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# PetFish

Monthly 2s 6d

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Editor: Anthony Evans

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## Comments and Quotes

- PetFish London Show 1968
- Need to test the test equipment
- Sorrowful congratulations

### The Aquarium Show 1968

THE success of The Aquarium Show 1968 held in London last month was greater than could have been expected for a new venture. Well over 10,000 people were attracted to the Show, an attendance greater than any recorded before in this country for a show devoted entirely to aquatics. What must be the most pleasing aspect, however, for PETFISH MONTHLY as the Show's sponsor, for the Federation of British Aquatic Societies who co-operated in the organisation of the competitive side of the Show, and for the splendid team of stewards whose hard work made the presentation possible, is the highly favourable reaction and comments of the visitors. There can be little doubt that aquarium-keeping gained a large number of new devotees and that many visitors to the show became acquainted for the first time with the organised side of the hobby, thanks to the excellent tableaux display by aquarium societies. All this gives the greatest reward and satisfaction.

The very success of the Show did, however, raise a problem. The crowds at the weekend were embarrassingly large for the size of the Hall. We know that one society party visiting the Show from a distance was disappointed to be unable to get together with other society members for a chat because of the crowds, although we think that in this they were perhaps expecting something that was not in any case the main function of the Show. But this is one

of the problems that we are already in the process of examining in the light of experience gained this year. A very hearty 'thank you' from PETFISH MONTHLY to everyone concerned with The Aquarium Show.

### Inaccurate Equipment

A READER'S letter in this issue draws attention to discrepancies in values recorded for water pH and hardness on the same sample of water when different 'test kits' were employed. It is recognised that to obtain really reliable measurements of either of these facets of water chemistry requires equipment that the fishkeeper is unlikely to have access to or the ability to use. Nevertheless, the variations in results listed in our reader's letter are beyond the bounds of errors that can be tolerated in simple tests and the question must be asked: are these test kits too unreliable?

In the first instance it would not be an uninteresting exercise for some societies to invite members to bring along their favourite test equipment one evening for a comparison of results on samples of the same water. If reports were to show that divergent values were being obtained by all users then perhaps some remedy for the source of the inaccuracy could be found, to the benefit of the accuracy of numerous breeding records!

It can be quite illuminating to subject to test aquarium equipment on which too much trust might be placed: any batch of cheap aquarium thermo-

meters floated in the same aquarium will provide an illustration of this in the diversity of temperatures recorded, and we have found recently that cheap hydrometers for the marine aquarium are also likely to be a false economy because of similar inaccuracies in their scales.

## Sorrowful Congratulations

WE extend to Dr Feroze Ghadially our sincere congratulations at his new appointment to a Professorship

at the University of Saskatchewan and wish him and his family a happy and successful new life in Canada. Dr Ghadially has been one of *PFM*'s most popular contributors and the hobby in this country will be losing a most valued friend—an enthusiastic aquarist who brings critical scientific reasoning to bear on the problems that fishkeepers face and who has been ever-willing to pass on his specialist knowledge by writing and lecturing to aquarist Societies. We can only hope that the 'settling in' period for him will not be too long

and that we can then again look forward to printing contributions from Dr Ghadially in these columns.

Dr Ghadially himself writes: 'It is difficult to know what to say at a moment like this. That I will miss the friendships and kindness of my numerous aquarist friends is only too obvious. I have enjoyed writing articles for aquarist journals and lecturing to aquarist societies and I shall always remember the way club members appreciated my efforts and welcomed me at meetings'. Dr Ghadially left Britain for Canada in early December.

## A Merry Xmas to Readers and



Photo: RONALD ENGLISH

Carp in one of the pools in Nymphenburg Park, Munich, live a happy, unmolested life, unmindful of the fact that, in Germany, carp takes the place of the turkey as the traditional Christmas dish!

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# keith barraclough

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# LETTERS

## Unique Mating Behaviour

IT occurs to me that other readers of your magazine may be interested in a remarkable snippet of information, which was originally gleaned during some non-aquatic reading.

It concerns the mating behaviour of the Venezuelan swordtail characin (*Corynopoma riisei*), about which popular theories abound, the most common being that the male fish ejects spermatozoa into the spoon-like disc at the end of his gill-plate filament and proffers this to the female, who is supposed to take it into her mouth and then spit it onto a plant leaf on which the eggs are subsequently deposited. Females have often been observed mouthing plant leaves and this has appeared to support the theory.

However, recently published research into the behaviour of this species (K. Nelson: 'Behaviour and Morphology in the Glandulocaudine fishes': UNIV. CALIF. PUBL. ZOOLOG. 59, 152) shows the use of the male filaments to be quite different from that popularly supposed.

As the ova of this species are fertilized within the female and later deposited in the absence of the male partner, he is forced to make his approach at a time when she is not ready to spawn. Because of this the male has to divert the female's attention from his genuine purpose and it is here that the filaments come into action.

Close observation has shown that the terminal discs of these filaments darken in colour quite markedly during sexual arousal. At this time the male approaches the female and dances the filament nearest to her in an imitation of an interesting morsel such as a daphnid. As the female approaches this false bait her proximity is exploited for copulation, which is quickly achieved by manipulation of the anal fin, which deposits a 'package' of spermatozoa within her. The outer case of the 'package' dissolves shortly afterwards to release its contents.

There seems little doubt that the leaf mouthing undertaken by the female is simply for cleaning purposes. Most of us will have observed similar actions by other plant spawners. I should emphasise that this is not 'just another theory' as the author of the paper previously mentioned has been quite remarkably painstaking, even to the extent of enlisting cybernetic techniques and a computer in order to investigate the basic feed-back systems controlling the motivation of the males.

Luton

M. A. BUSHBY

## So Much for pH and DH

THIS could be funny, though I don't really think it is. Although I have bred several various types of egg-layers from bubble-nesters to killies, I realise I am a

beginner, having had only 18 months' experience at fishkeeping, though I must add—18 fanatical months during which time I have rarely gone to bed before 1 a.m. in the morning.

My friend and I were discussing water hardness and he suggested that we compare the new kit he had just purchased, (let us call this B) and my own kit (A), which I had used for some time. I did one test with his and he did two tests, and vice versa. The results have left us both bewildered. They are as follows (both sets of tests are on the same water from the same tap):

Kit A Test 1 160 p.p.m. = 8.96 DH  
 Test 2 150 p.p.m. = 8.4 DH  
 Test 3 160 p.p.m. = 8.96 DH

which, on its own appeared very accurate, but kit B read:

Kit B Test 1 11 DH = 196 p.p.m.  
 Test 2 13 DH = 232 p.p.m.  
 Test 3 12 DH = 216 p.p.m.

giving a possible variation of 150 p.p.m. to 232 p.p.m.

As both my friend and myself earn our livings weighing out with precise accuracy I think we can discount careless use of the kits. We were amazed at the results, and decided to test my pH kit (whose accuracy I did not doubt) and a simple kit obtainable in an aquarist shop. In all fairness we realised that the latter was only expected to give an approximate guide. The results were:

'Scientific' kit: pH 7.4, colour leaning to 7.5.

Cheap kit: pH between 7.2 and 7.4

We were quite pleased with these results until we contacted the local water board and received their analysis: pH ranges from 6.9 to 7.1, total hardness = 100 p.p.m. So now we have hardness varying from 100 p.p.m. to 232 p.p.m. in tests on the same water.

One expert on fish breeding once remarked to me, when asked what method he used to determine hardness, 'I don't bother, I can guess the hardness and pH'. I wonder now if he was possibly right, inasmuch as most of us with our kits appear to doing the same.

Bradeley, Stoke-on-Trent

V. G. KNIGHT

Mr Knight has supplied the names of the test kits identified as 'A' and 'B' above and they are ones that are widely used by aquarists. The observations made here are an indication that it is important for aquarists to record and state when making reports the precise equipment and method used to assess pH and hardness of water samples.—EDITOR.

## Croakers Please

I AM writing to thank you for the article by Mr J. Lee on croaking gouramis (PFFM, August issue). We went to see him recently and obtained some of these fish. They are as lovely as described in the article and already they are making their funny little croaking noise. I am surprised there are not more about as they are truly a wonderful little fish.

Selston, Notts.

MRS L. A. TAYLOR

### Don't Change the Dates!

**M**AY I be permitted through your excellent magazine to appeal to aquarist clubs to pick a date for their open shows and stick to it year by year. This would help to stop show dates being duplicated by other societies.

Alfreton & District Society picked the nearest Sunday to the 23rd June three years ago and booked judges and rooms one year in advance. In this way we have avoided other shows close by, making it possible for our members to support other shows. This year I see Mr Barraclough has altered his date for his National Furnished Aquarium Exhibition. May I hope this means we shall not be losing our show secretary, Mr Hill, as he won two prizes at the N.F.A.E. in 1968 and made us all pretty keen to compete in 1969. We may also lose one of our judges through this alteration of dates.

The 'Dates for your Diary' column in PFM is a great help to aquarists and we greatly appreciate this service.

Alfreton & D.A.S.

J. LINDLEY

### Federation in the West

**I**T was decided some 6 months ago to form a Federation of Aquarist Societies for South Wales and the West of England. This was brought about by general dissatisfaction with the remoteness of the F.B.A.S., and it was de-

ecided to base the new society in Bristol.

Being very much in favour of having control of the area, and also thinking that we might possibly have knowledge of the hobby in our area, I thought a new society, when formed, would produce some new thinking about our hobby. But unfortunately this has not happened, and it is becoming apparent that we must discuss Federation in our local societies the West of England. This will be a carbon copy of the F.B.A.S.

Now this is not good enough. If we are going to do the job, let's do it properly. Half measures are not enough to stimulate the interest in the new Federation. We must avoid the same apathy that exists towards the F.B.A.S.

It seems to me that the new Federation is going to run for the benefit of the judges at present in the area and not for the vast number of exhibitors, who are the strength of the Federation. So come on you aquarists of Wales and the West! Ginger up your societies, discuss how you would like to see the new Federation run; let's all hear your new ideas and above all instruct your delegates before they attend Federation meetings. This is the way to generate interest. The new Federation could, and should, be the best thing that has happened in years to improve our hobby in this area.

Kingwood, Bristol

H. POWELL



**I**N an American show schedule I came across the statement that in the Two Matched Males Class (Guppies), the entry must include an additional female, though her presence 'will be ignored by the judges'. Ignored by the human judges she may be, but knowing the vigorous antics of the male *Poecilia*, I can assure the authors of that rule that the female won't be ignored by the two males—in fact she will have a dog's life during her confinement in the show container.

For years fishkeepers in the know have been advising that two female guppies be allocated to each male in aquaria; this way, one female at least has a rest from the male's

## Transatlantic TOPICS

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

By JIM KELLY

attentions; why then this insistence on the reverse? To make the male fish show themselves? I doubt it, if they are representative of the wonderful fish I saw in the U.S., they need no encouragement. If the adrenaline of outraged showmen has subsided perhaps someone would enlighten me?

\* \* \*

It was pleasant to read about a new slant on a club meeting performed by the Houston Aquarium Society in the States. During the evening they had presented a tape/slide lecture by Braz Walker on electricity in fishes, an excellent lecture enhanced by the author's humour and easy-going style.

After the lecture, the lights were turned up and two members, John Hart and Cricket Jones, set up a sound amplifier and a cathode-ray

oscilloscope and with various fishes borrowed from the table show demonstrated by sight and sound the electrical energy generated by the different species.

The 'Best Performance' Award went to an elephant nose, *Gnathopomus petersi* (Guenther). From all accounts it sounded like a cross between a car's ignition system and the crackling we get from short wave radio, the pattern varying as the fish swam about the tank.

Though the pulse width on the oscilloscope remained constant, the pulse direction changed and was reversed when the fish turned around and swam in the opposite direction indicating that it was searching the water by means of an in-built radar system. Although a common enough species, it was the first time the members had seen it in this light. A little thought and ingenuity has turned a familiar lecture format into an evening that members will talk about for a long time.

\* \* \*

Bewildered by the vast array of drugs available to the fishkeeper for



treatment of fish disease, it is no use that well-meaning hobby-acking in the necessary chemical show mis-use many of these acts. One man who has helped this over the past years is Prosser, who has carried out research with many of the 'spectrum antibiotics'. He has published his findings, and it his recommendation of the antibiotic tetracycline chloride that made me sit up. amycin is the proprietary name which this antibiotic is sold in country on prescription only—

successfully using this compound wide variety of fish disorders, and it very useful against the eified organisms, especially bacterial infections, that can time to time play havoc our aquaria. His prescription obtain tetracycline in 250 am capsules, the dosage being grams per gallon to effect a and half this amount for pre- purposes such as hatching ec. The antibiotic colours the a pale yellow, which turns red a days if charcoal filters are en used, but the drug at this th had no ill-effects on any egg-layers or livebearers he l. He emphasises its usef- when hatching egg-laying species. asks that hobbyists using this tic should contact him with findings and comments at 707 Street, West Dundee, Illinois U.S.A.

\* \* \*

es just published by the U.S. Department of the Interior, and Wildlife Service, show that last year 27,759,332 live were imported into the New All the published figures are in the information supplied in forms for the importation of to the Customs at the port of

for top place are the ports York and Los Angeles; the had 5,202,239 fishes and eggs ough its portals and the latter 208,827. The biggest single out to Miami-Tampa, Florida, ere no doubt destined for the ish farms and distributors in —15,450,505! breakdown of the figure showed % of the fishes arrived by air, sea and 3% by land carrier.



