requirements carefully, and for allowing more than adequate reinforcement for tank stands, lest the whole lot should overbalance on some future occasion when you have just added the final straw. There will also be those cracked tanks that you pressed into service in sudden emergency and which have now become permanent features. They are, of course, only suitable for light duty purposes, and should be inspected regularly, especially if they are on the large side. Another very weak point is the wiring inside tank covers, and if you have any tungsten fittings in confined spaces where the wiring heats up, take a good look and replace any wire that has cracked covering.

These are just a few of the things you might look for. They are pretty evident, too, but the living with them from day to day blinds us as to their seriousness until the day arrives when something really drastic happens. Then it could be too late.

## QUICK TIPS

- If you use the large type of vacuum flask for transporting fish to show you will be aware that the insides of these containers soon become discoloured. To clean thoroughly so they shine like a new pin, simply fill three-quarters full with hot water and then drop in a couple of the false teeth cleaning tablets (or powder) such as Steradent.
- If earning your 'daily bread' brings your hands in contact with any toxics play safe and use rubber gloves when you have to place your hands in the aquarium. It is surprising just how much material finds its way under your fingernails and rings, even after a good washing.

'SWORD PLANTS' IN SOUTH AMERICA

# How Amazon Swords Grow in the Wild

Water conditions  
and features of  
the natural habitat  
for *Echinodorus*  
as recorded in  
Brazil



By Dr JOACHIM SCHULZE

Translation by F. MARSH

**I**N the aquarium or garden pool we wish to capture a part of living Nature, and a particularly beautiful and interesting part. We must not therefore lose touch with the great free world of Nature outside and must keep this in front of us as the ultimate goal of our efforts. By observing the natural living conditions of water plants we can keep this essential contact alive and out of this will certainly also come many clues to understanding the conditions necessary for the plants in our artificial tanks.



Top of page: Michael Bleher triumphantly holds aloft specimens of three new species collected in Brazil

Left: This view of a Brazilian river is typical of the territory in which the new species of sword plants were found

Aquarists will for this reason probably be more interested in ecology of water plants than in the botanist's precise classification and naming of the various species. It is well known that there are more difficulties in the cultivation of water and marsh plants than land plants; in the long run, of what use to the aquarist are even the most beautiful species, if he cannot keep them alive?

What are the requirements of living plants and how do their surrounding conditions affect these? These are the most important factors.

**Light.** Quantity and quality of light where the plant grows is affected by the degree of absorption of light in the water; absorption of light is particularly great in turbid water. The amount of light in this way affects the light-dependent depth distribution of the plant.

**Temperature.** Warm currents, the temperature distribution and temperature variations in the water can affect where and how the plants grow.

**Pressure.** There are effects of hydrostatic pressure at various depths of water, and therefore variations in the water level will be of ecological significance.

**Water movement.** Motion of the water produces the necessity for mechanical anchorage of the plants on the bottom as an insurance against the tearing or washing away of the plants from the site. Structural adaptation of the form of the plant to adapt to the movement, whether to lie with or against the current, are also involved; also there is an indirect effect of the current on plants, arising from its action on sedimentation and the deposits on the bottom.

**Water chemical.** When there is too little turbulence of the water stagnation is of significance in plant growth. Nutrients for the water plants in proportion to their needs, availability of carbonic acid for carbon assimilation, the water's ionic concentration and pH value and so on are chemical factors in water that will affect living conditions. There is an enormous variety of water types and living conditions of the plants. According to the nutrient content of the water, one can differentiate water that is rich in nutrient (eutrophic) from that poor in nutrients (oligotrophic). Water can be acid, neutral or mildly alkaline.

### Tropical Waters

Although the limnological factors mentioned above and the types of plant communities appearing under various conditions have, for western European waters, been relatively intensively studied there is little information about the site factors of tropical water plants. When I set out, jointly with Mr Thomas Horeman of Tachbrook Tropicals Ltd., London, on a study expedition in S. America under the leadership of Mr Michael Bleher of the firm Lotus Oairs, Magé, we did not wish so much to discover new varieties to bring home as to study the form of the natural plant growth on the spot, particularly for our highly esteemed *Echinodorus* species.

Such an undertaking is very costly and fatiguing, and help from nationals of the country is essential to get to the habitat of the plants. These lie mostly far from roads and frequently one is days and weeks en route before one comes across interesting water with plants. Many varieties are also rare in their homeland. Bad road conditions, unusual living conditions, bad food supplies, bad accommodation, mental stress through monotony



Freshly collected specimens of the newly discovered *Echinodorus* species *rubra* photographed out of water

and being cut off from cultured civilisation in the tropical jungle, all add to the difficulties. Our aims on this journey were first to travel through the previously extremely inaccessible southern part of Brazil towards Paraguay, and then to see the quite different growing conditions of other parts of S. America.

We travelled no less than about 5,000 miles. The route ran from Magé to Rio de Janeiro, San Paulo, through the mountainous district of Santa Catarina and Rio Grande do Sul to Porto Alegre and then further south to not far from the frontier of Uruguay, where we had to give up our original aim to journey further as far as Buenos Aires in Argentina, because of the great cold in August, 1967—winter in the southern hemisphere. The return route was along the coast road to Curitiba and then west to Asuncion in Paraguay. From Asuncion we travelled via Iguacu, where it is well known that the largest waterfalls in the world are situated, and on the way back we went in the direction of Curitiba as we had not yet found the desired new *Echinodorus* species supposed to be in this large area.

### Site of New Species

Many halts to discover the river courses and water areas were made, most of them disappointingly. One of the last stops, however, brought a great surprise. In a





river on the plateau of Parana we came across the three new species of *Echinodorus*. The water temperature there towards midday reached about 60°F (15°C); earlier, however, it was only 54°F (12°C). Michael Bleher found firstly *Echinodorus spec. rubra* and *undulata*, growing thickly interwoven, and a short time afterwards, in the same part of the river, an example of *E. spec. opacus*, standing alone.

Unlike the plant communities of *Echinodorus* that

had been found before, which had the plants growing exclusively above water, here the plants lived in a river that flowed rapidly in places and they were totally submerged so that they could not be seen by looking into the dark water. Only the investigation of the river bottom brought the first discovery.

This and adjoining river courses of the plateau of Parana, which is predominantly overgrown with savannah grassland and accordingly is not wooded, have,



Top of page: Freshly collected specimens of the newly discovered *Echinodorus spec. undulata* (left) and *opacus* (right)

Left: Mr Thomas Horeman on the river bank identifying plants collected at the site



at the deep broad places of the river beds, in spite of the rapid flow, the character of still water. At the shallow and narrow parts of the river bed stronger and faster running stream conditions prevail with little wave crests breaking after the character of a mountain river.

The plants were concentrated at the shallower places (up to 18 in. deep) and then spread over the whole river bed. Under these flow conditions, good anchorage of the rhizome and roots in the bottom soil is essential.

Top of page: Freshly collected specimens of *Echinodorus intermedius*, found thickly overgrowing the river bed

Right: In this fast flowing river course, only a few inches in depth, the plants formed dense masses with their stems all lying in the direction of flow



This is made possible on the one hand by the strength of the rhizome and roots of the plants, and on the other by the very solid stony, gravelly, loamy base soil. In this I found a great similarity to the river courses in the forests of S.E. Asia, which I have described as an area rich in *Cryptocoryne*. With such a firm anchorage, gathering of the plants presents difficulties; the rhizomes were hardly ever kept in their full length but mostly broken. Incidentally, in spite of all our enthusiasm, gathering plants in such low water temperatures can hardly be described as a lasting pleasure! I was told that in summer the water temperature in this area rises at most to 72-75°F (22-24°C), that is about 18°F (10°C) higher. Pine trees were present in the river region, and conifer growth is met only in the southern higher localities with a colder mean climate.

The river water test (Durognost) showed no traceable hardness at all; the indicator changed at once and without the addition of a hardness tablet. The pH value was about 6.2. We found both these to be standard values—hardness equivalent to nil degrees and pH 6.2—in pretty well all the waters in S. America that have been visited, from the extreme south through the Amazon district up to as high as Guyana.

### Free Access of Light

The river was an extraordinarily light habitat, for the passage of sunlight to the higher growing plants was scarcely hindered at all by overhanging boughs and greenery, as usually happens with waters in woods. In typical savannah landscape narrow strips of bushes and tree vegetation are produced on the banks of rivers, of course, but because of the considerable width of the river bed here the fall of light was not significantly impaired.

In this strongly running water, obviously very poor in nutriment, we encountered favourable living conditions for submerged water plants. Plants which are by nature adapted for living submerged are very valuable to aquarists, for in the tank they do not struggle at once to grow up out of the water surface by throwing out

greenery and blossom sprouts, scorching themselves on the hot light fittings and then presenting to the viewer from the side only a couple of stalks! The obviously ideal living conditions at the site discovered had led to a real concentration of submerged water plants.

We found the already known larger dwarf Amazon *E. intermedius* Grisebach—the designation 'larger' dwarf Amazon is intended to distinguish it from the mostly much smaller dwarf variety of the *E. tenellus* group—which was thickly overgrowing the river bed with its offshoots. One *Isoetes* species was represented by a really fine specimen with dark-green leaf colour; out of its short rhizome sprouted certainly more than a hundred of the long brushlike leaves. Unfortunately these members of the fern family are seldom seen in aquaria, although they grow some 18 to 24 in. tall and are exceedingly decorative and also easy to cultivate.

A small thick grasslike plant sprouting from the river bottom first revealed itself as large bright patches shining

through the surface of the water. The underlying sprouts of the plants were firmly matted together and formed a leaf and root layer about an inch deep, which could be lifted up whole from the bottom like a turf. Perhaps in the future this plant will be an addition to the list of varieties intended as foreground plants for aquaria.

From about 20 species in the river situation that were found a *Callitriche* (water starwort) species, a Brazilian *Ottelia* species, submerged *Sagittaria*, *Myriophyllum*, *Ludwigia*, *Jussiaea* and *Villarsia* should be specially mentioned.

At very shallow parts of the river, or where there was very little water movement, the leaves of the submerged cushions of water plants often floated in thick bundles under the water surface, as did a *Sagittaria* that was very lovely to see. The strong spread of *Rumex* species (Polygonaceae) on the banks of the river pointed to the moderate climatic conditions. As is well known, several species of *Rumex* occur in coldwater European habitats.