The 'White Hat Award' of the Calgary Aquarium Society, Canada, was recently bestowed on PFM's Jim Kelly for 'achievements and activities unequalled in the aquarists' world'

'Controls' are imposed on all impor- tations of live mammals, birds, fishes, amphibians and reptiles to the United States. This means that they are prohibited or the animals are allowed to enter only for specific purposes and then under special permits. Those allowed are subject to health, quaran- tine, agriculture, Customs, or other requirements imposed by the Federal, Territorial, State or Municipal agency.

\* \* \*

Money is a sixth sense without which we cannot enjoy the other five. Ask any club treasurer; ask any hobbyist casting longing glances at the superb equipment and fish beyond the reach of his pocket book and all will agree that finance isn't everything but it goes a long way to solving quite a lot of problems.

One Society whose hobbyists have never let this problem worry them is the San Francisco Aquarium Society, whose home is the famous Steinhart Aquarium in Golden Gate Park—in fact they have very generously given money away over the years. Their achievements make an impressive list. For instance, they pioneered the use of brine shrimp as a fish food and it is largely due to their efforts that this succulent addition to the diet of our finny friends is available all over the world.

Through their publications, first THE AQUARIUM JOURNAL and now ANCHOR, they have disseminated information and advice written by all

the famous names in ichthyology. Donations by them to The National Science Teachers Association, and scholarships and grants, have helped students in their quest for learning.

Gifts such as the white dolphin called Whiskers, a talking fish exhibit and a sophisticated micro- scope camera to the Aquarium are helping in research from whose pronouncements and findings we shall all benefit.

During its 45 years of reign this group must rate high, if not the highest amongst the ranks of dedi- cated hobbyists. I can only hope I will still be around to congratulate them on their Golden Jubilee.

\* \* \*

Among some newspaper clippings sent to me by Ed Klotz in Chicago, one in particular took my eye, though all were on aquatics. The report came from, of all places, Bountiful, in Utah, and stated that a two-year-old there had swallowed his pet terrapin.

He was rushed to hospital, and X-rays showed the creature to be still alive. Doctors recommended surgery to remove it if the normal bodily functions proved inadequate.

Comment from Brad Haines, the young recipient of this 'live food': 'It tickles!'. Latest bulletin, after repeated X-rays and visits to the hospital, Brad no longer finds it a laughing matter!

Continued on page 385





## Personal COMMENT

by  
ARPEE

IT is sad news for readers that Dr Ghadially is leaving Britain this month. This particular writer had so conspicuously bridged the apparently limitless gap between the scientist and the layman. I certainly envied him his scholarship the other day when I encountered a phenomenon quite new in my experience; I am sure that a scientific attack on the problem, as opposed to the empiricism to which most of us are subject, may have produced a quick explanation and a pointer to what action, if any, was required on my part. As it was (and still is, I am afraid!), I have had to rely on experience and a bit of instinct. The future is still very uncertain.

The story begins some weeks ago when I found some pieces of tree branch in a neighbouring field which I thought would look well in one of my tanks. As I feared that herbicidal chemicals might have been used in the area by the farmer I gave the wood a really thorough cleaning and exposed it to the weather. Anyone who has survived this summer in the West Country will bear witness to the scourging such exposure would give! This wood was duly introduced to my 36 in. tetra tank, with no apparent initial ill-effect. The collection was first set up about 5 years ago and the plant life was extremely good: two enormous plantations of *Cryptocoryne* were the main features, and there are other, larger plants of the same group, together with Amazon swords, a small spatterdock, an *Anubias barteri*, wisteria and some *Sagittaria*. The surface was fairly liberally covered with *Riccia*.

One evening I had been admiring some of the plants; 24 hours later the same scene presented an utterly ghastly appearance. Every single *Cryptocoryne* seemed to be wilting, as though some aquatic frost had moved around during the night and left its killing mark behind. Already many of the leaves were rotten and slimy and disintegrated on touch. No other plants at that time seemed to have been affected, but I imagined that it would only be a matter of time before everything green had turned to brown or black. The fish seemed a trifle uneasy but not in bad health. I immediately concluded that the tree wood I had introduced was in some way to blame, and removed it forthwith.



I was so despondent at the total devastation that I began to plan on taking the whole tank down and replanting it. I then remembered references somewhere to 'Cryptocoryne disease', but an exhaustive search through a series of normally reliable sources led me nowhere. The best and most comforting commentary on such a situation was in Colin Roe's invaluable MANUAL OF AQUARIUM PLANTS,

which alluded to the possibility of a disease, though preferring, as an explanation of a sudden die-down, a seasonal or cyclic phenomenon as part of the whole mysterious process of regeneration.

Alternatively, the introduction into my aquarium water of some factor peculiarly inimical to the *Cryptocoryne* could have set off some chain reaction. It also occurred to me that an accumulation of salts might have arisen because I had topped up too often and failed to drain down and replenish. Since I am always harping on this subject in this column it is unlikely that I would have been caught out as badly as all this, particularly as I have serviced all my tanks rather thoroughly after returning from holiday. It was at this point that I reckoned that Dr Ghadially would have simply and deliberately taken a test tube of water and very quickly arrived at a position from which the next step was pretty obvious. As it was I had to decide by some process of elimination, which, if any, of the foregoing explanations was most reasonable.

I decided that it was unlikely that a weedkiller had been transmitted from the tree wood because not all the plants had suffered and the fish were none the worse. Much as I should have liked to accept the seasonal die down theory, I rejected that because all around in other tanks *Cryptocoryne* under much the same conditions were bursting with good health and showing no signs whatever of senility. In any case the plants attacked exhibited the same characteristics of degeneration that I had witnessed a year or so ago when treating a white spot attack with chemicals. Many of the plants of all species had collapsed gradually or suddenly, and had only retained their earlier form when the water, through a series of gradual change had shed its high concentration of dissolved chemicals.

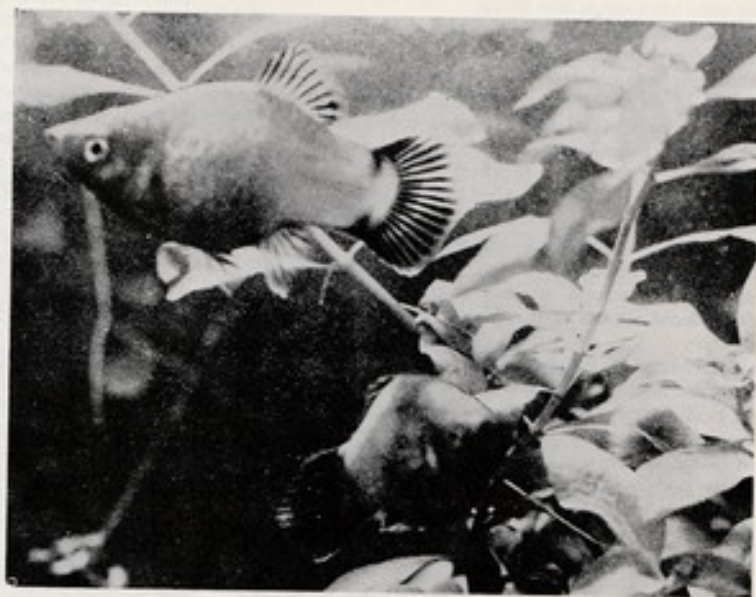


With this in mind I came to the conclusion that it must have been that old enemy of invisible concentrated salt caused by over-topping-up which had brought about the cataclysm. I therefore changed a third of the water and took good care to siphon off as much of the dead plant life as I could. I also trimmed any obviously dying leaves quite a tragic process in the case of the giant *Cryptocoryne bullata*, which had really spread itself over the years, and was now reduced to one thin stem. Several years ago I would have torn the tank limb from limb, but I had had a suspicion that what Nature had taken away might be given back, albeit grudgingly, if more amiable factors could be introduced into the environment.

The water change, a greater amount of light than usual and the rigorous clean-up may have done the trick. There are signs of tiny new leaves here and there, so possibly the crowns have survived in a number of instances. There lies some sort of hope, and although the place still looks like a battlefield it is pregnant with interest for me because I am hoping for a gentle and natural solution (for me) some very puzzling conditions. It is quite a simple matter to make the tank look itself once more by starting all over again and by dipping deeply into my pocket. If the price of another generation of those beautiful plants is a bit of untidiness for a month or so, together with a little unwonted patience, I shall not count myself the loser. I am now left wondering what I might have done had I been a scientist, but this will take much longer to work out.



# Progress with Platys



CHARLES WRIGHT

IT was in 1949 that I first wrote an article on my experiences with the platy, and what a difference we have seen in this fish since then! At that time we had only the red, yellow or golden, blue, black and variegatus. Then the breeders got busy and produced nine or ten variations, including the festival platy—an attractive fish but on the small side.

By starting as I have done I wanted to give any newcomer to the hobby an idea of what can happen to a fish over the years by selective breeding. As far as is known the platy was first introduced into Germany as an aquarium fish about 1907, and from the descriptions this was the wild type, not very deep in body and with a general colour of olive grey, dark above but shading evenly to a lighter grey underneath.

When caught in certain lights the body of this fish has a bluish sheen and is speckled with black spots; it shows a black mark at the base of the tail (caudal peduncle), varying from two black spots to a crescent or it may be entirely clear. It was not an over-attractive fish, but a wonderful start for breeding all the new colours we now have. In the early 'fifties it was not an uncommon sight to see one of these wild-type platys in breeders' tanks or in a shop, being a throw-back from cross-mating, but so set have the new colours become through really selective breeding that the type is rarely seen these days.

Many newcomers to the hobby ask 'Why moon platy?', and are told that it is because the ideal platy should have a good round body. This does give a good impression of what is now required in a platy, but this shape was a standard set later on by the F.B.A.S. so I do not

photograph on this page and on front cover of this issue shows one of the author's deep-bodied females

think that is the true reason for the name moon. The platys that were originally imported into this country were thick-bodied fish with a greenish tint to their body and a well-shaped black crescent at the base of the tail; these I think were the real moons. Then came a fish with a clear yellow body with no black pigmentation at all except at the base of the tail, and this marking took the form of a real crescent moon.

The golden platy was probably a sport in a shoal of reds, and was spotted by a breeder who could see an interesting fish developing and by selective breeding the fish we now have came into being.

The shade is a rich yellow, and there is a red dorsal fin, the red merging into the body with a saddle-like effect. This fish was apparently crossed back with the moon platy and we now have a fish with the same yellow body, dorsal fin only in red and the clear-cut crescent at the base of the tail; this variety was accepted by our F.B.A.S. as the standard for the moon platy. I believe that it was in 1947 that the F.B.A.S. decided that the platy of the future should have a deep body, the shape of a coin. I remember that when this was read out at a meeting of Tottenham & District Aquatic Society I said that it could not be done; how wrong I was has since been proved! I have platys now almost of that shape, as will be seen in the picture.

The red platy is easily the most sought after variety by both the beginner and the advanced aquarist, because of its brilliant colouring with no variation in density, and absence of any other markings. The female should be deep in body, which makes the male seem smaller than he really is, but what he lacks in size he makes up for in colour, which is a brilliant velvety blood-red. Although this colour is present in the female, it is not usually so outstanding. Adult fish can often be sexed by just looking at the coloration.

In breeding good platys, as usual feeding is the major item. Platys are mainly herbivorous and require a large proportion of vegetable matter in their diet, with feeding little and often. If, as it should be, the tank is well planted and in a position where it gets plenty of daylight, a nice crop of algae will result and the fish will be seen nibbling at this all day.

Prepared dried foods are taken from the day the platys are born, provided that it is graded according to size, but additional feeding with white worms, tubifex, micro

worms and graded daphnia accelerates their growth enormously and puts them in a really tip-top condition. Growth with special feeding at a top temperature of 75°F (24°C) is, to my idea, much more satisfactory than growth through greatly raised temperatures, which is the procedure generally adopted by breeders.

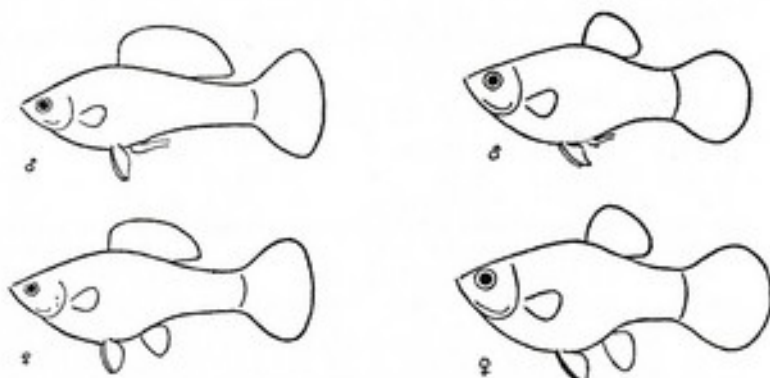
When they are born, about 4 to 6 weeks after fertilisation, platys are comparatively large and well shaped and are immediately able to take fine dried foods, micro worms and sifted daphnia. By the time they are 8 weeks old they should be nearly an inch long and in good colour enabling the breeder to sort out his future breeding stock. They reach maturity in about 4 months, and the female that have not been put to one side for selective breeding will, by now, be having their first broods.

Water requirements for the platy can provide a wide field for experiments. Various breeders recommend pH values at anything between 6.8 and 8.0. I have always met with trouble when the water reaction has risen above pH 7.6, especially with the red platys, which definitely like neutral or slightly acid water. Temperature ranges are also conflicting, varying from 70° to 80°F (21-26°C). I would sooner say 68° to 75°F (20-24°C) with a comfortable temperature of 72°F (22°C). One thing all agree on is that platys prefer clear, clean, well-planted tanks, and although they get on well in an aquarium where cleanlines is not the virtue, rapid growth cannot be expected where decaying vegetation etc. is allowed to collect.

The breeding tank should be really well planted. I always plant thickly (and I mean thickly) with *Vallisneria spiralis*. This handy plant always seems to stop growing when it reaches the top of the water, be it 12 or 15 inches deep. This gives plenty of cover for the young from the time they leave the parent until they break the water surface to fill their swim bladders with air. *Vallisneria spiralis* makes this task rather more difficult because it grows very long and lays on the surface, forming a rather heavy blanket.

Though the youngsters need plenty of room platys will crowd quite well when adult, provided that strict cleanliness is observed. This is much easier these days with the modern vacuum cleaners than it was in the days of the humble dip tube, but I think that once a week it is advisable to siphon (from the bottom of the tank) 2 or 3 inches

Continued on page 38

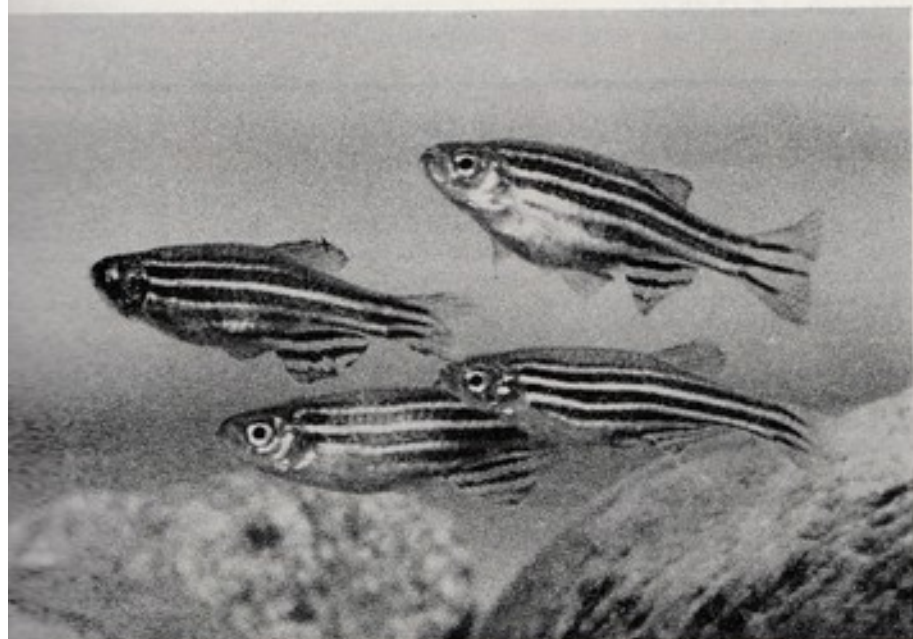


Body outlines of the variatus platy (left) and the maculatus platy (right), the male being the upper fish in each instance. Reproduced from *Cultivate Tropical Fish Show Standard* (Federation of British Aquarists publication)



# Some Zebra Experiences

By A. BEASLEY



© BURKHARD KAHL

THE zebra fish (*Brachydanio rerio*) has always been a popular fish, especially with newcomers to the hobby and aquarists who keep community tanks. I have been a keen aquarist for several years and have always kept a few zebras.

It is slightly more than 3 years since I first decided to breed zebras, and I tried the classical method which is recommended in most books; namely the bare tank and tile method. The chosen pair were separated for a few days whilst I set up my tank, sterilising it and carefully arranging two layers of glass marbles, with a water level 3 in. above the marbles and a temperature of 80°F (25–26°C). The water was, of course, fresh and everything had been done according to the book! I then introduced the pair in the breeding tank and eagerly awaited results, which I understood to be guaranteed with this method. But, believe it or not—nothing happened! For 3 days nothing happened!

I decided to take the zebras out and try again later, and as I netted the female I noticed the huge bulges of roe, and remembered that somewhere I had read

about hand-spawning fish. So there and then, whilst the zebra was still in the net, I took a jar lid, which by chance was nearby, and quickly dipped it into the breeding tank water so as to get just enough water in the lid to cover the zebra but not enough to allow her to swim in. I then laid the female zebra on her side in the lid and gently pressed the egg roe bulges, moving slowly in a direction from head to tail; then, after turning her over, I repeated the operation. There appeared to be hundreds of eggs in the lid, rolling about all over.

I then did the same with the male, in the same water and whilst the eggs were still there. Some of the eggs were, of course, destroyed through putting the male in the same water, but I hoped that the many remaining eggs would be fertilised. I then almost nonchalantly swished the lid and its contents around in the breeding tank, scattering the eggs all over, and replaced the top glass. 'Nothing ventured, nothing gained' was the sentiment.

A few days later fry began to appear, stuck to the tank sides, and within a week the breeding tank seemed to be

full of fry. I fed the fry on lettuce infusoria, followed by brine shrimp, crushed tubifex, crushed white worm and small powdered foods. The young zebras were reared in a 15 in. square by 12 in. deep tank and would eat anything I cared to put in—even duckweed, but they always seemed to prefer dry food.

I kept seven of the youngsters and grew them on, their lives being spent first of all in another 15 in. square tank, then in a 24 in. by 12 in. by 12 in. tank and finally in a 36 in. by 12 in. by 12 in. tank. When they were adult, I took them to many fish shows, where they won awards in the danio/rasboras, pairs and breeders classes, although they always seemed to be overshadowed by their larger cousins and other bigger fishes—a common handicap that most small fishes have to face at shows.

I have only two of these zebras left, and they are past the breeding and showing stages and are a little bent

with age. They are now 3 years old, but I haven't a heart to kill them off, and I intend to let them live out their lives in peace, to see how long they live. As regards size, I measured one female that died a couple of months ago, and it measured 1½ in. from the nose to the base of the tail.

I have, of course, bred these zebras and their offspring several times, all ironically enough by the classic marble method. I could never successfully hand-spawn them again, and I have never had zebras of the same quality as those first hand-spawned ones. The subsequent broods of young zebras began to get deformities; brook stripes seemed to increase on more and more fish, and became increasingly difficult to get a good size on any of them—all faults, I suspect, that were caused by too much inbreeding.

## Progress with Platys

*continued from page 380*

depth of water, replacing with fresh, to keep the fish in really tip-top condition and I consider that these procedures must be strictly adhered to.

The blue platy (good specimens are very scarce now) was apparently the first of the colours to breed really true. The ground colour is a pale olive, deepening over the head, while the sides are an iridescent blue. The whole colour effect is transient, depending upon the angle of illumination, but shows to its greatest advantage with the fish in the net, out of water. The fins are usually clear, but coloration in them would be a great advantage. The blues attain quite a good size, larger than normal platys, and are very good breeders. My own original female that I had in

the late 'thirties gave me my record brood of 121 young which I reared.

The black platy, another of the scarce varieties, has a good black body and is very striking in appearance because of its nearly white head and abdomen. The fins are usually clear but black in the fins should be considered an advantage. They are the smallest of the platy family and are very slow growers, even when fed on the best of dry and live foods.

In 1959 I obtained some of what I believe to have been the first of the wagtail platys. These I have found to be very obliging platy, being good breeders, not producing big broods but they are consistent yielders, and they leave their young alone if left with them. They can also stand a terrific range of temperatures (from 55° to 90°F; 13° to 32°C) over short periods, without ill-effects. Such temperature variations are not to be recommended, of course, but accidents can and do happen at times and then the fish are very often the only survivors.



WE announce with regret the sudden death of Mr Charles W. Macrea.

*Mr Brian Hawkin writes:* A founder-member of the then Herts. Society of the F.G.A. and a worker of repute for our hobby, my friend Chas was a leading light in the production of our first Guppy Standards Hand-

## Mr Charles W. Macrea

book. I first met this friendly Canadian when we were in the F.G.B.S. As secretary for the North London Section he served together with Hall Gartrell, Fred Riddle and myself, at all times offering help and advice to those who needed it. As provincial secretary to the F.G.B.S. his energy seemed endless—having completed his stint on night shift he would jump into his old Ford 'Buttercup', collect fish entries from all and sundry and make his way to meetings and shows all over the country, often on arrival to be invited to judge some classes of fish.

One evening, during the early days of the F.G.A., he visited my flat in London and together we formulated a judging sheet which included attractiveness; this was used until

superseded by the five 20's system which we use today.

After leaving the Association at retiring from work, Chas took up letterpress printing at home, and with his usual flare was soon producing some beautiful work. One job which he undertook in 1967 was the Award Cards for Radlett to commemorate the visit of Ben Weisel, secretary of the Paul Hahnel Club in New York. He also printed the Annual Show cards for South London last year, and was delighted when asked to visit the club and present the prizes at the meeting.

Never at a loss for words, Chas will be missed by all who knew him. To his widow Dorothy and their five daughters we offer our sincere condolences at their sad loss.



## BEGINNER'S GUIDE TO FISHKEEPING

# Aquarium 'Electrics'

By D. & J. BROWN

**S**MALL electric aquarium heaters are cheap to buy, easy to maintain and with careful usage will give a long life of service.

A typical aquarium heater is really a length of coiled resistive wire (or 'element') wound on a ceramic former, the lot being fitted into a heat-resistant glass tube, and the tube is sealed at the open end. The end of each element terminates in a pair of wires, which are connected to the supply mains. The heat dissipated is measured in watts. Although this depends on design, generally a short heater is of low wattage and a longer one is of greater wattage.

Most types of aquarium heater available are submersible and when on the bottom of the tank its heat causes convection currents to rise and heat the tank evenly. The heater should never touch the glass or plastic of a tank; it can rest on the gravel but should never be buried in the gravel. It can also be clipped into a little plastic heater holder available from your dealer.

When a heater is connected with a thermostat as described below, if the heater is of low wattage in a large tank it will be continually in use, and hardly if ever will it be switched off, so its useful life is limited. On the other hand, a large-wattage heater in a small tank is continually being switched on and off so that its contacts of the thermostat suffer (this is explained in the next section).

## Thermostats

Like the heater, the inside-fitting aquarium thermostat is built into a glass tube; some, the submersible ones, are sealed to stop water entering. The non-submersible types of thermostat must have the top of the tube out of the water, say to  $\frac{1}{2}$  in., and held by the clips provided or by heater clips.

Changes in water temperature affect a bi-metal strip by a bending action as a result of warming or cooling, either 'makes' a pair of electrical contacts or 'breaks' them. Before despatch, most manufacturers set their thermostats to switch off at 75°F (24°C) but this must be checked before installation. There is usually a small screw that can be turned to adjust the amount of travel of the bi-metal strip, so that the temperature at which the switch-off occurs can be varied from 60° to 90°F. If we require a different temperature setting, e.g. for a breeding tank or for a quarantine tank, we must adjust the thermostat to achieve the temperature we require.

Some thermostats have little neon lamp indicators which give a visual indication of the state of the

heating system at any given time. A word of warning is necessary here as some manufacturers arrange for the neon lamp to light when the unit is in the off position, whereas other thermostats have lights that are on when the heater is on. So read the leaflet when purchasing heaters or thermostats.

Our experience with the combined heater-thermostat is that this is efficient. We have many in use. In these instruments the heater is at the bottom of the tube and the thermostat is at the top of the same tube. Here there may also be a neon indicator lamp.

Where a heater and thermostat are being used as separate instruments the heater should be put at one end of the tank and the thermostat at the other so that all the tank is heated uniformly. You will find, however, that it is usual for the top inch or so of the tank water to be slightly hotter than the bottom, as warm water rises.

## Installation

Heater and thermostat have to be wired so as to be in series with one another, and this should be done in a safe and neat way. Our method is to wire two 5 amp two-pin plug sockets with a control switch. By this method the units are safe, electrically interlocked and a more professional job is the outcome. The wiring can be done with twin-core 1/044 PVC wire and the plugs and switch can be mounted on a wood block. All these components are available from the local electric shop. We also need two 5 amp two-pin plug tops to connect to the heater and thermostat and to plug into the sockets. With this method any faulty unit can be replaced quickly or the complete set-up can be changed, and there are no worries about exposed live wires around.

With aquaria containing specially valuable fishes or tanks used for special purposes two thermostats can be used. One is set to the normal aquarium temperature and the other is set at a slightly higher value. Then should no. 1 (set, say, at 75°F) fail, no. 2 (set, say, at 80°F) will cut out the heater when the temperature begins to rise so that excessive heating is prevented.

The biggest fault with thermostats is that the contacts 'arc'; during their opening and closing with electricity flowing tiny sparks occur that eventually burn the metal contacts badly or cause them to 'weld' together. There is no sure remedy for this, only to replace or

return the thermostat to the manufacturer for repair when these contacts are seen to be uneven. Troubles always seem to happen when the pet shop is closed and no immediate replacement is possible.

In some instruments a little magnet is included in the thermostat to assist closing of the contacts; when the bi-metal strip bends, bringing the contacts towards one another, the magnet by attraction of the strip completes the closing action, so the operation of switching on is much faster. At the 'switch off', the magnet holds until the bi-metal strip is in a state of tension that overcomes the magnet's attraction, and then the contacts are parted in a rapid action.