## Readers' Queries Answered



### Spawning the Medaka

*Last spring I purchased some eggs of the medaka or Japanese rice fish (Oryzias latipes), which I have reared. Can you tell me how to achieve a spawning myself?*

This egglayer is one of the easiest to spawn. The breeding tank should contain bunches of feathery-leaved plants over and through which the male will drive the female to fertilise the eggs as she expels them. The eggs do not drop immediately among the foliage, however, but are attached to the female by a thread and can be seen hanging from her vent in small bunches. Eventually, of course, the eggs do become brushed off into the plants. It is not usual for the parents, if they have been well fed and spawn in a well-planted tank, to eat the eggs, but precautions can be taken against such an eventuality by either removing the parents after a few days to another tank, where they will continue to spawn, or removing the plants on which the eggs have caught into another container. Hatching takes place within 12 days and the fry must be well fed with Infusoria.

### Plant-eaters

*I have had two small Metynnis for several months and am disappointed in these fish. They have never become less nervous than they were when first put in the tank but I do not want to provide them with too much plant cover as they have already eaten plants that were in the tank.*

*Metynnis* are shoaling fish and ideally require a large tank but they will do well enough in a tank of 24 in. length provided that the other

conditions are to their liking. It is a problem to provide *Metynnis* with shelter since most plants will certainly disappear. Their capacity for green food is enormous and even the most liberal supply of lettuce and duckweed will not prevent them varying the diet with the odd cutting of *Ludwigia* etc. if plants are present. However, cover they must have for their comfort and a great deal can be done with bark and rock formations to provide this. Also, somewhat subdued lighting can be provided since a lot of light is not necessary in the absence of plants. *Cryptocorynes* are less likely to be nibbled by these fish.

These fish are usually very hearty eaters and a varied diet should be provided to include dried food, and the usual live foods such as tubifex, daphnia, chopped garden worms etc. Above all, lettuce, spinach and duckweed should be provided in quantity.

## Electrical Equipment

OVER the next 2 years manufacturers of electrical appliances in Great Britain are changing the colour coding of their wiring to bring us in line with the existing International Standards. Obviously, it would be dangerous if fishkeepers doing their own wiring confused the three wires, live, neutral and earth (called 'ground' in the U.S.). To help you sort things out PETFISH MONTHLY suggests that you keep this note handy in your fish house for future reference.

Wire	New colours	Present colour
Live	BROWN	Red
Neutral	BLUE	Black
Earth	GREEN AND YELLOW	Green

# Collecting Native Marines

**F**EW aquarists, marine or otherwise, have taken much interest in British marine fishes. Many have heard that they are dull and colourless, and so have not bothered with them. They could not be more wrong. Admittedly their colouring is not, in the main, as striking as that of tropicals, but our wrasses, gobies and some others can compete quite well in their adult coloration. What they lack in colour they more than make up for in character, which, as a long term prospect, is more important. I am sure that as more and more people see native marines, more and more enthusiasts will join the ranks of the few. And they are so much cheaper than tropicals.

## Choice of Collecting Site

As most of the fishes that one would wish to collect are to be found in the littoral zone (the area between high- and low-water marks), it is obvious that a rocky coast is preferable. Sandy areas, such as Shoeburyness near Southend, will produce some fishes, but in the main only flatfishes, gobies and some rockling. A greater diversity of species is available in rock pools, particularly those containing a good, healthy algal growth. The reason for this is that the rocks provide good hiding places, and the algae are generally inhabited by millions of tiny crustaceans on which many fishes feed.

There are many such areas in Britain, the southern part of the country being generally more fruitful than the north. The Isle of Man and the Isle of Skye are, however, reputed to abound with fishes, possibly as a result of small warm currents from the Gulf Stream. The Channel Islands appear to have the best populations of marine fauna, even to the extent of trigger fish! The south coasts of England and of Wales provide some excellent collecting areas such as Lyme Regis, Hengistbury Head, Muddiford Harbour, Blackrock, Ovingdean and Cuckmere Haven. Normally the best areas are those at the feet of cliffs where rocks have broken away from the cliff face and fallen into the sea in large quantities.

After a possible collecting site has been picked, the tides must be checked. Most coastal towns publish the

By T. R. HALL

(International Marine Study Society)

times of the tides in the local newspapers, and in booklet form for the whole year. The latter is usually obtainable from the Town Clerk, but in the event of difficulties Whitaker's Almanac may be of use. The Police Information Room at the Port of London Authority can provide the times of high tides at London Bridge, from which the time of high tide can be calculated with the aid of a tidal constant chart. The P.L.A. should, however, only be contacted if there is no alternative. Once the time of high tide is known, the low tide may be taken as roughly 6 hours on either side. Collecting may normally begin about 2 hours before low tide, and generally has to end about 2 hours after it. Twice every lunar month there is a spring tide and a neap tide, the spring being the highest high- and lowest low-tide of the month, and the neap being the reverse. Naturally the spring tide is the best for collecting, as larger areas of rock pools are exposed and for a longer time.

Both summer and winter collecting have their advantages. Fishes collected in the summer are already acclimatised to the sort of temperatures that they will encounter in home aquaria, which are normally higher than those encountered in the sea. Rock pools become very warm in summer, sometimes reaching almost 90°F (32°C), and, in fact, many fishes succumb through lack of oxygen at these temperatures. Fishes collected in summer are also less likely to survive the journey home as a result of overheating in their polythene bags. However, summer collecting is by far the most pleasant from the human point of view, and one can collect a lot of young fishes, the adults of which would not normally be available to winter collectors.

Continued on page 117

## Dates for Your Diary

1st June. BRADFORD & D. A.S. Open Show. Textile Hall, Bradford 1. Benching from 12.30-1.0 p.m.

1st June. BOURNEMOUTH A.C. Open Show. Kinson Community Centre, Pelham Park, Kinson, Bournemouth. Schedules and entry form after 1st April from Mr Jack V. Jeffery, 30 Braemar Avenue, Southbourne, Bournemouth BH16 4JF.

1st June. BOSTON A.S. Open Show.

1st June. FOURTH INTERNATIONAL GUPPY SHOW (F.G.A.). Drill Hall, 3 Stretford Road, Manchester. Open to

public 10 a.m.-4 p.m. Admission free. Details from Mr F. Campbell, 37 Cardigan Street, Bury, Lancs.

7th June. YEOVIL & D. A.S. second Open Show. Grass Royal School Hall. Schedules ready end April from Mr K. Blake, 13 Glenthorne Avenue, Yeovil.

8th June. LINCOLN & D. A.S. Open Show. (F.N.A.S. judges). Schedules from Mr W. Cassidy, 55 Hollywell Road, Cliff Gardens, Brand Road, Lincoln.

8th June. GLOSSOP A.S. Open Show. The Adult Education Centre, Talbot Road, Glossop, Derbys. Benching, 12.0 to 2.0 p.m. Open to public from 2.0 p.m. Schedules from Mr D. R. Chambers, 85 Old Road, Hyde, Cheshire.

8th June. LOUGHBOROUGH & D. A.S. second National Open Show. Loughborough Town Hall. Benching, 11.0 a.m. to 1.30 p.m. Judging 1.30 to 3.30 p.m.

8th June. STRETFORD & D. A.S. Open Show. A.E.I. Club, Moss Road, Stretford. Schedules from Mr J. E. Jackson, 30 Durnford Avenue, Urmston, Manchester.

14th June. SOUTHAMPTON & D. A.S. Open Show. St Dery's Church Hall, Southampton. Details from Mr C. McCann, 7 Waterhouse Way, Southampton, SO1 3PA.

14th June. LLANTWIT MAJOR A.S. Open Show. Town Hall, Llantwit Major, Glam. Benching 12.30 p.m. Open to public 3.0 p.m. Schedules from Mr J. Sanders, 25 Sandfield Road, Aberkeinfing, Nr Bridgend, Glam.

15th June. SWILLINGTON A.S. fourth Open Show. Swillington County Primary

Continued on page 128

# Design for a Collecting Net

By T. R. HALL

it proved to be very resistant to corrosion. This aluminium strip was bent roughly into a diamond shape (Fig. 1) with the open end bent out again to fit into the pole (C). This shape of net has two distinct functions: (i) the flat sides A-D and B-D may be used for right to left and left to right sweeps respectively, across flat, sandy substrate; (ii) the point D may be used to get under rocks and ledges where most fishes hide.

When the frame has been shaped,

the distance from D round the frame to C in Fig. 1. Length A-C should be twice the required depth of the bag plus 3-4 inches on either side. This is to allow for a generous turnover to go over the frame. This turnover should be sewn first if you are sewing by machine, last if you are sewing by hand. The net should then be folded down the centre line, and the two open ends sewn up to form the bag. Sew only as far as the turnover. I would also suggest sewing across the corners as ex-

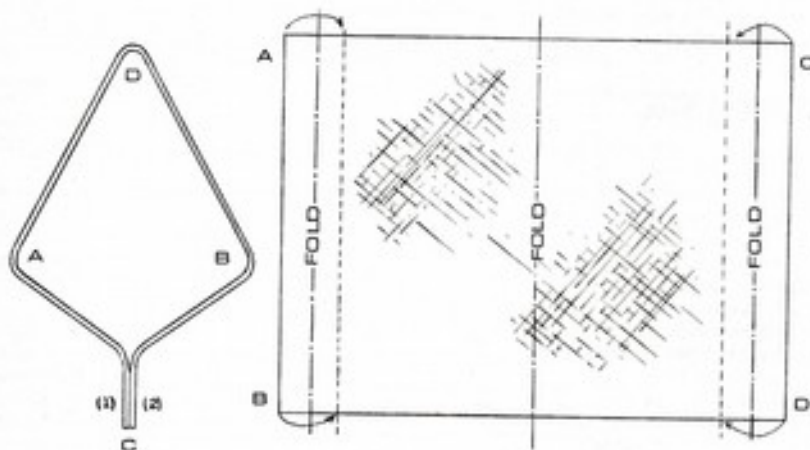


Fig. 1 (left)  
Shape of the frame

Fig. 2 (right)  
Pattern for net

THE most effective net that I have ever used is one that I designed and built myself. The frame was made from aluminium strip  $\frac{1}{2}$  inch wide and  $\frac{1}{8}$  inch thick. At first I was dubious about the durability of aluminium in sea water, but

a bag should be made from nylon netting. This netting should not be too fine or it will seriously affect the speed with which the net will travel through the water. Fig. 2 shows the pattern for the net. Length A-B should be slightly more than twice

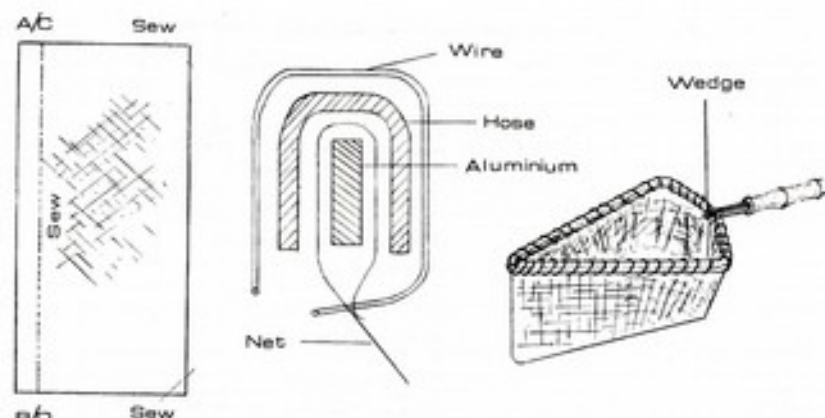
perience has shown that everything from seaweed to fish gets trapped in net corners, and removal is difficult.