### Testing Thermostats

Tests of thermostats and their setting must be carried out with the instrument in water with a reference thermometer that is known to be accurate. For checking

thermostat action one can make up a little test. For this we use a torch bulb and battery. Wire series with the thermostat leads, the bulb lights the contacts of the thermostat are closed and the goes out when they are open. By adjustment of screw in the thermostat it can be set to act at the set temperature of the water.

To check a heater it is best to use a test-meter as an Avo or similar type. A dealer in radio or electrical goods will be willing to do this for you (and, who knows you might recruit another aquarist!).

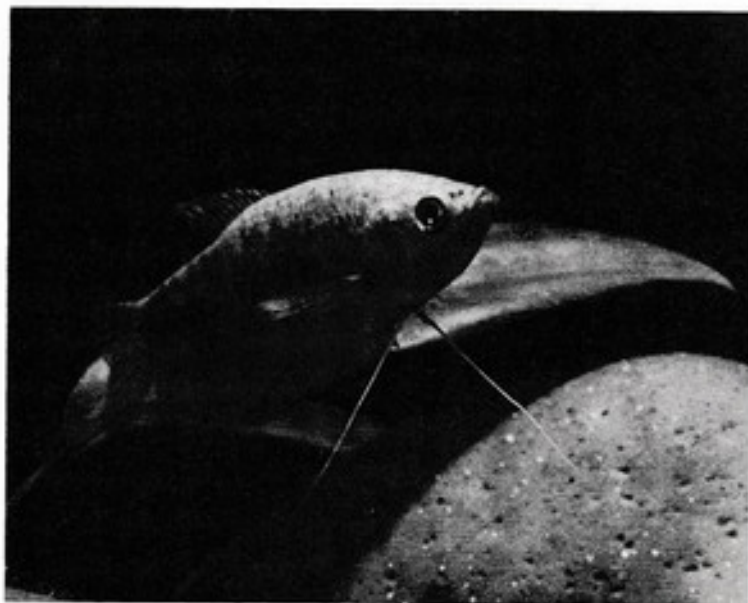
When wiring up any electrical equipment remember that in household A.C. mains the 'live' wire should be red, the 'neutral' is usually black and the green wire for the 'earth' and should be connected to the earthing plug. Switches, and this includes thermostats, should always be wired in the 'live' wire to ensure when the switch is off no electricity can flow in the circuit.

*Aquarium lighting is the next topic in this series of articles.*

## PFM Photo COMPETITION RESULTS

PHOTOGRAPHS submitted by the main prize winners to this year's PFM Photo Competition are shown on these pages. As we found in the earlier PFM Competition, entries in colour greatly exceeded in number photographs received in black and white. Most popular fish subject was the angel fish, with *Corydoras* cats second for photogenicity. Selection of firsts from the best entries gave two awards, for colour, to Mr B. L. Anthony (380 Whippendell Road, Watford, Herts.) and Mr D. Ellis (12 Kohat Road, Wimbledon, London, S.W.19). Runners-up for colour pictures were Mr R. Dutton (The Limes, Tarvin, Chester) and Mr A. S. Harding (144 Dartford Road, Dartford, Kent). Winner with a monochrome photograph was Mr H. J. Mayland (Frankfurt, W. Germany), and Mr K. Apple (144F South Road, South Ockendon, Essex) was runner-up.

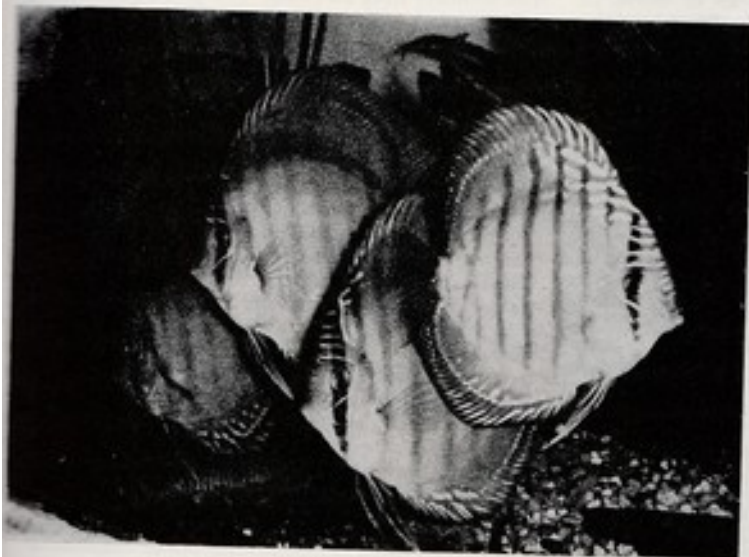
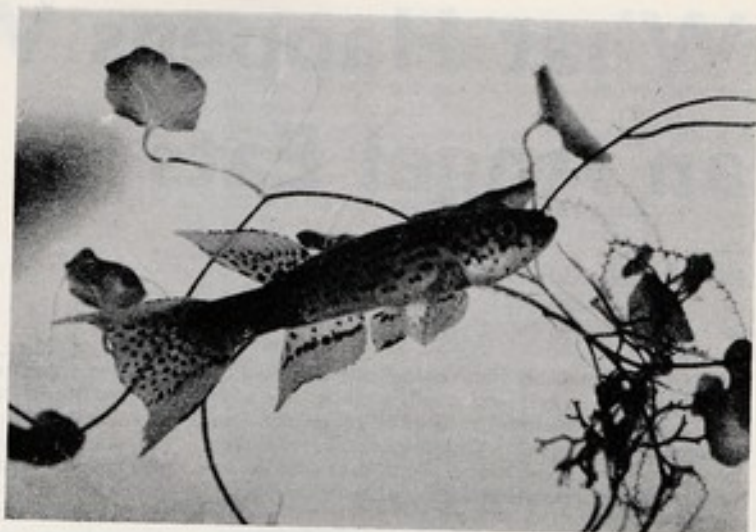
The Editor wishes to thank all readers who submitted entries to the Competition.



Mr B. L. Anthony's picture of an opaline gourami is reproduced here from the colour print original that he submitted to the Competition. Camera used was an Exakta



Reproduced from a colour transparency, this photograph of *Aphyosemion christyi* was taken by Mr D. Ellis on Kodachrome II with a Petriflex camera and telephoto lens with close-up rings (exposure f 5-6, 1/40 sec., electronic flash)



This group of discus fish was photographed in monochrome (Ilford FP 3) by Mr H. J. Mayland with an Exakta camera and electronic flash

## Transatlantic Topics

*continued from page 377*

With the size of the hobby in the United States often demonstrated in this column it comes as a surprise to the British reader to find that the organised hobby is much larger in these shores than in the States. Confirmation of this reached me in a statement by Walt Maurus, a

well-known aquatic personality and author. Walt writes that it may come as news that there are now as many as three hobby groups in the Detroit area.

Compare the City of Detroit, population 2,000,000 with, say, Birmingham, England's one million plus, or even Manchester, and the motor car town seems vast by comparison, but then add up the numerous aquarium clubs in the immediate environs of our two cities and Detroit's three fades into the background.

The same holds good for fish

shows. We have goggled at the gate receipts announced in the U.S. but despite this apparent following, how many New World groups boast the regular attendances we see here? Having sat in on both I feel qualified to make comparisons.

Still, when one considers that England could fit into just the State of Texas some three times, that here is a country too large to have a National Press, and has instead some 20,000 separate newspapers, how can one hope to compare our two countries? Comparisons become as important as a doodle on a beer mat!

# What Happens When an Angel Eats

By R. McN. ALEXANDER

**Y**OU have probably often watched angel fish feeding, but have you ever seen exactly what happens when they take a mouthful of food? Of course not, for it happens much too quickly. One moment the food is there and the next it is gone, leaving you at most with the impression that you have seen the fish's lips jerk forward to take it.

Movements that are too fast to see can, of course, be recorded by high speed cinephotography. The four drawings which illustrate this article have been traced from four successive frames of a cine film taken at 64 frames/second, which is four times as fast as the films taken by an ordinary amateur cine camera. The fish is a good-sized angel fish about 2½ inches long, which was a most co-operative model. Close-up photography at high speeds



An angel fish feeding from the water surface in an aquarium showing the effect of the fish's sucking action on the water line

needs bright lights, especially if depth of focus is important, but this fish fed obligingly under photographic light so strong that they heated the water in the aquarium at a alarming rate. The temperature once rose 6°F in a short photographic session.

The food in the picture is a piece of the white of a hard-boiled egg, chosen because it shows up better in the film than ordinary flake fish food. The fish became tired eating egg before I tired of taking photographs, but turned out to be willing to eat tiny cubes of Dairylea cheese spread, which is just as photogenic.

In frame 1 the fish is approaching the food with its mouth still shut but, in frame 2, only 1/64 second later the mouth is wide open. The lower jaw has, of course, been swung down to open the mouth, but at the same time the upper jaw has shot forwards, stretching out a fold of transparent skin which was previously tucked away out of sight inside the head. The open jaws and the skin form a tube which sticks out quite a long way in front of the fish. The food is blurred because it has started moving towards the fish, which is sucking it into the tubular mouth.

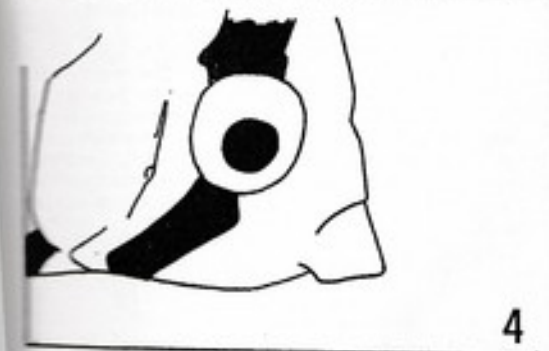
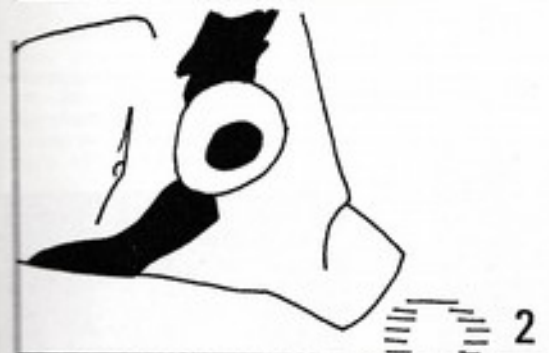
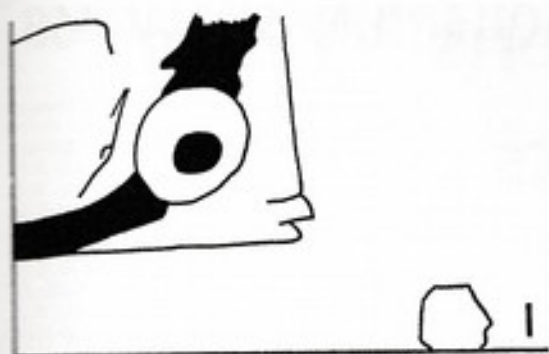
In frame 3 the mouth is still wide open and the food travelling into it, more blurred than before because it is travelling faster. It can be seen through the transparent skin even after it has gone into the mouth. It can be calculated from the length of the blur that the food is moving at about 10 inches/second. In frame 4 the mouth is closed again with the food inside but the upper jaw has not yet moved back to its normal position, so the fish looks as if it has a beak.

## Feeding at the Surface

Angel fish seem to use their mouths in exactly the same way when they take food from the surface of the water, when they take it from the bottom of the aquarium. I have no cine films of them feeding at the surface but I have taken still photographs by electronic flash. The flash is over so quickly that the photographs are not visibly blurred even if the fish is moving fast, and fish do not seem to notice the flash. The photograph reproduced here shows an angel fish with its mouth still wide open, just after a piece of food has gone in.

The surface of the water runs across the top of the picture, just above the white strip in the background, which is a wooden barrier that was used to prevent the food from floating out of the field of the camera before the fish got round to eating it. Notice how the surface of the water curves down to the fish's lips: the water that is inevitably sucked in with the food is still going in, swirling down into the mouth like bath water at the plug hole.





Drawings from a cine film made in close-up of an angel feeding. The four 'frames' are at 1/64 second intervals (see text)

If you suck a drink up a straw you do it by expanding your lungs, and your cheeks are pulled in by the suction. Angel fish, of course, have no lungs, but they have stiff cheeks, containing bones which are hinged along their top edges to the main part of the skull. They suck food into their mouths by swinging these cheeks outwards, and also by forcing the floor of the mouth downwards. You cannot see the movement of the cheeks in the film sequence because the fish is seen in side view, but you can see the throat bulging downwards in frame 4.

Most fishes seem to suck food into their mouths like this, though some do not. For instance, films have been taken of small tunnies feeding in an aquarium. They show that the tunnies took the pieces of food as they sank through the water, simply by swimming at them with their mouths open. There was no sucking action at all.

### Automatic Jaw Action

The upper jaw of the angel fish moves in quite a complicated way. It moves forward as the mouth opens and stays forward until after it has closed. All its movements are automatic. When the lower jaw is swung down to open the mouth it pulls on the upper one in such a way as to make it shoot forward and make the mouth into a tube. When the cheeks swing out to suck the food in they move a knob of bone which acts as a catch. This locks the upper jaw in the forward position and prevents it from moving back, even after the mouth has closed, until the cheeks have swung back to their normal position.

It is not at all clear what good all this subtle mechanism does to the fish. Presumably it does some good, for fancy mechanisms are unlikely to evolve for no reason at all, and this sort of mechanism seems to have evolved several times. Fishes like trout and pike, which are relatively primitive in the sense of being behindhand in evolution, have relatively simple mouths with upper jaws which swing down a bit when the mouth opens, but cannot slide forward.

The barbs, the toothcarps and the acanthopterygians (of which the angel fish is one) have upper jaws which protrude as the mouth opens and stay forward after it has closed. The internal machinery that makes this happen is much the same in all acanthopterygians, but different in barbs and different again in toothcarps. The differences make it seem likely that protrusible jaws have evolved separately in these three groups of fishes.

Something rather similar has evolved in *Corydoras* and its relatives, whose lips form a tube when the mouth is open and fold down against the underside of the head when they are out of use.

Not only have protrusible jaws evolved several times, but the fishes that have them have flourished tremendously. The acanthopterygians not only include such familiar freshwater groups as the cichlids and perches but also so many marine fishes that they total more than half the fishes of the world. The barbs and toothcarps between them include a very large proportion of all freshwater fishes. It is hard to escape the conclusion that there is something specially useful about protrusible jaws.

One suggestion that has been made is that a fish will have a better chance of catching its prey if it can shoot its mouth suddenly out in front of it on the end of a tube. An

*Continued on page 391*



## The AQUARIUM SHOW '68

**BRAVING** the queues and the freezing winds outside, and the frequently near-tropical conditions inside, well over 10,000 people made their way round The Aquarium Show 1968, held in London last month.

Inside the Hall, the goldfish, guppy, killifish and marine specialist societies all presented displays of the fishes of their interests. Over 300 single fish entries were staged in the competitive classes, but the real eye-catchers were the 20 club

tableaux. It was difficult to imagine how the public would choose between the colourful displays staged by Basingstoke & D. A., Bethnal Green A.S., Brent A., Cambridge & D. A.S., Ealing & A.S., East London A. & P., Erith & D. A.S., Freelance A., Hendon & D. A.S., Hounslow & A.S., Independent A.S., Isle Wight A.S., Kingston & D. A., London Transport A.S., Mid-Herts A.S., Portsmouth A.S., Reigate Redhill A.S., Runcyngede A., Thurrock A.S., and Tottenham & A.S.

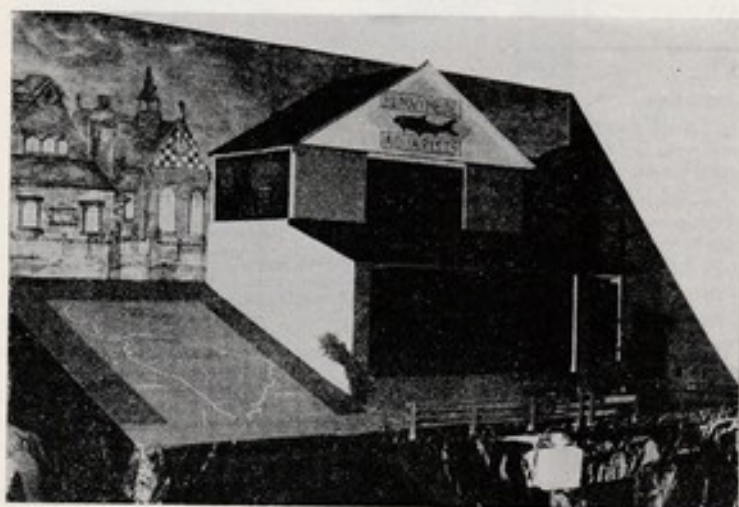
The theme of fishkeeping in the home, garden and school was developed with great ingenuity and skill. Freelance A.S. featured a world map upon which the origi-



Winner of the Tableaux section, decided by public vote: Kingston & D. A.S.



Mr R. Wigg of Llantwit Major, one of the judges, makes his pointing for giant gourami



of the fish displayed in the tank could be traced in lights; the Bethnal Green A.S. display represented blackboard, and Basingstoke A.S. featured fish from the Amazon in labelled and informative display. The Hers and His television sets of Reigate & Redhill A.S. featured a pop group and an aquarium respectively, and the furniture on the Thurrock A.S. tableau—a bookcase and cocktail cabinet with tanks built in—would have graced any sitting room. The East London A. & P.A.

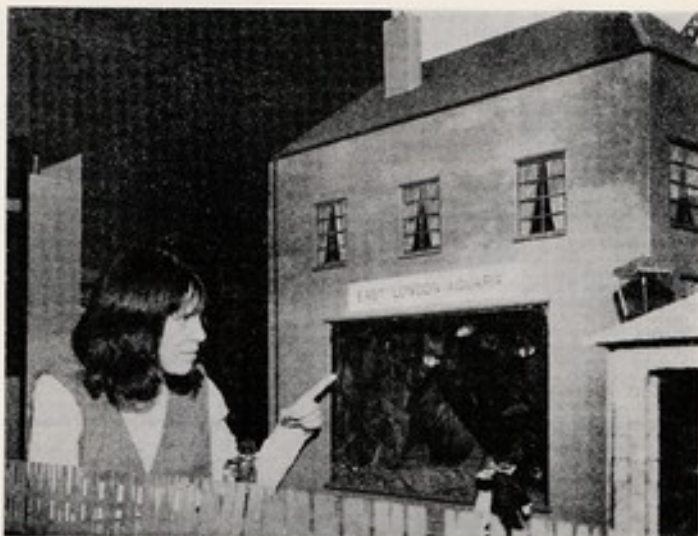
House tanks, a small pond and an aquarist's map of the South American were included in the Runcyngede A.S. tableau



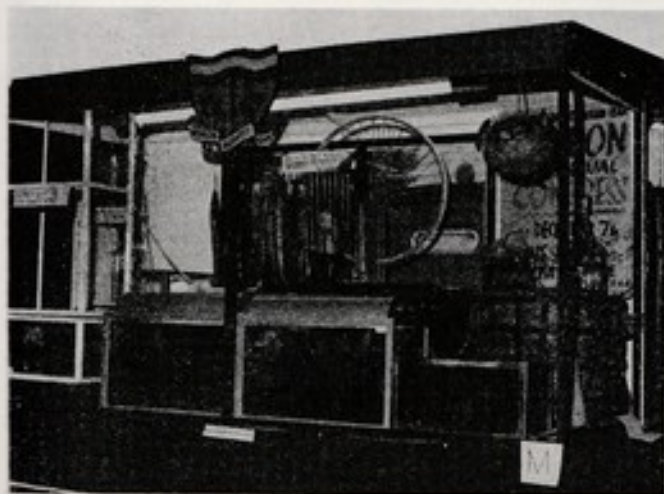
A visitor looks at the skilful display arranged by East London A. & P.A.

showed a most delightful dock street scene. Portsmouth A.S. presented a most ingenious bleeping submarine, the sound effects of which became notorious (according to daily Press reports). On every stand there were noteworthy items. The winner, by public vote (425) was the extremely decorative Kingston & D. A.S. stand, with a waterfall and 'pond' full of tiger barbs and six tanks containing one or two really large fish in each—a black shark, a *Clarias*, cichlids etc. The second prize was awarded to Ealing & D. A.S. (199 votes) for a skilful replica of a laboratory bench, with jars of coloured water, and ever-running tap, retorts etc. The third prize-winners were Hounslow A.S. with another decorative stand giving the impression of the outside brickwork of a house in some southern clime with a garden of succulents surrounding a pond.

Many of the trade stands had some fine fish for sale, including a range of Lake Nyassa cichlids, a magnificent display of coral fishes, and Nishiki-koi carp flown specially in from Japan. All the latest equipment was on view and tank-makers were well represented with displays of the latest aquaria that were so attractive they must have converted many casual visitors to the hobby.



Tottenham & D. A.S. announced their seniority on their tableau



Amusing gadgets and a completely upside-down tank and stand (extreme left) were popular features of the Hendon & D. A.S. tableau

F.B.A.S. judges Mr C. A. T. Brown, Mr R. Matley, Mr J. Stillwell, Mr H. Towell and Mr R. S. Wigg awarded the best fish in show and the Scanco Challenge trophy to the *Corydoras schwaetzi* (89 points) belonging to Mr Roy Biggs.

Detailed results were the following.  
Society furnished aquarium (the T. Horemans Rose Bowl): 1, Bethnal Green (80); 2, Portsmouth (70); 3, Ealing (78). Barbs (Marsh trophy): 1, Mr T. Walker (cherry barb, 84); 2, Mr P. A. Grosvenor (schuberti barb, 82); 3, Mr A. Blake (tiger barb, 81). Characins (Halvin Cup): 1, Mr A. Millhouse (piranha, 88); 2, Hendon A.S. (bleeding heart tetra, 87); Mr N. Owen (cardinal, 85). A.o.s. labyrinth (Kinsell trophy): 1, Mr E. Price (*Ctenopoma kingaleye*, 82); 2, Mr E. Islip (climbing perch, 79); 3, Mrs G. Carter (opaline, 79). Siamese fighters: 1, Mr F. H. Vicker (81); 2, Miss Durrant (78); 3, Mr W. Corby (78). Egg-laying toothcarps

(Rena trophy): 1, Mr R. Stockwell (*Aplonichthys lineatus*, 78); 2, Mr Macanthisonagh (Florida flag, 73); 3, Mr T. Walker (*A. striatum*, 70).

A.O.S. catfish: 1, Mr A. Millhouse (*P. clarus*, 87); 2, Mr G. E. Greenhalf (*Plecostomus*, 80); 3, Mr E. Isip (*P. gracilis*, 70). Corydoras catfish (Inter-Pet trophy): 1, Mr R. Biggs (*C. schwarzii*, 81); 2, Mr R. Biggs (*C. schwarzii*, 81); 3, Mrs P. Harris (*C. alb.*, 78).

Rasboras: 1, Mr J. Cobden (*R. elegans*, 84); 2, Mr S. Mooney (*R. jacobsoni*, 82); 3, Mr A. J. McCarthy (*R. trifasciata*, 81). Danos and minnows: 1, Mr W. D. Harper (*Gambusia danio*, 81); 2, Mr B. Pearson (pearl danio, 82); 3, Mr T. Walker (white cloud, 81). Botsia and loach: 1, Mr A. Blake (kuhli, 84); 2, Mr G. B. Martin (horse-face loach, 82); 3, Mr Macanthisonagh, 80. A.O.S. egglayer (Eheim trophy): 1, Mr G. B. Martin (*Eletotris piscum*, 82); 2, Mr P. A. Grosvenor (redtailed shark, 81); 3, Mr S. Mooney (*Channa obscura*, 80).

A.v. male guppy: 1, Mr E. Davison (80); 2, Mr C. Withers (79); 3, Mr L. Smith (77).

A.v. female guppy: 1, Mr E. D. Stevens (76); 2, Mr L. Smith (76); 3, Mr R. Biggs (75). Platy: 1, Hendon A.S. (*P. variatus*, 80); 2, Mr F. Young (sunset variatus, 78); 3, Mr K. Appleyard (*P. variatus*, 77). Swordtails (Penguin trophy): 1, Mr W. Corby (red-eyed red, 78); 2, Mr J. Stewart (tuxedo, 78); 3, Mr B. Mather (black swordtail, 77). A.O.S. livebearer (TFH/Miracle Shield): 1, Mr A. Blake (*L. vittata*, 79); 2, Mr D. W. Ellis (merry widow, 76); 3, Hendon A.S. (*L. vittata*, 75).

Singletail goldfish: 1 and 2, Mr W. Leach (89, 81); 3, Mr J. Linsale (75). Doubletail goldfish: 1, Miss D. Morris (and Boughn trophy); 2 and 3, Mr J. Linsale (82, 71). Globe-eye: 1 and 2, Mr J. Linsale (78, 67). Fantails: 1, Mr G. Howell (80); 2, Mr F. Glynn (75); 3, Mr L. Smith (74). A.O.S. goldfish: 1, Mr J. Linsale (bramblehead, 84); 2, Mr W. Leach (Bristol shubunkin, 78); 3, Mr Macanthisonagh (Bristol shubunkin 77). Native and foreign coldwater: 1, Mr V. P. Voysey (peacock-eyed bass, 84); 2, Mr G. Owen (*Umbra pugnax*); 3, Mr E. Davison (rudd, 82).

Among the numerous people to be associated with the success of The Aquarium Show 1968, the show management team who voluntarily devoted a full week of long hours and hard work must be specially recognised and thanked: Mr D. Ellis, Mr T. Glass, Mr C. Harrison, Mr D. Holleyman, Mr J. Kelly, Mr L. Smith, Mr S. Tarrant, Mr A. Tucker.