The bag may now be put on to the frame. The turnovers on either side of the bag should be slipped over C(1) and C(2) (Fig. 1). Bunch

Fig. 3 (left)  
Sewing lines for net

Fig. 4 (centre)  
Sectional view of edge of net

Fig. 5 (right)  
The finished net



the net up so that front and back are together, and slide forward, at the same time crossing C(1) over C(2) and bending the two sides of the frame together. On reaching the bends halfway, the front end of the bag only should be pushed over them. The frame may then be gently allowed to spring back into place, thus stretching the net out completely round the frame. The open end at D may then be sewn together by hand. Should the whole bag be made by hand-sewing, it should be sewn together without the turnovers first, then placed on the frame in the desired position. It may then be sewn into place.

The net is usable in this form, and, indeed, I did use it like this when I first made it. However, it did not prove strong enough to withstand dragging against rocks, and frequently tore badly, particularly against the frame. As a result, a subsequent improvement was made with a length of plastic garden hose. This was split down one side and placed over the frame, protecting both that and the net between them. The hose was wired to the frame by poking some thin wire through the net immediately below the frame, passing it up, over the hose, down the other side and back through the net again, further

along. This formed a long spiral of wire all round the frame, adding further protection.

When this assembly is completed, it may be fitted to the handle. Bamboo cane may be used with great success, although I prefer aluminium tube. Whichever is used, the net should be firmly, but not permanently, fixed in place by driving a wedge between C(1) and C(2). This will force the two tongues out against the inside of the tube. When using bamboo cane it is advisable to bind the end of the cane to prevent it from splitting when driving the wedge in.

## Collecting Native Marines

Continued from page 115

Winter collecting has the obvious disadvantages of ice-cold water and biting winds. The shorter hours of daylight and the bad weather also interfere severely with collecting. In spite of these points, winter collecting can be quite profitable, as larger fishes are available, these being the rapidly maturing spring spawning. The biggest advantage that winter collecting has is that the fishes are very sluggish in the low temperatures, and therefore much more easy to catch.

The weather has a profound effect on the possibilities of collecting. Bad weather has the effect of driving even the purely littoral species off-shore, into deeper, less disturbed waters where they will not be constantly battered against the rocks. Once they have moved out into deep water, they can take several days to come back into the littoral zone, which means that there is little point in trying to catch fish within at least 3 or 4 days of a period of rough seas.

It is possible to gain an idea of how one will fare before one actually gets on to the beach, from the number of seagulls present. If there are a lot, swooping into the rock pools, there are plenty of fishes around. However, it calls for rapid action on the part of the collector, as seagulls can polish off the inhabitants of a pool in a very short space of time. An excess of crabs is a bad omen, as these too can demolish a lot of fish, or at least frighten them away.

### Equipment for Collecting

An aquarist going to collect marines can look almost like a walking jumble-sale, but it is very easy to forget a necessary item of equipment when packing.

**Nets:** one large and one or two small hand nets. (A design for a collecting net is given in a separate section opposite.)

**Polythene bags:** these are the best packing for fishes, as they are less likely to get bruised in transit than in a hard container.

**Needle and thread:** essential as nets can easily get snagged and torn, and, without a repair kit, collecting has to halt.

**Hammer and chisel:** useful for breaking off pieces of rock bearing interesting algae and sedentary life.

**Shallow polythene trays:** used for storing and sorting captured specimens; white is the best colour.

**Powerful torch:** night collecting with torches is discussed in a later part of this article.

**Waders or wellingtons:** for anyone who does not like wet feet, these are a must. They are absolutely essential in winter months, as the water is so cold that one could not possibly put bare feet in it.

**Scissors:** spiny fishes, such as *Cotna*, can easily become snagged in nets, and the best way to remove them is generally to cut the net away.

**Rubber bands:** it is better to seal polythene bags with rubber bands than to knot them, as knotting makes them very difficult to untie.

**Hydrometer:** is advisable to check the specific gravity of the water at the collecting site, as it varies considerably. Pools have been known to go down as far as 1.012 in the rain.

**Sticking plaster and antiseptic:** rocks are very slippery, especially when covered with algae, and accidents often happen.

**Thermos flask:** for summer collecting this should contain ice-cubes for keeping the fishes cool on the way home, but in winter I suggest hot coffee laced with rum!

**Spare bag or case:** this will be necessary for bringing back bags full of fishes. Collectors have been known to forget this and return home with arms full of loose polythene bags!

Some people make a weekend trip out of collecting jaunts, and in this case extra equipment will be needed. Some tanks, and a water container will be required, although buckets will suffice. An air pump and filters or airstones will also then be necessary.

Next month: *Techniques of Collection*

## THE AQUARIUM CATFISHES—II

**'Talking' Cats**

Skunk doradid  
(*Platydoras costatus*)



A species of  
*Acanthodoras*



Chocolate catfish  
(*Acanthodoras cataphractus*)

By BRAZ WALKER

## Photographs by the author

SINCE South America was apparently the point of origin for the entire order of catfishes or siluriformes, it is not too surprising that several of the South American catfish families have rather novel approaches to the business of living. In and out of the aquarium scene for many years, never quite attaining what one might consider 'popularity' but at the same time appearing in the tanks of most serious collectors of the less than usual at one time or another, were various species of 'talking catfishes'. Although a number of catfishes are capable of producing clearly audible sounds, the term 'talking catfish' ordinarily is used in reference to members of the family Doradidae.

Doradid catfishes are a rather retiring group as a whole, preferring to do most of their travelling at night or at least in semi-darkness. Daylight hours are often spent by the fishes under rocks, in caves or even partially or wholly buried in the mud or sand. Some species, upon finding a suitable place such as underneath the roots of an old stump, seem almost equally comfortable in an upside-down position. They range in size from a couple of inches to a couple of feet, and the 'voices' of various doradids range through squeaks, grunts and growls.

The doradids are unique among catfishes in possessing along the sides of their bodies a series of bony, armour plates, each of which has a strong, sometimes almost thorny, spine projecting backwards. In some species there are other smaller spines, and these combined with the strong and often toothed pectoral and dorsal spines make these creatures as a whole rather unappetising mouthfuls. Few features could be more desirable than to be relatively unpalatable in the ceaselessly hungry, predatory world of South America's jungle river systems!

Certainly one of the most beautiful of the doradids also happens to be one of the more primitive, and therefore much like the original doradid ancestors of the family. This is the beautiful *Platydoros costatus*, which also is apparently among the most widely distributed members of the family Doradidae. This handsome creature is adorned with the simplest colours imaginable: black and white (sometimes cream). On each side of the black body is a white lateral band that extends from the fork in the caudal to above the eyes, where the two lines connect. The upper and lower lobes of the caudal are edged white, the leading edges of the pectorals are white, and the belly is grey. Although the mouth is relatively small, the head of this species is quite large in proportion, as are the large, almost wing-like pectoral fins. For aquaria containing larger fishes whose feeding habits are a bit sloppy, this is an excellent scavenger whose armament system will protect him from aggression. At the same time this is an excellent show fish that is perhaps less retiring than some doradids. Six or seven inches is maximum size under most aquarium conditions.

As far as the entire family is concerned, apart from the armament of the sides the most striking feature of

the group is the pectoral spine and its locking mechanism. Eigenmann stated that apparently the entire evolution of the Doradidae centred in the pectoral spine.

Not only are these spines extremely large and armed with serrations on both the front and back edges, they can be locked in any position so firmly that the spine will break off rather than allow itself to be depressed by force. There is a trick involved, however, and if one knows how, the fins can be easily depressed either in preserved or living specimens. By simply rotating the left pectoral spine clockwise or the right spine counter-clockwise, the locking mechanism is released and the fin can be collapsed.

The dorsal spine, too, can be locked in any position, but only as far as depression is concerned. The locking mechanism is quite different from the pectoral lock, using a sort of pin-in-socket arrangement as opposed to the torsion lock, but both systems are a bit complicated to be investigated in this article. Needless to say, with all three fins expanded and locked firmly in place, plus the backward-projecting spines along the sides (and in some species a heavily armed humeral process as well), doradids in general make rather unappetising tid-bits.

The genus *Acanthodoros* are possibly the best known doradids as far as aquarists are concerned. There are several of these smaller doradids which appear from time to time, most common of which is *Acanthodoros spinosissimus*. On the last armour plate there are several spines above and below the hooked spine and the plates of the caudal peduncle meet above and below, with the exception of the last one. The body is black, and there is a light-coloured lateral stripe on each side. The caudal fin is rounded. A light band adorns the top of the head and there are several light spots on the back between the dorsal and caudal fins. Fins may be variously spotted or barred and the belly is black with irregular white spotting. Barbels are black and white barred.

*A. cataphractus* is somewhat similar, but is often a rich milk chocolate colour. As in all *Acanthodoros* species the beady little eyes seem much too small.

The doradids are not only among the most interesting catfishes from an anatomical viewpoint, they are among the most useful of scavengers because of their tough, armoured protection and their ability to penetrate places that other fishes could not in search of food. They will eat anything which could even remotely be considered as fish food, and despite the retiring nature of the creatures, I doubt that any aquarist could keep them without some sort of attachment forming.

This is a large family, and its diversity is tremendous. It is surprising that the potential surface of the family has not even been scratched, for among their untapped ranks are some of the most weird-looking as well as some of the most handsome of catfishes. They have long noses, short noses, long rippling anal fins and short ones, some are unbelievably spiny and some look almost like overgrown *Corydoras* with branched barbels.

In the last few years, many new areas of the tropical regions of the world have been opened for fish-collecting, and with tremendously improved transportation techniques many fishes are readily available to hobbyists that were not even known to aquarists a short time ago. Perhaps the next few years will introduce to us more of these thorny and sometimes conversational creatures.



## What's New?

### Water Circulation

THE **Jeta** system of aeration and water purification (The Freshel Engineering Company Ltd.) consists of a small submersible water pump connected to the Jeta under-gravel filter. The discharge side of the piston pump connects to a plastic tube just above water level from where the water is discharged under pressure in a number of jets. For a 24 in. tank, the pump is priced at 78s 9d and the filter plate 20s; for a 36 in. tank, the pump is 82s 6d and filter plate 33s.

### Aquarium Remedies

AQUARIUM remedies by Scanco Ltd. are designed to assist over a wide range of aquarium dilemmas. General aids to better aquarium care are the antiseptic aquarium cleaner **Scanco Wash** and methylene blue packs. **Scanco Jungle Juice** is supplied 'to create natural aquarium water' and **Flourish** is a plant nutrient. Specific remedies are **Skankure** white spot remedy and **Searem** cure for *Oodinium*; **Snail-gon** and **Chlorine-gon** are further items in the range with names expressive of their purpose.

### Airstream Range of Filters

INTER-PET'S introduction of their Airstream Slimline outside aquarium filter has been followed by three new additions to the line. The **Airstream Cascade** (25s) carries the same size of filter box as the Slimline (approximately 6 in. long by 2 in. wide by 6 in. deep) but incorporates an air diffuser in the return stem. Large

Some of the items displayed by the aquatic trade at the **PET TRADE FAIR** at Harrogate



Bright display idea by Scanco Ltd. was this 'wall' of their fish transport cartons with cut-out panels showing fishes swimming as if in water within the boxes

tanks, or small tanks where a larger filtering capacity is called for, are now catered for with the **Airstream Super Twin** (39s 6d). The filter box is about 11½ in. by 2½ in. wide at the top by 8 in. deep. Two siphon stems ensure a high rate of flow and water circulation and the discharge is made back into the tank via two outlet tubes leading from a diffuser chamber. The **Airstream Bottom Filter** (7s 6d) is drumshaped. Water is drawn in through vertical slots



Items in the new range by King British include a pH Tester and pH Adjuster packs as well as cures for fungus, velvet and white spot. There is also a K.B. white spot preventive preparation called **Avoid-It**

that encircle the bottom third of the drum. Filter material held in an inner drum cannot escape into the tank, and the water is dispelled back into the tank over a diffuser stone.

### Floating Fish Hatcher

HYKRO'S new **2 in 1 Fish Hatchery**, priced at 7s 6d, carries a hollow overhang at each side that keeps it afloat in the tank. Removable plastic dividers form three compartments and provision for water circulation in the holding chamber is made by narrow slatting of the tapering end walls. Two females can await delivery in the trap on either side of the vertical divider and if this and the horizontal separator are removed the chamber can be used for the fry alone.

### Attractive Tank Stands

INCREASINGLY attractive set-ups are being provided by the tank manufacturers. Three new Juwel aquarium stands have incorporated into the basic stand design means of

hiding various unsightly pieces of equipment. A drawer and shelf in one design copes with small pieces of equipment and literature and this design is available for 24 in., 36 in. and 48 in. tanks. Another design provides a cupboard for power filters and other large items (available in sizes 36½ in. and 48 in.). The **Juwel Aquarium Showcase** is offered complete with aquarium and lights. The aquarium size is 31½ in. by 19½ in. by 15 in. and the showcase is 43 in. by 21 in. by 36 in. high. This allows a large compartment to be provided next to the aquarium to receive filters, ozone reactors, pumps etc. The appearance is of light wood and should enhance any sitting room. Manufacturer of Juwel Aquariums is John Allan Aquariums Ltd.

North West Plastics Ltd., manufacturers of the **Hyware** bow-fronted tanks, have enlarged their range. A tank of dimensions 24 in. by 12 in. by 12 in. ('Tahiti') is now available, of 13 gallons capacity. 'Caribbean' has a capacity of 22 gallons (36½ in. by 15 in. by 15 in.) with a wide Perspex bow front and a tropical blue background panel. The cover has two feed apertures and an anti-condensation tray in clear plastic. Provision is made for strip-light fittings. These tanks are priced at about £5 10s 0d and £22 respectively. Tank stands are now available for the three tanks. Finished in stoved black to match the lids and bases of the tanks, they are of knock-down assembly.

Another knockdown stand is that manufactured by the Freshel Engineering Company Ltd.: 30 in. high, with a fish-patterned glass shelf, it is easily assembled (24 in. 74s 9d; 36 in. 99s 11d).

## Springy Filter Floss

FREEDOM from undesirable changes that cause matting and clogging is claimed for the **Nuova Filter Wool** just introduced to Britain. The fibres of this product have a natural springiness that gives this advantage, which also facilitates the washing of the wool after a period in a filter before it is used again. This wool is light green in colour, so that if it is used alternatively as a spawning medium, as the makers suggest, it gives a



Nuova's new tough polyester Filter Wool is green (see Springy Filter Floss)

more natural effect in the aquarium. (Distributors of Nuova products are Tradefish Aquarium Co., Sunderland.)

## New Hykro Outside Filters

TWO new outside aquarium filters in the Hykro range are the **Hykro Crystal Filter** and the **Hykro Power Aquarium Filter**, each capable of being suspended on the side of the aquarium. The filter chamber capacity is the same for each of these filters and both are operated by air flow from an aerator. Return of filtered water to the tank



A King British Pond Filter unit connected via wide-bore plastic tubing to a submersible water pump (on the left)

from the Crystal Filter is via a vertical return pipe from the bottom of the filter chamber with a multi-bubble air-lift. In the Power Filter the return pipe can be positioned away from the intake area, since its air-lift is connected to a length of flexible plastic tube joined underneath the filter chamber. The parts of the filters are all made of strong, clear, green-coloured plastic. Each filter has a gadget to aid filling and placing of the intake siphon tube to

start the filter working. Prices are: Crystal Filter, 21s; Power Aquarium Filter, 25s 6d.

## Keeping Ponds Clear

CLOUDY ponds are a source of many enquiries from garden-owners wanting to know how to keep the water clear. For those who already have a submersible water pump for a fountain or waterfall, a new accessory for pond clarification is the **King British Pond Filter**. This is virtually a sub-gravel filter, the water being taken by the pump through a plastic tube attached to the rectangular unit. Water enters the unit from the top, passing through the filter media and via slots into the bottom section with outlet pipe. A flat foam plastic pad provides the main filtering action, aided by a layer of aquarium gravel arranged over this pad. Of a rigid moulded opaque, plastic construction, the KB Pond Filter costs 65s.

## Safe Lighting Units

THE safest form of lighting units for use in aquarium covers that we have yet seen are the **King British Waterproof Light** fittings. These

consist of plastic-covered cable and plastic lamp-holder moulded all in one piece, so that the only visible metal parts are the two pins, in the base of the lampholder, with which the bulb makes contact when in position. The lamp-holders are cylindrical and are push-fitting into the socket holes provided in conventional aquarium covers. Units with one, two or three lamp-holders are available (16s. 9d., 23s. 6d. and 30s. 6d. respectively).



MR B. PHILLIPS of Ashton-under-Lyne A.S. was the fortunate winner of a 3 ft. tank that had been donated by Mr A. Henshaw for the best-fish-in-show award at the BELLE VUE A.S. open show. This award was made to Mr Phillips by F.N.A.S. judges Mr A. Lindley and Mr P. Moorhouse from the 238 entries from 14 societies. Details of the results are:

Guppies: 1, Mr E. Wells (Sunnybrow); 2, Mr R. Ward (Mixenden); 3, Mr I. Roberts (Belle Vue). Swordtails: 1, Mr J. Gresty (Sunnybrow); 2, M. & B. (Huddersfield); 3, Mr A. Wild (Salford). Platys: 1 and 2, Mr B. Thompson (Gorton); 3, Mr J. Gresty (Sunnybrow). Mollies: 1, Mr and Mrs Heap (Heywood); 2, Mr J. Gresty (Sunnybrow); 3, Mr and Mrs Brown (Mixenden).

Barbs, large: 1, Mr K. Parkes (Merseyside); 2 and 3, Mr and Mrs Grimshaw (Sunnybrow). Barbs, small: 1, Mr S. Gerrard (Alfreton); 2, Mr J. Murray (Salford); 3, Mr and Mrs Wright (Alfreton). Characins, large: 1, Mr V. Parkes (Merseyside); 2, Mr J. Murray (Salford); 3, Mr F. Ledger (Top Ten). Characins, small: 1, Mr and Mrs Wright (Alfreton); 2, Mr D. Wragg (Alfreton); 3, Mr S. Gerrard (Alfreton). Rasboras: 1, Mr S. Gerrard (Alfreton); 2, Mr G. Hodgkinson (Gorton); 3, Mr D. Thomalla (Merseyside).

Sharks and foxes: 1, Mr R. Moorcroft (Merseyside); 2, Mr and Mrs Grimshaw (Sunnybrow); 3, Mr F. Mulla (Merseyside). Killifish: 1 and 2, Mr D. Wragg (Alfreton); 3, Mr N. Swanson (Merseyside). Minnows and carps: 1, Mr S. Gerrard (Alfreton).

Angels: 1 and 2, Mr A. Moyle (Leigh); 3, Mr M. Allsopp (Alfreton). Dwarf cichlids: 1, Mr and Mrs Brown (Alfreton); 2, Mr I. Roberts (Belle Vue); 3, Mr L. Kaye (Top Ten). Cichlids, large: 1, Mr K. Parkes (Merseyside); 2, Mr F. Mulla (Merseyside); 3, Mr and Mrs Wright (Alfreton). Catfish, large: 1, Mr B. Phillips (Ashton); 2, Mr L. Kaye (Top Ten); 3, Mr A. G. Esteves (Top Ten). Catfish, small: 1, Mr A. Newall (Glossop); 2, Mr B. Thompson (Gorton & Openshaw); 3, Mr R. Davies (Belle Vue). Loaches: 1 and 3, T. & W. (Sunnybrow); 2, Mr F. Mulla (Merseyside).

Fighters: 1, Mr D. Trace (Ashton); 2, Mr B. Seabright (Gorton); 3, Mr J. Gresty (Sunnybrow). Anabantids, large: 1, Mr and Mrs Brown (Mixenden); 2, Mr A. Middleton (Sunnybrow); 3, Mr F. Mulla (Merseyside). Anabantids, small: 1, Mr A. G. Esteves (Top Ten); 2, Mr J. Boswell (Top Ten); 3, Mrs Cobb (T.A.B.). A.o.v.: 1, Mr R. Moorcroft (Merseyside); 2, Mr D. Thomalla (Merseyside); 3, Mr J. Gresty (Sunnybrow).

Pairs, tropical, egglayers, 1, Mr R. Davies (Belle Vue); 2, Mr D. Wragg (Alfreton); 3, Mr J. Murray (Salford). Livebearers, 1, Mr J. Gresty (Sunnybrow); 2, Mr R. Tomkinson (Glossop); 3, Mr A. Wild (Salford).