## British Aquarists' Festival

WORKSHOP, HUDDERSFIELD, the N.G.P.S., BRISTOL A.S. and MERSEYSIDE are societies for whom the success of this year's BRITISH AQUARISTS FESTIVAL did not have to be stressed. Workshop achieved 4 firsts, 6 seconds and 5 thirds; Huddersfield 4 firsts, N.G.P.S. 3 firsts, 5 seconds and 5 thirds; Bristol 3 firsts, 3 seconds and 1 third; Merseyside 3 firsts, 2 seconds and 3 thirds. More people than ever visited the Show, and the award list read as follows:

Best fish in show, Mr K. Parkes (Merseyside, F.N.A.S. Diploma). Best tropical fish, Mr K. Parkes (Withy Grove Press trophy). The Belle Vue Silver Challenge trophy for the best coldwater fish was won by Mr H. T. Jago of Bristol. The best (other than best fish in show) awards went to: tropical egglayer, Mr K. Parkes; tropical livebearer, Mr B. Smith (Workshop); coldwater, Mr H. T. Jago. The best society stand was judged to be that of Workshop (2, Lanarkshire); 3, Dewsbury) and Workshop was also the society with the four highest pointed awards, Mr J. Dornie won the John East Memorial Challenge trophy as the exhibitor gaining most awards. Details of the class awards are as follows.

**Furnished aquaria.** Society tropical: 1, Halifax (84); 2, Blackpool (70); 3, Thurrock (77). Society coldwater: 1, Accrington (71); 2 and 3, N.G.P.S. (70, 67). Individual tropical, Walter Smith Coronation Shield: 1, Mr P. Reynolds (Workshop, 82); 2, Mr B. Lintler (Blackpool, 81); 3, Mr A. Firth (Bradford, 77). Individual coldwater, Hammond trophy: 1, Mr H. Smith (Accrington, 81); 2, Mrs M. Firth (Bradford, 80); 3, Mr M. Goodchild (Valley, 74). Aquascape, Aquascape Silver Cup: 1, Mr K. Boothroyd (Dewsbury, 80); 2, Mrs Mathews (N.G.P.S., 77); 3, Mrs K. Cassidy (Dew-

bury, 75). Aquascape novelty, J. Kelly trophy: 1, Mr K. Boothroyd (Dewsbury, 75); 2, Mr L. Mince (Workshop, 72); 3, Mrs M. Knowles (Sheffield, 70).

**Coldwater fish.** Common goldfish and comets, Challenge trophy, East Lancs. Society Trustees: 1, Mr H. T. Jago (Bristol, 75); 2, Mrs Mathews (N.G.P.S., 74); 3, Mr N. Chadburn (N.G.P.S., 73). Shubunkin Silver Challenge Cup of N.W. branch of G.S.G.B.: 1 and 3, Mr B. M. Rothwell (N.G.P.S., 75, 74); 2, Mr H. T. Jago (Bristol, 72). Moors, Nottingham Shield: 1, Mr H. T. Jago (Bristol, 76); 2 and 3, Mr J. Hodgetts (Accrington, 62, 58). Veiltails, Walter Smith Challenge Trophy: 1, Mr W. Ramsden (N.G.P.S., 64); 2, Mr H. T. Jago (Bristol, 61); 3, Mr C. H. Whitney (Accrington, 58). A.O.V. fancy goldfish, Chester Shield: 1, Mrs A. Buckley (Bury, 63); 2, Mr N. Farrell (N.G.P.S., 64); 3, Mrs Baxter (N.G.P.S., 61). A.O.V. coldwater other than classes 4-8, Derby Shield: 1, Mr R. Wagstaff (N.G.P.S., 56); 2, Mr J. Fraser (N.G.P.S., 48); 3, Mrs Mathews (N.G.P.S.).

**Tropical Guppies, a.v.:** 1, Mr J. Bamires (Huddersfield, 76); 2, Mrs B. Wolstencroft (Heywood, 74); 3, Mr W. Orton (Salford, 71). Guppy, a.v. pairs, Harrogate Challenge trophy: 1, Mr A. Watt (Lanark, 74); 2 and 3, Mr V. Brothwood (Gorton, 71, 68). A.v. livebearers, pairs: A. Fraser Brunner Silver Challenge Cup: 1, Mr B. Smith (Workshop, 70); 2, Mr J. Dornie (Workshop, 75); G. Kershaw (Heywood, 72). A.v. livebearers, single: 1, Mr S. A. Foley (Salford, 70); 2, D. & R. Standen (Loyne, 77); 3, Mr B. Smith (Workshop, 75).

**Angel fish:** 1, Mr J. Tunney (Stocksbridge, 78); 2, Mr M. Jones (Valley, 71); 3, Mr G. Edmonds (Salford, 70). Angel fish, pairs Whitwell & Smykala Challenge Cup: 1, Mr J. Shepherd (Salford, 60). Dwarf cichlids, a.v., pairs, Lancaster Challenge trophy: 1, Mr J. Dornie (Workshop, 74); 2, Mr N. Kirby & Son (Merseyside, 71); 3, Mr K. Hill (Heywood, 67). Dwarf cichlids, a.v.: 1 and 2, Mr J. V. Hill (Ashton, 77, 76); 3, Mr J. Dornie (Workshop, 75). Cichlids, a.v.: 1, Mr K. Parkes (Merseyside, 80); 2, Mr D. Kennedy (Bradford, 78); 3, Mr P. Devine (Ashton, 76). Cichlids, a.v., pairs, the National Challenge Cup: 1, Mr R. Antonio (Noethwich, 77); 2, Mr H. G. Naylor (Halifax, 76); 3, Mrs J. Price (Hale, 73). Fighting fish, East Lancs Society Trustees Silver Cup: 1, Mr D. C. M. Durrant (Thurrock, 76); 2 and 3, Mr J. Dornie (Workshop, 75, 73). Gourami a.v. and paradise fish, pairs, Silver Challenge trophy: 1, Mr A. F. Whitlock (Tadcaster, 76); 2, Mr F. Mulla (Merseyside, 72);

3, Mr J. Dornie (Workshop, 70). Gourami a.v. and paradise fish: 1, Mr and Mrs R. Bone (Huddersfield, 78); 2, Mr J. Dornie (Workshop, 75); 3, Mr J. Kirby & Son (Merseyside, 73).

**Barbs, a.v. pairs, Aquarist Silver Cup:** 1, Mr K. Parkes (Merseyside, 82); 2, Mr J. Dornie (Workshop, 82); 3, Mr E. Featherhough (Chapelton, 78). Barbs, a.v.: 1, Mr J. Dornie (Workshop, 84); 2, Mr B. Jones (Workshop, 82); 3, Mr R. Taylor (Aireborough, 76). Characins, East Lancs Society Silver Cup: 1, Mr J. Robinson (Merseyside, 84); 2, Mr A. G. Whyte; 3, Mr J. Tunney (Stocksbridge). Characins, pairs: 1, Mr B. Parkin (Huddersfield, 60); 2, D. & R. Standen (Loyne, 60); 3, Mr B. Johnstone (Heywood, 68). Carps and minnows, pairs, Warwick trophy: 1, Mr E. Price and Mr Hodgkinson (Gorton, 76); 2, Mr J. Mitchell (Sheffield, 70). Carps and minnows: 1, Mr E. Price & Mr Hodgkinson (Gorton, 80); 2, Mr A. G. Whyte (Halifax, 77); 3, Mr R. Hughes (Gorton, 76).

**Catfish:** 1, Mr A. Bebbington (Stretford, 80); 2, Mr J. Anson (Stocksbridge, 70); 3, Mr J. Kirby & Son (Merseyside, 77). Catfish, pairs, York trophy: 1, Mr R. Davies (Belle Vue, 70); 2, Mr D. Jamieson (Lanark, 71); 3, Mr F. Mulla (Merseyside, 71). Egg-laying toothcarps, pairs: F.N.A.S. Silver trophy: 1, Mr G. Richardson (B.K.A., 78); 2, Mr P. Craven (Sheffield, 75); 3, Mr B. Betterley (B.K.A., 73). Egg-laying toothcarps: 1, Mr R. Cooper (B.K.A., 82); 2, Mr C. Jones (Blackpool, 81); 3, Mr G. Richardson (B.K.A., 75). Loach, a.v., Durham trophy: 1, Mr B. Parkin (Huddersfield, 70); 2, Mr G. Kershaw (Heywood, 75); 3, Mr F. Harkins (Thurrock, 71). A.O.V. tropical, Leeds & A.S.S. Silver Rosse Bowl: 1, Mr D. & Mr R. Standen (Loyne, 80); 2, Mr J. Mills (Loyne, 70); 3, Mr J. Dornie (Workshop, 78). Breeders, Egg-layers individual, St Martin's Aquaria Silver Challenge trophy: 1, Mr J. Smithson (Bridgend, 80); 2, Mr A. Watt (Lanark, 70); 3, Mr E. Watson (Lanark, 78). Livebearers individual, Silver Challenge trophy: 1, Mr J. Tunney (Stocksbridge, 77); 2, Mr M. Kellock (Lanark, 76); 3, Mr S. A. Foley (Salford, 75). Coldwater individual, The Edgar Chapman Memorial trophy: 1, 2 and 3, Mr H. T. Jago (Bristol).

**Plant a.v., F.N.A.S. trophy:** 1, Mr T. A. Hadman (Bury, 85); 2, Mr J. Turner (T.A.B., 84); 3, Mr B. J. Smithson (Bridgend, 81). Marine aquaria furnished: 1, Mr P. Moorhouse (Bradford, 78); 2, Mr A. Harper (Glossop, 69).

The winner of the Champion of Champion competition was Mr J. Dornie of Workshop with 89.2 points (2, Mr K. Parkes, Merseyside; 3, Mr J. D. Wilson). In the Lancs. v. Yorks. competition, the Roses Shield was won by Lancashire.



## Readers' Queries Answered



### Growth of *Cryptocoryne*

*I have recently set up a tank planted entirely with *Cryptocoryne* and containing both under-gravel and sponge filters. In my other tanks I replace about a quarter of the water every 2 weeks with fresh. I have been told that *Cryptocoryne* does not like water changes. Is this true? If so, how can the fishes be given the benefit of fresh water without harming the plants?*

It is true that *Cryptocorynes* do not take kindly to changes of position or water, but 'change' here refers to something rather more drastic than changing one-quarter of the tank water at intervals. However, since the tank is newly set up and there are two filters runnings, it should be quite unnecessary to change any of the water for at least 2 or 3 months (unless it is very overcrowded with fish).

### Yes—They Yawn

*My query is—do fish yawn? I was watching them the other evening and was positive I saw a glass fish yawn. Needless to say everyone laughed when I told them this, but I am sure it did and I hope to have the last laugh!*

Yes, it is quite true that fish of many kinds show a mouth stretching movement very reminiscent of the human or mammalian yawn. Its

purpose for the fish is not clear (but then nor is the object to be achieved by human and other yawners fully explained!).

### Breeding Size and Age

*All my fish have been bought as small ones from dealers roughly 6 months ago. As they are not yet fully grown, are they ready for breeding?*

Age is not a reliable guide to the readiness of a fish for breeding, since maturity can be reached at different rates according to the treatment a fish receives. Even when mature, fishes whose size has been conditioned adversely by being kept in a small overcrowded tank are not usually considered to make good breeding stock.

### Glass-Fibre Tanks

*I propose to use glass fibre for the main material in making a fish tank, with plate glass at the front only. Could you advise me if it is safe to use for tropical fish.*

Glass fibre can be used as a basis for tank-making, and once the material has set and has been washed, it will have no adverse effect on tropical fish. It is not strong enough to be used for very large water containers unless in a great thickness or having reinforced areas in it. Large glass-fibre aquaria are in use at the Belle Vue Zoo Aquarium, Manchester.

### Stopping Rust

*I am wondering whether there is any preparation, other than lacquer, which can be used for painting an angle iron tank? Lacquer is eaten through with rust in a matter of weeks, despite a double coating and, also, every effort to get rid of the rust beforehand.*

There is a product on the market that has been reported in *PFM* (January 1968, p. 413) by Dr F. N. Ghadially as being extremely useful for treating angle-iron tank frames. It is not always easy to get this, but it is obtainable through larger iron-mongers: it is called Galvafröid.

### Sticking and Sealing

*When my 3-foot tank started to leak, I squeezed Bostik No. 1 new clear adhesive round the bottom and up the sides to seal it, on the inside of the tank. I refilled with water, put in potassium permanganate crystals and have since repeated the process. Is it now safe to use?*

Bostik No. 1 will not harm your fish but it is unlikely that it will successfully keep the tank leakproof for long. It is, in fact, an adhesive, whereas what is really required is a sealant. One of the sealants specially sold for aquarium use or Bostik No. 6 would be suitable. The Bostik No. 1 may well last for a time but will probably pull away from the sides of the tank. It would then be advisable to scrape off as much of it as possible and replace with one of the sealants quoted above. It is unnecessary to use potassium permanganate as this substance is of no value for treating fresh sealant.

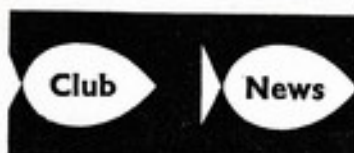
## When an Angel Feeds

*continued from page 387*

objection to this is that the tube is usually quite short. Another suggestion applies only to feeding from the bottom. A fish must get its mouth close to the food before it can suck it in. Look at the tracings from the cine film again.

In frame 2 the upper and lower jaws are both near the food, but if the upper jaw had not protruded it would still be a long way from the food. The fish might have to stand on its head to get its upper jaw near enough. Fish like tetras and Australian rainbows, whose jaws are not protrusible, seem to have to tip themselves up at a very steep angle to take food from the bottom.

Though a good deal is known about how fish jaws work, it seems unwise to be dogmatic about the advantages of the different types.