Coldwater, goldfish and shubunkins: 1 and 2, Mr E. W. Eadon (Sheffield); 3, Mr and Mrs Wright (Alfreton). A.o.v. 1, Mr and Mrs Wright (Alfreton); 2, Mr E. W. Eadon (Sheffield); 3, W.P.S.C. (Oldham). Pairs: 1, Mr E. W. Eadon (Sheffield).

Juniors, egglayers: 1, P. Hodgkinson (Gorton); 2, D. Moorcroft (Merseyside); 3, J. Watson (Sunnybrow). Juniors, livebearers: 1, D. Slater (Sunnybrow); 2, Miss Boswell (Top Ten); 3, S. Smith (Merseyside). Mini-jars: 1, Mrs A. Heap (Heywood); 2 and 3, Mr K. G. Daniels (Merseyside). Breeders: 1 and 3, Mrs Cobb (T.A.B.); 2, Mr R. Moorcroft (Merseyside).

MEMBERS of BLACKWATER A.S. have presented a 4 ft. tank complete with fish to the old people's ward at St Peters Hospital, Maldon, Essex. Club chairman Mr E. Gee made the presentation to Mr Woods for the Hospital and club members were delighted when the matron, Miss M. E. Judd, agreed to become the club's first president. Other activities have included a talk by the president of Witham & D. A.S., Mr D. Malton, on coldwater marine tanks, which he illustrated with specimens collected from coastal areas in the British Isles. At this meeting, the table show for a.v. coldwater was won by Master C. Waldock (2, Mr J. Crace; 3, Master J. Derall).

SWILLINGTON A.S. entertained their guests at their fourth inter-society table show recently with an auction of fishes, plants and equipment while Mr R. M. Faircliffe and Mr J. Skinner were judging the exhibits. Mr Carey of York

**THE INTERNATIONAL SHOW of the FANCY GUPPY ASSOCIATION is being held at The Drift Hall, 3 Stretford Road, Manchester on Sunday, 1st June. It is open to the public from 10.0 a.m. to 4.0 p.m. Benching takes place on Saturday 31st May, 3.0-5.0 p.m. and judging is at 5.15 p.m. The Show is open to everyone whether they are members of the F.G.A. or not. All enquiries should be made to Mr Fred Campbell 37 Cardigan Drive, Bury, Lancs.**

won the best fish in show award with a Siamese tiger fish, an Aireborough & D. A.S. won th Swillington challenge shield for the Society gaining most points. Other results were:

Guppies: 1, Mr Thickbroom (Castleford); 2, Mr Taylor (Aireborough); 3, Mr Heptistall (Castleford). Livebearers: 1, N Burnap (Aireborough); 2, Mr Garford (Mixenden); 3, Mr Pooton (Selby). Barb: 1 and 2, Mr and Mrs Buxton (Barnsley); 3, Mr Whiteley (Aireborough). Characin: 1, Mr and Mrs Howard (Barnsley); 2, N Monk (Aireborough); 3, Mr Kay (Aireborough).

Cichlids: 1, Mr Taylor (Aireborough); 2, Mr Carey (York); 3, Mr Thompse (Aireborough). Catfish and loach: 1, M Helm (Horsforth); 2, Mr Audsley (Horsforth); 3, Mr Gates (Castleford). Carps and minnows: 1, Mr Gates (Castleford); 2, N Scarff (Selby); 3, Mr Corns (Horsforth). Fighters: 1 and 3, Mr Smith (Tadcaster); 2, Mr Iveson (Aireborough). Anabantid: 1, Mr Heeley (Barnsley); 2, Mr Brow (Mixenden); 3, Mr Ward (Mixenden). Toothcarps: 1, Mr Greenhall (Tadcaster); 2, Mr Smith (Tadcaster); 3, Mr Megso (Aireborough).

Livebearer pairs: 1, Mr Thickbroom (Castleford); 2, Mr Wimbles (Swillington); 3, Mr Helstrip (Aireborough). Egglayer pairs: 1, Miss Helm (Horsforth); 2, N Brown (Mixenden); 3, Mr Taylor (Aireborough). Breeders livebearer: 1, Mr and Mrs Robinson (Aireborough); 2, Mr Bird (Swillington); 3, Mr Heeley (Barnsley). Breeders egglayer: 1 and 3, Mr and Mrs Buxton (Barnsley); 2, Mr Smith (Tadcaster). A.o.v.: 1, Mr Carey (York); 2, Miss Helm (Horsforth); 3, Mr Turner (York). Funnished jars: 1, Mr and Mrs Flint (Swillington); 2, Mr Thompson (York); 3, N Audsley (Horsforth).

## Society Tableaux at The AQUARIUM SHOW '69

ENTRIES from societies are invited for the Society Tableaux Class at The Aquarium Show '69, open to the public 29th October to 2nd November, at the Royal Horticultural Society Old Hall, London S.W.1. Information sheets about the Tableaux Class have been sent to society secretaries in the home and

southern counties and will be sent also, on request, to any other interested society. Although the display area (8 ft. by 3 ft.) for each Tableau is the same as provided for in last year's regulations for this Class, the height of the plinth surface above floor level is now 36 inches. Societies desiring to enter

this Class should make early application, since the number of sites available is limited, and the information sheets should be studied before any designs are made. Secretariat requiring Tableaux information should write to the Show Organiser: The Aquarium Show, 554 Garra Lane, London S.W.17

APRIL was a busy month on the show bench for EALING & D. A.S. members, and one of the features at both the monthly table shows was the appearance of discus on the show bench. Says P.R.O. Mr R. C. Mills 'No mean feat and a brave aquarist to chance such beautiful fish'. At the first meeting, as well as the table show there was also held round 1 for the Jim Irvine trophy, a new competition in the club in which previously nominated fishes are shown regularly throughout the year, the highest total winning the trophy—the response was almost too gratifying with over 40 entries benched. Table show results were: cichlids: 1, Mr P. Woodward (*Symphysodon a. axelrodi*); 2, Mr A. Ankin; 3, Mr T. Tagg. Characins: 1, Mr A. Ankin; 2, G. Ankin; 3, Mr G. Burgin.

BRENT A.S. were the guests at the second meeting and the first round of the twice-yearly inter-club shows was held. Revenge was taken for both last year's defeats, with Ealing winning by 43 points to 12. These results were:

Cichlids: 1, Mr T. Tagg (*E. Geophagus* sp.); 2, Mr D. Church (*E. C. spilargenteus*); 3, Mr P. Woodward (*E. S. discus*). Barbs: 1, Mr J. Healey (*E. rosy barb*, best in show); 2, Mr J. Raymond (*B. tiger barb*); 3, Mr A. Ankin (*E. rosy barb*). Labyrinths: 1, Mr R. Savage (*E. dwarf gourami*); 2, Mr A. Ankin (*E. Ctenopoma kingletiae*); 3, Mr R. Barrett (*E. combtail*). A.O.S. egg-layers: 1 and 2, Mr R. Sellers (*E. Madagascariensis*); 3, Mr T. Tagg (*E. E. halloptera*).

JUDGES Mr C. A. T. Brown, Mr R. D. Esson, Mr A. G. Jessopp, Mr E. F. Large and Mr H. Towell had the task of judging 428 entries in 21 classes at the very successful first open show held by EAST DULWICH A.S. There were also 62 guppy entries judged by the F.G.A. Mr J. Wilson won the best fish in the show award with a velifera mollie (85 pts). The F.B.A.S. trophy for the best fighter went to Mr R. Wynd and the Dulwich Bowl for the best cichlid to Mr J. Stillwell. The *C. paleatus* entered by Mrs Lippett was judged the best *Corydoras*. First-prize winners were:

Mollies: Mr J. Wilson (Velifera, 85); platys, Mr D. Smith (blae, 79); swordtails, Mr K. Dryden (Weisbaden, 79); a.o.v. livebearers, Mr M. Clarke (*Limna vittata*, 82).

Characins, Mr A. Blake (red-eyed tetra, 83); barbs, Mr A. Blake (cherry, 80); fighters, Mr R. Wynd (80); a.o.v. labyrinthia, Mr F. Kendrick (combtail, 81); cichlids, Mr J. Stillwell (Texas, 84); rasboras, danios and minnows, Mr A. McCarthy (scissortail, 79); egg-laying toothcarps, Mr J. Randall (*A. garulteri*, 78).

*Corydoras*, Mrs Lippett (*C. paleatus*, 79); a.v. loach and a.o.v. catfish, Mr F. Kendrick (*Otocinclus maculicoma*, 81); a.o.v. egg-layer, Mr A. Blake (red-finned shark, 80); breeders egg-layer, Mr L. Little (*P. garulteri*, 73); breeders livebearer, Mr L. Little (platys, 75).

18th TO 22nd JUNE inclusive sees the holding of the second National Furnished Aquarium Exhibition, sponsored by K.B. Tropical Fish of Bradford. It is being held, as last year, in St George's Hall, Bradford and parties from aquarist societies are specially welcome. As well as the competition entries there will be many attractions on show including a tank of large tropical marines, a water garden display, tanks of unusual fishes and trade stands.

Goldfish and London shubunkins, Mr V. Voysey (goldfish, 75); singletail goldfish and comets, Mr R. Dudley (singletail, 72); a.o.v. fancy goldfish, Mr R. Dudley (globe-eye, 72); a.v. native or foreign coldwater, Mr J. Stillwell (pumpkin seed sunfish, 80); rooted plants, Mr G. Greenhalf (Amazon sword, 83).

CLUB member Mr H. C. B. Thomas gave a lecture on the composition of water and its effects to fellow members of BRISTOL T.F.C. that was both enlightening and amusing. Another enjoyable club meeting that was very well attended by both old and new members featured an American slide show of the live-bearers and members were pleased to hear that further films from the same source would be presented shortly. Recent table show results have been:

Catfish and loaches. Open: 1, Mr J. Smith (*C. aeneus*); 2 and 3, Mr F. Brown (*B. strigata*, *C. melanostictus*). Novice: 1 and 2, Mr J. Smith (*C. aeneus*, kuhli); 3, Mr C. Webb (*S. agriventris*).

Platys. Open: 1 and 2, Mr B. Clark; 3, Mr F. Brown. Novice: 1, Mr J. Smith; 2, Mr M. Heard. Guppies, male. Open: 1 and 3, Mr F. Brown; 2, Mr C. Webb. Novice: 1, Mr C. Webb; 2, Mr C. Webb; 3, Mr J. Smith. Guppies, female. Open and Novice: 1, Mr C. Whitmarsh; 2, Mr R. Day; 3, Mr J. Smith.

MEMBERS and visitors who attended the thirteenth meeting of the BIRMINGHAM SECTION of the FANCY GUPPY ASSOCIATION enjoyed a lecture and slide show by Mr Michael Reynolds of M.A.A.S. on the photography and micro-photography of fishes and found the details of his experience most helpful. 138 entries from 17 exhibitors were benched and the best in the show award went to Mr P. J. Duffy, the best opposite sex to Mr S. Croft and best breeders to Mr M. H. Delingpole. Details of awards are:

Original veil: 1, Mr M. H. Delingpole. 67. Long dorsal veil: 1, Mr J. Wits, 80; 2 and 3, Mr M. H. Delingpole, 79, 78. Short dorsal veil: 1, 2 and 3, Mr J. Wits, 83, 78, 77. Delta: 1 and 2, Mr P. J. Duffy, 77, 73; 3, Mr J. Wits, 79. Faintail: 1, Mr P. J. Duffy, 73; 2, Mr M. H. Delingpole, 67.

Male colour class: 1, Mr D. R. Beacham, 79; 2, Mr R. Grove, 72. Roundtail female: 1, Mr S. Croft, 76; 2, Mr R. A. Bullock, 75; 3, Mr M. H. Delingpole, 74. Superba: 1

Davis & Reeves, 79; 2, Mrs K. Heard, 78; 3, Mr D. R. Beacham, 76. Metropolitan: 1, Davis & Reeves, 79; 2 and 3, Mr M. H. Delingpole, 69, 66, Scallop: 1, Mr M. H. Delingpole, 76. Wedgetail: 1, Mr D. R. Beacham, 73; 2, Mr J. Wits, 72; 3, Mr S. Croft, 71. Coloured female class: 1, Mr J. Wits.

Breeders males: 1, Mr J. Taggart, 77; 2, Mr M. H. Delingpole, 74; 3, Mr P. J. Duffy, 73. Breeders females: 1, Mr M. H. Delingpole, 77; 2, Mr S. Croft, 73. Breeders matched pairs: 1, Mr M. H. Delingpole, 72; 2, Mr P. J. Duffy, 71; 3, Mr S. Croft, 70.

Novice: 1, Mr G. Lakin, 70; 2, Mr E. Black, 68. Roundtail male: 1, Mr R. Grove, 71. Cofertail: 1 and 2, Mr P. W. Jinks, 75, 74. Speartail: 1, Mrs K. Heard, 73; 2, Mr J. Wits, 72. Pintail: 1, Mr M. H. Delingpole, 77; 2, Mr P. J. Duffy, 72. Bottomsword: 1, Mr M. H. Delingpole, 74; 2, Mr B. Walker, 71. Doublesword: 1, Mr M. H. Delingpole, 75; 2 and 3, Mr B. Hatherway, 74, 73. Lyretail: 1, Mr B. Walker, 73. Scartail, 3, Mr P. W. Jinks, 67. Master breeders: 1, Mr M. H. Delingpole, 74. Experimental males: 1, Mr S. Croft, 70.

Placings in the Points Trophy competition are: Mr J. Wits 121; Mr M. H. Delingpole 59; Mr D. R. Beacham 37.

BRISTOL A.S. members, celebrating their fortieth year, heard a fascinating talk at their April meeting given by senior members Mr S. Davies and Mr H. C. B. Thomas on the history of the Society, its formation and activities over the past 40 years. Particular emphasis was given to the Bristol standard shubunkin and an animated discussion took place on the question posed to the audience on whether the Bristol shubunkin has improved or deteriorated since 1929. In summing up, Mr S. Davies, from his vast experience both as fishkeeper and judge, gave it as his opinion that in body shape, finnage and deportment the fish had improved immensely since the standard was laid down but that improvement in the colour had not kept pace with these. He also recalled that the standard, as originally formulated, was an ideal and that the modern fish was much nearer to it. At this meeting Mr J. Phillips won in the coldwater class for shubunkins in the table show (2, Mr S. Lloyd; 3, Mr J. Lewis). The tropical class for barbs was won by Mr G. Stone (2, Mr S. Lloyd; 3, Mr M. Howe).

ENTRIES for the KEIGHLEY A.S. open show were double those of last year. The 350 entries came from 25 different towns and it was also very pleasing that there was an increase of over 700 in members of the public who attended. Judges, both very well known in the north, were Mr G. Holmes of Bradford and Mr F. Cherry of Skipton, and they awarded the best fish in show place to the red piranha owned by Mr J. A. Whiteley of Aireborough A.S. which attained 86 points out of 100. Details results were:

Guppies: 1, Master Greenwood (Halifax); 2, Mr Blamires (Huddersfield); 3, Mr R. Taylor (Aireborough). Swordtails: 1, Mr Burnop (Keighley); 2, Master Greenwood; 3, Mr Gresty (Sunnybrow). Mollys: 1, Mr Bickle (Keighley); 2, Mr Gresty; 3, Mr Whiteley (Aireborough); Platys: 1 and 2, Mr Kennedy (Bradford); 3, Mr Buckstone (Barnsley). Barbs (up to nigger): 1 and 2, Mr Buckstone; 3, Mr Reynolds (Swillington). Barbs (over nigger): 1, Mr Whiteley (Aireborough); 2, R. & D. Standen (Loynes); 3, Mr H. Smith (Keighley). Characins: 1, Mr Buckstone; 2, Mr Gresty; 3, Mr Walker (Sheffield). Characins over 3 in.: 1, Mr Whiteley; 2, Mr Monks; 3, Mr and Mrs Robinson (Aireborough).

Carp and minnows: 1, Mr Kay (Aireborough); 2, Mr White (Keighley); 3, Master Mosley (Keighley). Sharks and foxes: 1, Mr Gates (Castleford); 2, Mr Gibson (Huddersfield); 3, Mr Walker. Fighters: 1, Mr Bycroft (Top Ten); 2, Mr Tattersall (Keighley); 3, Mr Smith (Keighley). Anabantids: 1, Mr Whitlock (Tadcaster); 2, Mr Healey (Barnsley); 3, Mr Tong (Oldham). Dwarf cichlid: 1, Mr Taylor (Aireborough); 2, Mr Gresty; 3, Mr Walker. Large cichlid: 1, Mr Carey (York); 2, Mr Kenney (Bradford); 3, D. & R. Stander (Loynes).

Catfish: 1, Mr Reynolds; 2, Mr D. Smith (Tadcaster); 3, Mr Hampson (Horsforth). Loaches: 1, Mr Holdsworth (Bradford); 2, Mr Bickle; 3, Mr Walker. A.O.V.: 1, Mr Whitlock; 2, Mr Carey; 3, Mr Greenhall (Tadcaster).

Breeders, livebearer: 1, Mr Healey (Barnsley); 2, Mr and Mrs Robinson (Aireborough); 3, Mr Thickbroom (Castleford). Breeders, egg-layers: 1, Mr Buckstone (Barnsley); 2, Mr D. Smith (Tadcaster); 3, Mr and Mrs Robinson. Pairs, livebearer: 1, Mr and Mrs Robinson; 2 and 3, Mr Gardner (Aireborough). Pairs, egg-layers: 1, Mr Whiteley (Aireborough); 2, Mrs Whitfield (Keighley); 3, R. & D. Stander (Loynes).

Fancy goldfish: 1 and 2, Mr Moorhouse (Bradford); 3, Mr Town (Castleford). Common goldfish: 1, Mr Town; 2, Mr Moorhouse (Bradford); 3, Mr White (Keighley). A.V. coldwater: 1, Mr Hooper (Bradford); 2, Master Cordingley (Keighley); 3, Mr Tong (Oldham). Juveniles: 1, Master Rhodes (York); 2, Master Harris (Keighley); 3, Master Taylor (Keighley).

A SEVERUM cichlid, owned by Mr D. Kennedy of Bradford, was awarded the best fish in the show award at the NELSON A.S. Open Show. 21 societies contributed to the 80 exhibitors, and three entrants achieved first, second and third places in a single class—these were Mr W. J. Orton (guppies), Mr J. Roberts (toothcarps) and Master A. Kaye (junior coldwater). Results were:

Guppies: 1, 2 and 3, Mr W. J. Orton (Salford, 81, 79, 78). Swordtails: 1, Mr N. R. Gibson (Huddersfield, 78); 2, Mr J. Gresty (Sunnybrow, 75); 3, Mr and Mrs Burnop (Keighley, 72). Mollys: 1, Master D. Lacey (Aireborough, 79); 2, D. & R. Standen (Loynes, 77); 3, Mr and Mrs Burnop (Keighley, 74). Platys: 1 and 2, Mr A. G. Esteves (Top Ten, 78, 77); 3, Mr A. Lyons (Nelson, 71).

Small characins: 1, Mr M. Jones (Valley, 78); 2, Mr J. Gresty (Sunnybrow, 74); 3, Mr J. D. Meredith (Micoenden, 73). Large characins: 1, Mr F. Ledger (Top Ten, 74); 2, Mr B. Pickles (Keighley, 61); 3, Mr C. Snowdon (Nelson, 55). Small barbs: 1, Mr D. Carlos (Nelson, 77); 2 and 3, Mr J. Tomlinson (Citheroe, 75, 71). Large barbs: 1, Mr and Mrs Grimshaw (Sunnybrow, 74); 2, Mr and Mrs Burnop (Keighley, 71); 3, Mr M. Jones (Valley, 70).

Fighters: 1, Mr K. Beresford (Rochdale, 70); 2, Mr F. Ledger (Top Ten, 68); 3, Mrs Davies (Heywood, 61). Other ana-



Aquarist of the Year Trophy of Colwyn Bay & D. A.S. was presented by Mrs C. W. Haskins (centre) to winner Mr J. E. Holt. Also in the picture: chairman Dr C. W. Haskins (left), Mrs M. Sumner (second left), Mrs B. Cardwell (third from right), Mr G. Poes and secretary Mrs J. E. Holt (right).

bantids: 1, Mr A. G. Esteves (Top Ten, 80); 2, Mr A. Middleton (Sunnybrow, 79); 3, Mr A. B. White (Keighley, 77). Catfish: 1, Mr B. Phillips (Ashton-under-Lyne, 81); 2, Mr L. Kaye (Top Ten, 79); 3, Master D. Lacey (Aireboro, 78). Loaches: 1 and 2, T. & W. (Sunnybrow, 77, 75); 3, Mr Quinton (Valley, 73). Sharks and flying foxes: 1, Mr A. B. White (Keighley, 76); 2, Mr C. Snowdon (Nelson, 72); 3, Mr I. Watson (Sunnybrow, 65).