**TEMPLEHALL SCHOOL AQUARIUM SOCIETY** was the host to the **FEDERATION OF SCOTTISH AQUARIST SOCIETIES'** autumn Convention this September. The Convention was addressed by Mr F. W. Harvey of Colchester on the management of tropical fish. The judges' choice for awards from the 351 entries was made as follows.

Guppies (14 entries): 1 (and Lebistes trophy), Mr E. Poderis (Glasgow F.G.A.); 2, Mr and Mrs Love (Lanarkshire); 3, Mr J. Jack (Falkirk). Mollies (20 entries): 1 (and Kinwall Cup), Mr T. Donaldson (Edinburgh); 2, Mr J. Gardiner (Falkirk); 3, Mr R. Paterson (Lanarkshire). Characins A (18 entries): 1 (and Gordon B. Kirkland trophy, 74 entries), Mr D. Jamieson (Lanarkshire); 2, Mr O. Sharke (Lanarkshire); 3, Mr G. Reid (Alloa). Characins B (22 entries): 1, Mr B. Fernie (Dunfermline); 2, Mr J. McGeochie (Dundee); 3, Mr A. McDonald (Lanarkshire). Characins C (14 entries): 1, Mr W. Low (Lanarkshire); 2, Mr J. Taylor (Alloa); 3, Mr A. Donaldson (Ayrshire).

Rasboras (28 entries): 1 (and Kerrington trophy), Mr F. Smythe (Weir); 2, Mr R. Ferguson (Falkirk); 3, Mr F. McNaughton (Dundee). *Danio malabaricus* (16 entries): 1 (and Malabar trophy, 49 entries; and Alexander trophy, 271 entries), Mr J. Graham (Ayrshire); 2, Mr G. McKechnie (Falkirk); 3, Mr J. Taylor (Alloa). All other danios and tropical minnows (33 entries): 1, Mr F. McNaughton (Dundee); 2, Mr J. Graham (Ayrshire); 3, Mr G. Reid (Alloa). Catfish A (27 entries): 1, Mr D. Jamieson (Lanarkshire); 2, Mr W. Low (Lanarkshire); 3, Mr D. Jamieson (Lanarkshire). Catfish B (12 entries): 1 (and Caledonia Cup, 39 entries), Mr K. Jenkinson (Lanarkshire); 2, Mr J. Langan (Scottish); 3, Mr W. Low (Lanarkshire). Loaches (15 entries): 1 (and Bezia Cup, 15 entries), Mr W. Low (Lanarkshire); 2, Mr G. McKechnie (Falkirk); 3, Mr and Mrs Love (Lanarkshire).

Coldwater native (4 entries): 1, 2 and 3 Mr N. Baines (Ayrshire). Coldwater exotic (10 entries): 1 (and Cathay Trophy, 14 entries), Mr P. Donald (Edinburgh); 2 and 3, Mr K. L. Brown (Scottish). Nominated pair, yellow wagtail platys (4 entries): 1 (and Andrew Bell Memorial trophy), Ayrshire; 2, Lanarkshire; 3, Scottish. Aquarium plants (4 entries): 1, Mr A. Smith (Lanarkshire); 2, Mr A. Insh (Dundee); 3, Mr R. M. Cooper (Kirkcaldy).

Breeders livebearers A (11 entries): 1 (and Dundee Shield), Mr J. Turner (Kirkcaldy); 2, Mr J. Hutchison (North Berwick); 3, Mr J. Taylor (Alloa). Breeders livebearers B (14 entries): 1 (and Strachan Kerr trophy), Mr M. Kellock (Lanarkshire); 2, Mr D. Towns (Dundee); 3, Mr and Mrs Love (Lanarkshire). Breeders guppies (7 entries): 1 (and F.G.A. trophy), Mr E. Poderis (Glasgow F.G.A.); 2 and 3, Mr and Mrs Love (Lanarkshire). Breeders egg-layers A (13 entries): 1 (and Gourlay Shield), Mr S. Nasmith (Lanarkshire); 2, Mr J. Wilson (Edinburgh); 3, Mr C. Murray (Weir). Breeders egg-layers B (24 entries): 1 (and Greenock trophy), Mr E. Watson (Lanarkshire); 2, Mr J. Wilson (Edinburgh); 3, Mr E. Watson (Lanarkshire). Breeders cold-water (1 entry): 1, Mr K. Brown (Scottish).

**WESTON-SUPER-MARE A.S.** were eventual winners, by 77 points to 62, in the inter-club competition with **TAUNTON A.S.** The best fish in the show was a thick-lip gourami owned by Mr M. Locke of Weston-super-Mare. Class winners were:

Labyrinths, Mr M. Locke (W-s-M); characins, Mr M. Locke (W-s-M); cichlids, Mr D. Plimley (W-s-M); small cichlids, Mr A. Cavill (Taunton). Barbs, Mr M. Locke (W-s-M); catfish, Mr A. Cavill (Taunton); A.o.v. egg-layers, Mr M. Locke (W-s-M); swordtails, Mr J. Rooney (W-s-M); platys, Mr W. Beavis (Taunton); mollies, Mr M. Locke (W-s-M). Fighters, Mr A. Cavill (Taunton); egg-laying tooth-carp, Mr M. Locke (W-s-M); breeders egg-layers, Mr J. Rooney (W-s-M); breeders livebearers, Mr W. Cornick (Taunton).

ONE of the major items discussed at the half-yearly meeting of the **IRISH FEDERATION OF AQUARIST SOCIETIES** was the big sponsored show to be held in Belfast next August. The request by the delegate from Bangor A.S. that the name of the Federation might be used in connection with the Show was granted and a committee elected composed of Mr Laughton (St Annes), Mr Sherlock (St Annes), Mr McIlwain (Bangor), Mr Edwards (Bangor), Mr Crow (Bangor). Each society was asked to provide two members to serve on the show committee and information is available from Mr Laughton, 1 Marlebone Park, Belfast 9.

In the absence of the secretary of the Federation, Mr Blakeman from Blackrock, Co. Dublin agreed to stand in until the A.G.M., next 5th January. A new society, Newtownabbey A.S. was admitted to the Federation. The names and addresses of secretaries whose clubs were represented there include the following:

I.F.A.S., Mr Blakeman, 45 Montpelier Parade, Monkstown, Blackrock, Co. Dublin; St Annes A.S., Mr Laughton, 11 Marlebone Park, Belfast 9; Short Bros. & Harlands A.S., Mr McDowell, 10 Sunnyside Drive, Ormeau Road, Belfast 7; Edensvale A.S., Mr W. McAvoy, 10 Ashmount Grove, Belfast BT4 2FP; Belfast Tropical A.S., Mr J. Brown, 65 Graymount Drive, Grays Lane, Belfast 15; Bangor A.S., Mr R. McIlwain, 13 Rathmore Avenue, Finaghy, Belfast BT10. OFT; Newtownabbey A.S., Mr R. McDonald, 31 Doonbeg Drive, Rathcoole, Newtownabbey, Co. Antrim. To all these clubs, visitors and new members are cordially invited.

Newtownabbey A.S. announce that they are willing to collect unwanted fish and plants for their local Bellevue Zoo and their secretary would be glad to hear of any available.

AT THE twelfth annual convention of the **GOLDFISH SOCIETY GREAT BRITAIN**, Mr L. Em of the G.S.G.B. and the British Aquarist Society and Mr T. Dodge from the Midland Aquarist and Pool Society gave extremely interesting and informative talks illustrated by coloured slides and films. Show secretary, Mrs. Whittington, tells us how interesting it was to note that the two speakers both very successful and knowledgeable goldfish breeders, employ quite different techniques in certain aspects of management to achieve similar results. Later an auction sale to place of good quality stock from the Society's leading breeders.

15 fully open competitive goldfish classes were held (judged by Capt L. C. Betts, Mr W. L. Wilson, Mr M. D. Cluse, Mr G. H. O'Neil and Mr J. C. Stillwell). Results were the following.

Singletails: 1, Mr R. M. Whittington; 2, Mr S. Freeman; 3, Miss D. Moor. Metallic twin-tails: 1, Miss D. Morris; Mr N. Giles; 2, Mr J. Linnale. Nacreous twin-tails: 1, Mr W. Leach; 2, Mr R. Dudley; 3, Mr J. Roberts. Globe-eyes: 1 and Miss D. Morris; 2, Mr J. Linnale. Bramble heads: 1, Mr J. Linnale; 2, Mr R. Berger; 3, Mr R. Whittington. Pearlfacials: Mr R. Dudley. Celestials: 1, Mr H. Jago. Bubble-eyes: 1, Mr J. Bunde. Common goldfish: 1, Mr W. Leach; Mrs P. E. Whittington; 3, Mr H. T. Jag. London shubunkins: 1, Mr T. Leach; 2 and 3, Mrs P. E. Whittington. Comet: 1, Mr W. Leach; 2, Mr R. Dudley; 3, N. S. Freeman. Metallic fantails: 1, Mr J. Roberts; 2, Mr H. Berger; 3, Miss J. Morris. Nacreous fantails: 1 and 3, N. G. Fern; 2, Mr R. M. Whittington. Orandas: 1 and 2, Mr A. Tagg; 3, Mr H. Jago.

THE Paul Stokes and Harry Williams Memorial Trophy show staged annually by one of the competing societies and this year **WEDNESBURY A.S.** were the hosts. The resulting tie between Wednesday and Tipton was resolved by the toss of a coin and Tipton is to hold the trophy for the first 6 months and Wednesday for the second. Class winners were:

Livebearers, Mr F. Matthews (Tipton); characins, Mr H. Fellows (G.K.N.); cichlids, Mr W. Devison (Wednesbury); barbs, Mr D. Hemming; catfish and loaches, Mr D. Highfield (Wednesbury); rasboras and danios, Mr D. Hemming (Tipton); anabantids Mr W. Devison (Wednesbury); a.o.v., Mr W. Devison; true pairs, Mr B. Colwell (Tipton).

The best fish in show was the *Labeo bicolor* belonging to Mr W. Devison of Wednesbury. Judges were Mr Bennett, Mr Heap, Mr Nicholson and Mr Jones.

MR DOUG HANCOCK judged the 76 fish entered in the **DIDCOT & D.A.S.** fourth annual club bottle show. Mr A. Wilkinson won the best in show award and Mr P. Tuckey the



furnished 4 in. jar class. Other class winners were:

A.v. coldwater, Mr C. Algar; a.v. aquatic plants, Mr A. Wilkinson; barbs, Mr D. Whiting; cichlids, Mr A. Wilkinson; characins, Mr A. Wilkinson; Guppies, Mr F. Hall; a.o.v. livebearers, Mr F. Hall; rasboras, danios, minnows, Mr F. Hall; labyrinths, Mr P. Tuckey; catfish and loaches, Mr A. Wilkinson; a.o.v. tropical, Mr F. Hall; breeders livebearers, Mr F. Hall; breeders egg-layers, Mr A. Wilkinson; toothcarps, Mr F. Hall.

Club meetings are held at Esso House Club Room, Milton, nr Didcot on the first and third Friday of each month and visitors and new members are very welcome.

THE part played by show secretary Mr J. Higham in contributing to the success of the **WARRINGTON A.S.** first open show is acknowledged by the Society. Judges were Mr B. Pengilly and Mr H. Loder, who awarded the best in show to the C. severum of Mr P. Barrett (Aireborough). Class winners were as follows.

Guppies, Mr R. Brothwood (Gorton & Openshaw, 80); mollies, Mr P. M. Hughes (Mold, 78); swordtails, Mr J. Degnen (Sunnybrow, 78); platys, Mr A. Henshaw (Belle Vue, 76); a.o.v. livebearer, Mr J. Alcock (Warrington, 77).

Characins up to 2 in., M. & W. (Sunnybrow, 78); characins over 2 in., Mrs V. Parkes (Merseyside, 80); barbs up to 3 1/2 in., Mr F. E. Gregory (Osram, 80); barbs over 3 1/2 in., Mr and Mrs Grimshaw (Sunnybrow, 79).

Angels, D. Bond jr. (Leigh, 80); dwarf cichlids, P. Barrett (Aireborough, 82); large cichlids (best fish in show), Mr P. Barrett (Aireborough, 84); fighters, Mr R. Taylor (Aireborough, 78); a.o.v. anabantids, Mr R. Taylor (Aireborough, 79).

Catfish, Mr R. Tench (Warrington, 79); loaches, Mr F. Mulla (Merseyside, 78); labros, sharks and flying foxes, Mr P. Barrett (Aireborough, 79); toothcarps, Mr J. Roberts (Nelson, 77); danios and minnows, Mr R. Antonio (Northwich, 76); a.o.v. tropical, Mr W. Booth (T.A.B., 81); breeders egg-layers, Mr and Mrs Standen (Levens, 78); breeders livebearers, Mr and Mrs Bone (Huddersfield, 77); pairs egg-layers, Mr B. Bewick (Warrington, 82); pairs livebearers, Mr and Mrs Grimshaw (Sunnybrow, 80).

Common goldfish, Mr E. W. Endon (Sheffield, 78); fancy goldfish, Mr Walsh (Accrington, 80); a.o.v. coldwater, Mr W.E. Endon (Sheffield, 78); special junior, D. Bond jr. (Leigh, 78).