Angels: 1 and 2, Mr A. Moyle (Leigh, 80, 75); 3, Mr B. Yate (Nelson, 70). Dwarf cichlids: 1, Mr J. D. Meredith (Micoenden, 78); 2, Mr L. Kaye (Top Ten, 76); 3, Mr D. Kennedy (Bradford, 70). Large cichlids: 1, Mr D. Kennedy (Bradford, 82); 2 and 3, D. & R. Standen (Loynes, 80, 79). Rasboras: 1, Mr J. Salise (Loynes, 70); 2, Mr and Mrs Webb (Salford, 68); 3, Mr and Mrs Grimshaw (Sunnybrow, 67). Toothcarps: 1, 2 and 3, Mr J. Roberts (Nelson, 73, 72, 70). Danios: 1, Mr A. G. Esteves (Top Ten, 75); 2, Mr and Mrs Webb (Salford, 74); 3, Mr A. B. White (Keighley, 71). A.O.V. tropical: 1, D. & R. Standen (Loynes, 80); 2, Mr B. Pickles (Keighley, 78); 3, Miss J. Helm (Horsforth, 70).

Pairs livebearers: 1, Mr and Mrs Hoggarth (Rochdale, 78); 2, Mr J. Gresty (Sunnybrow, 76); 3, Mr W. J. Orton (Salford, 72). Pairs egg-layers: 1, Mr B. Parkin (Huddersfield, 79); 2, D. & R. Standen (Loynes, 78); 3, Mr C. Snowdon (Nelson, 75). Breeders livebearers: 1, Mr M. Jones (Valley, 62); 2, Mr A. Baldwin (Nelson, 65); 3, Mr and Mrs Hoggarth (Rochdale, 62). Breeders egg-layers: 1, Mr A. Crass (Macclesfield, 75); 2, Mr and Mrs Webb (Salford, 71); 3, Mr B. Dearaley (Keighley, 72). Fantail goldfish: 1, W.P.S.C. (Oldham, 78); 2, Mr C. Wallbank (Accrington, 75); 3, Mr Whiteley (Accrington, 71). A.O.V. coldwater: 1 and 2, Mr Whiteley (Accrington, 76, 75); 3, Mr C. Wallbank (Accrington, 71). Junior tropical: 1, R. Bone (Nelson, 78); 2, Master White (Keighley, 75); 3, Master A. Kaye (Huddersfield, 70). Junior coldwater: 1, 2 and 3, Master A. Kaye (Huddersfield, 77, 74, 70).

THE EDMONTON SECTION of the F.G.A. held their Spring Open Show on 19th April. Judges Mr D. Curry, Mr M. Delingpole, Mr D. King and Mr L. Weller awarded best fish in the show to the fantail owned by Mr and Mrs Phillimore, best opposite sex to Mr and Mrs Phillimore and best breeders to Mr C. Parker (breeders, males). Chairman Mr Don Curry presented the awards. Mr Curry has himself recently won his Golden Jewel award for the second time. He is the only man in the world to have done this. Detailed results are:

Cofer: Mr J. Wits, 74. Spout: Mr P. Abbot, 72. Pin: Mr M. Delingpole, 73. Gold Award. Top sword: Mr J. Bradford, 74. Bottom sword: Mr J. Camden, 74. Double sword: Mr M. Delingpole, 71. Scarftail: Mr R. Clarke, 72. Original veil: Mr W. Holmes, 77. Long dorsal veil: Mr J. Wits, 75. Short dorsal veil: Mr Fowles and Mr Vinnall, 78. Gold Award. Delta: Mr M. Delingpole, 78. Gold Award. Fantail: Mr and Mrs Phillimore, 78. Experimental males: Mr R. Clarke, 73. Silver Award. Colour male: Mr W. Holmes, 77. Colour female: Mr R. Clarke, 78. Silver Award. Roundtail female: Mr R. Clarke, 76. Silver Award.

Superba: Mr M. Delingpole, 75. Gold Award. Metropolitan: Mr M. Delingpole, 72. Scallop: Mr Fowles and Mr Vinnall, 73. Wedge: Mr and Mrs Phillimore, 77. Experimental females: Mr Fowles and Mr Vinnall, 75. Gold Award. Breeders males: Mr C. Parker, 78. Silver Award. Breeders females: Mr Fowles and Mr Vinnall, 74. Gold Award. Breeders matched pairs, Mr and Mrs Phillimore, 77. Gold Award. Master breeders, Mr M. Delingpole, 76. Gold Award.

## In Brief

... **SOUTH BUCKS A.S.** was formed 6 months ago and the 30 members have been enjoying varied club activities. A first inter-club venture (a six-a-side competition against BRACKNELL A.S.) proved most successful and the Society is now available for any challenge from surrounding clubs. An enthusiastic welcome is also assured for any lecturer who would like to contact secretary Mr M. Cleaver, 194 Spearing Road, High Wycombe, Bucks.

... **AMESBURY & D. A.S.** are now affiliated to the F.B.A.S. and the A.S.A.S. and the formation of a junior section is being discussed. Mrs L. Sainsbury won the a.v. fish bottle show at the April meeting with a swordtail (2, Mr J. A. Hutchens; 3, Mr R. S. A. Harvey).

... ONE of the series of quizzes in a knock-out competition organised by the A.S.A.S. (whose sphere of activities extends from Weymouth to Bognor) was that won by **SOUTHAMPTON & D. A.S.** against the guest team from Winchester by 22 points to 14. The advanced class in the table show for characins, judged by Mr Armitage of Portsmouth, was won by Mr Russell (2 and 3, Mr Jones) and the general class by Mrs Russell (2, Mr Gilbert; 3, Mrs Rowe).

... **ROEHAMPTON A.S.** officers for the coming year are: chairman, Mr J. A. Waller; treasurer, Mr F. Furniaux; show secretary, Mr J. Hughs; secretary, Mr V. E. Thompson (93, Adeney Road, London, W.6); committee, Mr D. Lambourne, Mr A. Morgan.

... A NEW venture for **MEDWAY A.S.** will be the organising of a Convention on 28th September. There will be an interesting lecture and the opportunity for an aquarists get-together. Further details from secretary Mr A. Clack, 6 Holland Road, Chatham, Kent.

... **CHESTER & D. A.S.** elected the following officers at their A.G.M. and annual dinner: chairman, Mr P. Millington; secretary, Mrs A. Dutton (The Limes Farm, Tarvin, Chester); treasurer, Mr G. M. Jones; committee, Mr C. Bowyer, Mr F. Tilston. Trophies were presented to Mr P. Millington (Mottershead Cup); runner-up shield, Mr G. Maddams; Russell Allen trophy, Mr C. Bowyer; John Evans trophy, Mr R. Dutton; Pabo trophy, Mr P. Millington. The fish

of the year shield was won by Mr R. Dutton.

... MR J. Whittaker took first and third places in the table show for swordtails held by **ENFIELD & D. A.S.** (2, Mrs D. Howe). In the class for platys, Mr B. Bird took first and third and Mr D. Watts second place. Six new members were enrolled at this meeting. The club meets every third Thursday at 8.0 p.m. at St Andrews Church Hall, Enfield.

... NEW secretary of **BOURNE-MOUTH A.C.** is Mr R. Matley (2 Dean Swift Crescent, Lilliput, Poole, Dorset). Chairman Mr Coombes has been elected chairman of the A.S.A.S. At the club's April meeting the Annual Points trophy was presented to Mr Watkins.

... **HORSFORTH A.S.** officers for the year are: chairman, Mr R. Hampson (and editor); treasurer, Mr P. Pollard; secretary, Mrs B. Helm (29 Wellington Road, Leeds); show secretary, Miss J. Helm. Specified class (furnished jars) winners at the table show were: 1, Mr W. Audsley; 2, Master J. Dugdale, 3, Miss J. Dickinson. A.o.v. 1, Mrs J. Dickinson; 2, Mrs P. Hall; 3, Mr B. Lancaster. A.o.v. junior: 1, Master N. Holmes; 2, Master J. Dugdale; 3, Master N. Holmes.

... **MEETINGS of COVENTRY P. & A.S.** are now held at Foleshill Community Centre on the second Tuesday of each month. The Society gained 15 points at the Atherstone M.A.L. Show, a fine start to the League 1969 competition. At the club's April table show Mr E. Leggett took first, second and third places in the breeders eggglayers class. Barbs: 1, Mr S. Woodridge; 2, Mr E. Sheehy; 3, Mr E. Leggett. Characins: 1, Mr T. Luckman; 2, Mr L. Green; 3, Mr E. Sheehy.

... **GUILDFORD & D. A.C.** have greatly enjoyed two slide shows recently. Mr Norris of Bracknell A.C. presented slides of various prize-winning fishes, mostly belonging to his own club's members; a tape and slide show on the egg development of killifish was supported by a display of many kinds of killifish belonging to Guildford members. The club is always pleased to see new members. Secretary is Mr J. D. Cole (16 Weydon Hill Close, Farnham, Surrey).

... **WARRINGTON A.S.** members expect successful neon-breeding in the coming months after hearing Mr J. H. Turner lecture on the subject and describe his own successful

*MR W. L. WILSON, secretary of the GOLDFISH SOCIETY OF GREAT BRITAIN, reports in the G.S.G.B. April bulletin an experiment that he is conducting with overseas member Mr J. Bradbury of Johannesburg. Two sets of eggs have been sent to Mr Wilson by Mr Bradbury. The first set were packed only in a linen square in polythene to keep them moist and although many contained well developed embryos, these had died. Of the second batch, wrapped also in insulating material, three fish were hatched and 3 weeks later, when Mr Wilson made his report, these survivors were making steady progress.*

method. Fish-of-the-month competition results for April were: angels: 1, Mr B. Philcox; 2, Mr K. Reedy; 3, Mr D. Healey. Dwarf cichlids: 1, Mr J. Higham; 2, Mr B. Beswick; 3, Mr A. Addison. Large cichlids: 1, Mr L. Crawford; 2, Mr J. Higham; 3, Mr M. Baker.

... A FIRST-CLASS slide lecture on every aspect of characin-keeping was the verdict of **UXBRIDGE A.S.** members on the talk by Mr Dave Lelliot and Mr John Cooper of Verulam A.S., which is warmly recommended to other societies.

... **TONBRIDGE & D. A.S.** members heard reports of an excellent year at their first A.G.M. and promise of even better things to come. Officers re-elected were: chairman, Mr D. Allin; vice-chairman, Mr J. Bellingham; treasurer, Mr R. Baker; secretary, Mr I. Mathieson (33 Nortons Way, Five Oak Green, Tonbridge). Mr E. Horsley was elected as show and social secretary and Mr L. Gorley and Mr R. Taylor were elected to the committee.

... A FULL month in April for **AIREBOROUGH & D. A.S.** Members enjoyed a very interesting lecture by Mr K. Bateman on foods and feeding; they also enjoyed winning in the inter-society show at which they were hosts (2, Keighley). Mr R. Taylor won the monthly table show best-fish award, and other winners were: Guppies, novice: Mr J. Marshall; junior, Master A. Flesher. Eggglayer pairs, advanced: Mr J. Kay; novice, Mr B. Tate; junior, Master A. Stretton.

... **HARLECH A.S.** enjoyed a record attendance of 80 when Mr Malcolm Delingpole lectured on the keeping and breeding of fancy guppies. Table show results were: female guppies: 1, Master C.

Brooks; 2, Mr A. Ward; 3, Mr R. J. Hoare. Male guppies: 1 and 3, Mr P. B. Garner; 2, Mr R. J. Hoare.

... NEW secretary for **INDEPENDENT A.S.** is Mr M. Harth (60 Liverpool Road, Islington, London, N.1). Other officers are: chairman, Mr G. Dickson; treasurer, Mr J. Kettle; show secretary, Mr T. Islip; assistant, Mr T. Beaumont; P.R.O. Mr A. Scudder. The club meet each Monday, 8.0 p.m. at the Holloway Institute, Bamsbury Secondary School, Eden Grove, Holloway, London, N.7.

... **SMETHWICK & D. A.S.** have voted the following into office: president, Mr L. Stokes; chairman, Mr D. Johnson; vice-chairman, Mr G. Wyse; secretary, Mr D. L. Black (27 Murdock Place, Windmill Lane, Smethwick, Warley, Wores.); treasurer, Mr J. Harris; show secretary, Mr J. Hodgetts; newsletter editor, Mr R. Welsbie; committee, Mrs E. Ainge, Mrs D. Shepard, Mr F. Smith.

... THE newly formed **BISHOPS CLEEVE A.S.** welcomes enquiries from interested fishkeepers and enquirers are asked to contact Mr N. Binding, 26 Oxbutts Caravan, Station Road, Woodmancote, Cheltenham, Glos. for details of meeting place and times.

... **MR P. MARTIN** won in the first killifish table show arranged by **HASTINGS & BEXHILL A.S.** (2, Mr G. Pryke; 3, Mr P. Martin). Judge Mr R. C. Armstrong of Farnborough also gave the club a talk on this species and took along many varieties of killies to illustrate his lecture.

... A GENERAL-knowledge slide competition, arranged by Mr G. W. Churchill for **CARDIFF A.S.**, was won by a visitor from Newport A.S., Mr T. G. Wall. Master J. Smith received the highest pointing in the juniors team. Judge Mr Eddie Myers, also of Newport A.S., awarded first place in the livebearers class to Mr C. Brooks (2, Mrs P. Harding; 3, Mr J. Day).

... **OFFICERS** elected at the **NOTTINGHAM & D. A.S. A.G.M.** were: president, Mr C. Hill; vice-chairman, Mr A. Saxton; secretary, Mr K. Green (13 Sandford Road, Mapperley, Nottingham); show secretary, Mr N. B. Kenney; breeders' section leader, Mr B. Inman assisted by Mr G. Wood.

... **YORK & D. A.S.** exhibitors have had some success already this season. Mrs Hargreaves gained a first at the Top Ten open show and a second in the furnished jars class

## Badge of the Month



The badge of the **Suffolk Aquarists' & Pondkeepers' Association** is here reproduced slightly larger than actual size (1/4 in. square). It shows the outline of a dwarf cichlid (*Apistogramma ramirezi*) and the Association's initials in blue on a silver ground. It was designed by the Association's show secretary, Mr J. Anderson. Secretary of the Suffolk A. & P.A. is Mr K. H. A. Fellingham, 33 Pearcecroft Road, Ipswich, Suffolk.

at Swillington's inter-society show. At this show also Mr P. Carey won a second in the cichlids class, a first in a.o.v. and the best fish in the show award. Mr A. Turner won a third in a.o.v. The Society has been invited to install and maintain a tank of tropical fish in the junior section of York Library and members are busy donating material for it.

... AT the **COLWYN BAY & D. A.S.** first annual dinner, trophies

were presented to the two aquarist who gained the highest overall figures on the year's activities. The 'Aquarist of the Year' trophy for the highest total points went to Mr J. E. Hoult. The Ladies Cup was won by Mrs Barbara Cardwell. Gift tokens went with the trophies and these were also presented to the runners up, Mr G. Pies and Mrs M. Sumner.

... **CAMBRIDGE & D. A.S.** have had to cancel their forthcoming show that was to be held on 21st and 22nd June. New dates for the event at 27th and 28th September.

... **QUITE** a few members of **OXFORD A.S.** expressed their intention to 'have a go' after listening to a talk by Mr McKiver on keeping marines, especially in view of coming trip to the coast to collect native marines. Details of this and other activities can be obtained from Mr M. King, 11 Crafts Enc Chilton, Berks.

... **HARROW A.S.** members greatly enjoyed the slides shown by Mr Forder of Uxbridge A.S. to illustrate his talk on plants. Specimens of many of the plants mentioned were also shown. Mr Roy Biggs illustrated an informal talk on *Corydoras* catfish with some excellent drawings. The awards made by Mr Biggs when he judged the table show at this meeting were: catfish: 1, M. Hennell; 2, Mr Bong; 3, Mr Seaman. Loaches: 1, Mr Beckwith; 2, M. Bong. Labyrinths: 1, Mr Nobes; 2, Mr Morris; 3, Mrs Bong.

# how?

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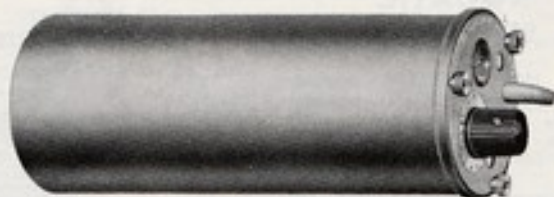
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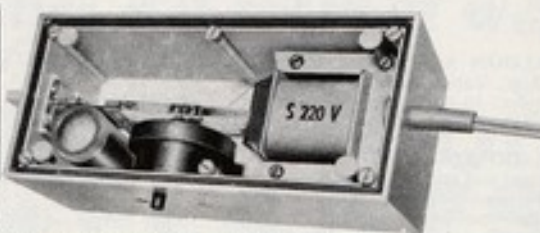
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## Dates for Your Diary

Continued from page 115

School, Church Lane, Swillington, nr Leeds. Schedules from Mr W. R. Gawthorne, 6 Manston Lane, Leeds 15, Yorks.

15th June. **BRIGHTON & SOUTHERN A.S.** Open Show. Marmion Centre, Marmion Road, Hove. Schedules from Mr R. Browning, 34 Rowan Close, Portslade, Sussex.

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, 125 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.

26th-28th June. **BRISTOL T.F.C.** Open Show. Congregational Church Hall, Newton Street, Stapleton Road, Bristol 5. Enquiries to Mr E. Newman, 71 Somerdale Avenue, Knowle, Bristol 4.

29th 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. **HIGH WYCOMBE A.S.** Open Show. Bovingdon Green Hall, Nr Marlow, Bucks. Schedules shortly from Mrs S. Thomas, Finsmore Wood Camp, Lane End, Nr High Wycombe, Bucks (Lane End 659).

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

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

6th July. **NORTHWICH & D. A.S.** 5th Open Show. The Scout Hall, Cuddington Nr Northwich, Cheshire. Details from Mr C. Davies, 70 Hayhurst Avenue, Middlewich, Cheshire.

6th July. **TADCASTER A.S.** Open Show. St Josephs School, St Josephs Street Tadcaster, Yorks. Details from J. W. Holmes Newsagents, Collingham, Wetherby, Yorks.

12th July. **BASINGSTOKE & D. A.S.** Open Show (incorporating the THREE COUNTIES and THREE COUNTIES Section F.G.B.S. shows). Carnival Hall Basingstoke. Details from Mr A. Blake, 50 Bountey Road, Basingstoke.

12th July. **CROYDON A.S.** Open Show. Stanley Halls, South Norwood Hill, South Norwood, London, S.E. 25. Schedules from Mr D. T. Smith, 26 Cumberland Road, South Norwood, S.E. 25.

12th-20th July. **AUSTRIAN GUPPIE SHOW.** Vienna. Please contact Mrs D. Court, Orchard Cottage, Huckford Lane, Kendleshire, Bristol BS17 1AP.

20th July. **BARNSELY A.S.** Open Show. Woodmoor Sports Centre, Carlton, Barnsley, Yorks. Schedules from Mr K. Scothern, 35 Osmond Drive, Worsbrough Bridge, Nr Barnsley, Yorks.

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Continued on page 130



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*continued from opposite page*

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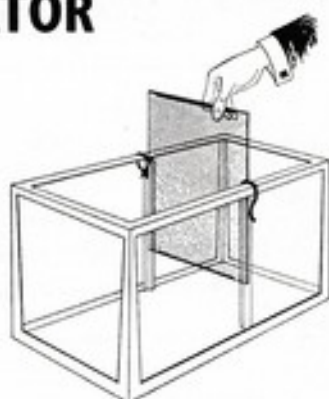
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# TROPICALS

230 varieties of fish . 50 varieties of plants

## Barbs

B. everetti  
B. arulius  
B. cumingi  
B. filamentosus  
B. schuberti  
B. dunckeri  
B. gelius  
B. callipterus  
B. ticto  
O. hasselti  
Chequer  
Tigers  
Albino tigers  
Half-banded  
Rosy  
Tinfoil  
Phantom  
Spanner  
Lemon fin

## Cichlids

Keyhole  
Dolphin  
Severum  
Kribensis  
Aeq. tetramerus  
A. agassizi  
P. thomasi  
P. klugei  
Tilapia  
H. fasciatus  
Blue acara  
Brown acara  
Sheepshead acara  
Basketmouth  
Jack Dempseys  
Oscars  
Jewels  
Orange chromide  
Pearl chromide

## Combtails (large)

C. facetum  
Texas  
A. ramirezi  
P. aureocephalus  
Firemouths  
  
Sharks  
Livebearers  
Gouramis  
Angels  
Sucker fish  
Catfish and loaches  
Pencils  
Danios  
Hatchets  
Tetras

Limia vittata  
Eleotris butis  
Snakeheads  
Metynnis

## Monodactyls

Scats  
Piranha  
A. anostomus  
A. trifasciatus  
Leporinus  
Pipe fish  
Fossilis cats  
Pseudopterus zebra  
Pseudo. elongatus  
auratus  
novemfasciatus

## Killies

Ap. panchax  
Proctopus gratia  
Apl. macrophthalmus  
Apl. melastigma  
Apl. dayi  
lineatus  
sexfasciatus

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Oscars  
Jewels  
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