THE annual member-only show of **THURROCK A.S.** is held in conjunction with the bazaar held by a local church and this annual Aquabazaar has become a very popular event. This year, Thurrock members did not let the public's image of fishkeeping down and the fish and eye-catching furnished aquaria were of a high standard. The individual fish, 135 in all in 13 classes, were judged by Mr C. Creed of the F.B.A.S. The Rev. D. E. F. Gilbert presented the awards and trophies. Class winners were:

Guppies, Mr D. Durrant; mollies, Mr S. Hendle; platys, Mr K. Appleyard; swordtails, Mr J. Hartlebury; Fighters, Mr

D. Durrant; a.o.v. labyrinths, Mr G. Eaton; danios, rasboras, minnows, Mr R. Nicholls; barbs, Mr R. Nicholls; A.v. catfish, Mr P. Hinchley; characins, Mr E. Nicoll; a.o.v. tropical, Mr R. Nicholls; class 12, Mr R. Strudwick; furnished aquaria, Mr K. Appleyard.

The best fish in show went to the goldfish belonging to Mr R. Strudwick.

**HOUNSLOW & D. A.S.** had a considerable success with their fifth open show. Entries were close on 600 and were of a very high standard. Although the weather was bad on that day, visitors from a wide area crowded into the venue. The C. severum belonging to Mr J. Thorne won the best fish in show award and other class winners were the following.

A.v. platy, Mr R. Wingrove; a.v. molly, Mr R. Funnell; a.v. sword, Mr R. G. Cox; a.o.v. livebearer, Mr B. Harvey; Characins, Mr R. Wingrove; dwarf cichlid, Mr B. Dunn; a.o.v. cichlid, Mr J. Thorne; Toothcarps, Mr T. Walker; danios, rasboras, minnows, Mr J. Thorne; large barbs, Mr P. Ginger; a.o. barb, Mr R. Nelms; fighters, Mr R. J. Wynd; labyrinths, Mr J. Fisher.

Corydoras, Mr J. Norris; a.o.v. cat or loach, Mr M. Carter; a.o.v. tropical egg-layer, Mrs Thorne; Tropical pairs, Mr R. Armstrong; breeders tropical egg-layers, R. Armstrong; breeders tropical livebearers, Mr R. Cox.

Common goldfish, Mr K. Hope; a.v. shubunkin, Mr L. Roberts; a.o.v. fancy goldfish, Mr L. Roberts; a.o.v. coldwater, Mr V. Voysey; Miniature furnished aquaria, Mr A. Welsh; specialist class, Mr J. Thorne.

MEMBERS of **BRIGHTON & SOUTHERN A.S.** found the lecture hired from the British Killifish Association on the subject of fish house construction most informative and interesting. Two points in particular became clear—provided that the correct insulation is carried out in the construction of the fish house a saving of up to 80% can be made in heating costs by using space heating rather than the conventional thermostat and heater; and an important feature in preventing heat loss was not to include a glass roof light, perfectly possible in the instance filmed as that particular fish house was to be used primarily for the breeding of killies.

Club members have been active in the table shows. Mr Brian Baker from Uxbridge judged on the occasion when for the first time in the club's history a class for single rooted tropical plants was included. This was well supported and the Perspex containers constructed by one member to show and transport his plants aroused particular interest. Awards were 1 and 2, Mr J. Kail and 3, Mr D. Soper. The class for rasboras, danios and minnows caused Mr Baker to comment on the quality of the fish, suggesting that perhaps the water in the Brighton area is

especially suited to them. Mr N. Short was awarded first place, Mr D. Soper second and third. Mr F. Aylward won the cichlid class (2 and 3, Mr D. Soper). Any person interested in joining the society may contact secretary Mr B. Shelton, 45 Coventry Street, Brighton.

A LARGE number of fish were entered for the **BRISTOL A.S.** open show this year by 53 exhibitors. The coldwater judges were Mr W. Butler, Mr F. Close, Mr T. L. Dodge and Mr A. E. Roberts, all of Birmingham, and the judges in the tropical section Mr T. Short, Mr J. Wheeler, Mr T. Callow and Mr R. Wigg.

The award for the best fish in show, and the M. Davis trophy went to Mr A. E. Roberts, whose oranda also secured the E. Butler Cup for the best fancy fish in the show (coldwater). Mr N. Grimston was awarded the B. T. Child shield for the second best in show (coldwater) and the E. R. Blunsden Cup for the best shubunkin exhibited by a member went to Mr R. Oxenham. Mr K. G. Pearce was awarded the Lewis Cup for the best tropical entry and the J. H. Shepherd Cup for the best egg-layer. The P. Gibbs trophy for the best livebearer went to Mrs C. Allinson, while Mr F. Brown held the Denman Cup for the highest points in the show for the next year. Other class winners were:

Goldfish, Mr R. J. King (Newton Abbot, Coonaton Cup); Bristol shubunkins, 5 in. limit, Mr R. Oxenham (Bristol, Mid-Somerset Cup); Bristol shubunkins, 5 in. limit, Mr R. E. Palmer (Leominster, T. Thornton Wills Cup); Veiltails, Mr S. Grimston (Spencer trophy); moors, Mr A. E. Roberts (Birmingham, A Brooks Cup); telescopes (other than moors), Mr H. Jago (B.A.S. Cup); orandas, Mr A. E. Roberts (J. Savage Cup); nymphs and comets, Mrs M. E. Brock (Bristol); fantails, scaled, Mr S. Lloyd (Bristol, A. W. Rudge Cup); fantails, calico, Mr C. H. Barrett (B.A.S. Cup); a.o.v. pond or river 9 in. limit, Mr V. Collins (G. Harper trophy).

Bristol shubunkins bred 1968, Mr R. Oxenham (Mrs Blunsden Cup); moors bred 1968, Mr A. E. Roberts (C. T. Whitehead Cup); a.o.v. fish bred 1968, Mr R. J. King (R. G. Watson Cup); breeders class (4 fancy fish bred 1968, Bristol shubunkins, comets, goldfish), Mr R. Oxenham (S. T. Davis trophy); breeders class (4 fancy fish bred 1968, veiltails, moore, fantails, nymphs), Mr H. T. Jago (Coldwater trophy); Bristol shubunkins, matched pairs, Mr M. L. Annelly (Beryl Hill Cup); novice class, Bristol shubunkin 5 in. limit Mr W. H. Clark (L. Emery Cup).

Coldwater aquaria, Mr W. G. Bryant (Bristol, Zenas Webb Cup); tropical aquaria, Mrs C. Allinson (Bristol, J. S. Werry Goblet); coldwater plants, Miss A. H. Morgan (Bristol); tropical plant, Miss A. H. Morgan.

Fighting fish, Mr F. Brown (Lowell Baldwin Cup); labyrinths, Mr N. L. Gregory (Bristol, J. T. Robinson Cup); barbs, Mr R. Watts (Bristol, J. H. King Cup); characins, Mr W. G. Ham (Bristol, O. E. Organ Cup); a.o.v. characins, Mr A. G. Cox (Donaldson Brown trophy); a.o.v. egg-layers, Mr J. D. Fellows (Malcolm Bellis Goblet).

Catfish, Mr F. Brown; guppies, longtail,



Mr F. Brown; shorttail, Mr K. G. Pearce; females, Mr F. Brown; swordtails, Mr N. L. Gregory (Keynham Cup); a.o.v. livebearers, Mrs C. Allinson (Bristol); tropical breeders, class 4 livebearers 1968, Mr F. Brown (R. James Cup); tropical breeders, class 4 egglayers 1968, Mr F. Brown (Surrey Cup); marine exhibits, Mr C. Craddock (B.A.S. Goblet).

Bristol A.S. have now regained the Shirley Aquatic Shield from M.A.P.S., having gained 61 points at Birmingham whilst M.A.P.S. scored 37 points at Bristol.

At the post-mortem held on the Show afterwards, it was suggested that possibly the high standard of coldwater fishes found in the west country had relaxed slightly and it was felt that further discussions would have to take place to decide what steps Bristol A.S. as a club could take to ensure that this trend was kept to a minimum.

AT the A.G.M. of **BASINGSTOKE & D.A.S.** a very healthy state of affairs was reported—higher attendances at meetings and a balance well above that of the previous year. A very successful annual open show had produced appreciative letters from a large area in the south. A further healthy sign was the number of candidates who were nominated for the various posts. The committee elected was: chairman, Mr R. Ridley; vice-chairman, Mr F. Lange; secretary, Mr H. F. Gough; treasurer, Mrs J. Lovegrove; show secretary, Mr A. Blake; show manager, Mr D. H. Walls; members, Mrs P. M. Gough, Mr I. Lamb, Mr A. Marshall. It was agreed that in view of the ever-increasing number of junior members, one should be elected to serve on the committee and the member elected was R. Blight. Three Counties delegates, Mr A. Blake, Mr D. Walls; F.B.A.S. delegate, Mr D. Walls; auditors, Mr T. Erry, Mr A. Mustart.

From Friday, 10th January, meetings are to be held at two-weekly intervals instead of the second and fourth Fridays in the month.

**CLASS** winners in the inter-club table show held by the **EASTERN REGION** of the **ASSOCIATION OF SOUTHERN AQUARIST SOCIETIES** in early November were:

Singletailed goldfish, Mr C. Beets (Portsmouth); twintailed goldfish, Mr W. Stokes (Portsmouth); a.o.s. coldwater fish, Mr J. Stillwell (Portsmouth). Guppies, Mr C. Beets (Portsmouth); o.a.v. livebearers, Mr C. Beets (Portsmouth). Cichlids, Mr J. Stillwell (Portsmouth); barbs, Mr D. V. Jones (Southampton); danios, rasboras and minnows, Mr S. Crabtree (Portsmouth). Characins, Mr C. Beets (Portsmouth); catfish,

Mr C. Smith (Portsmouth); labyrinths, Mr P. Bennett (Winchester); a.o.s. tropical fish, Mrs Wright.

IT was a case of battling with the elements to arrive at the **BLACKPOOL & FYLDE A.S.** open show this year, but competitors from 32 clubs produced 364 entries for judges Mr C. Walker, Mr S. Naismith and Mr M. Jones to consider. Mr Ken Parkes of Merseyside won the Blackpool Tower Co. trophy for the best fish in the show with his tin-foil barb (89 pts). The Jessie Fletcher Memorial trophy for the best fish in show entered by a lady went to Miss L. Bradley of Swillington. The winner of the Peck trophy for the best fish shown by a club member other than the best fish trophy was Mr C. Jones. Mr C. Jones also won the Newton trophy for the member gaining most awards. The Lewis's (Ranella) trophy for the club gaining most points overall went to Merseyside with 19 points. The star prize for the exhibitor gaining the highest number of points overall went to Mrs R. Standen of Loynes and the runner up was Master P. Reynolds of Swillington.

Class winners were the following.

Members' furnished tropical aquaria (Councillor Cross trophy), Mr B. Littler (Blackpool, 70). Open individual coldwater furnished aquaria (Blackpool & Fylde A.S. silver challenge trophy), Mr B. Simmons (Blackpool, 83). Open individual tropical

furnished aquaria (Silver Challenge trophy presented by Corporation of Blackpool), M. P. Reynolds (Swillington, 86).

Coldwater fish. Common goldfish, Miss J. Baxter (Northern Goldfish, 75); shubunkins, Mr E. W. Eadon (Sheffield, 81); fancy goldfish, Mr S. Walsh (Accrington 82, Jackson trophy); a.o.v. coldwater fish Mr E. W. Eadon (Sheffield, 80).

Livebearers. Swordtails, Mrs R. Stands (Loynes, 73); platys, Mr G. E. Cox (Nunston, 72); mollies, Mrs R. Standen (Loynes 68); guppies, Mr D. W. Smith (Tadcaster 78, Blackpool & Fylde A.S. trophy); a.o.v. livebearers, M. & W. (Sunnybrow, 62).

Characins. Size up to bleeding bear Mr R. Lord (Rochdale, 82, Robinson trophy); a.o.v. characins, Mr J. A. Whiteley (Aireborough, 76). Labyrinths: Miss J. Bradley (Swillington, 84). Fighters, Mr J. Taylor (Aireborough, 68, Hadley trophy).

Minnows and barbs. Minnows, Mr I. Thornmalla (Merseyside, 76); labos on sharks, Mr D. Thornmalla (Merseyside, 74); barbs up to 3½ in., Mrs R. Standen (Loynes 82); a.o.v. barbs, Mr K. Parkes (Merseyside 80, Partington trophy). Killifish, Mr C. Jones (Blackpool, 74, Childs trophy).

Cichlids. Dwarf, Mr C. Jones (Blackpool 78); angels, Mr R. Tomkinson (Glossop, 75); a.o.v. cichlids, Mr P. A. Devine (Ashton under-Lyne, 80). Ethernation trophy. Catfish, Mr A. G. Esteres (Top Ten, 8 Inter-Pet Shield); loaches, Mr W. Parki (Huddersfield, 84, Clifford Cross Shield); a.o.v. tropical, Mrs R. Standen (Loynes, 8 Lyndene trophy).

Pairs classes. Livebearers, Mr D. Ridvat (Leigh, 76); egglayers, Mr F. Mulla (Merseyside, 81, Pearson trophy).

Breeders' classes. Coldwater, Mr B. Doe (Blackpool, 80); livebearers, Mr W. Orton (Salford, 75); egglayers, Mr E. Wood (Bury, 81, Fylde Cinemas Rose Bowl).

Single tropical marine fish, Mr J. Addison (Warrington, 78, Marjorie Fabry trophy).

Schools and schoolchildrens classe Schools' furnished aquaria, Bailey Seconda School (Blackpool, Silver Challenge trophy schoolchildrens' individual furnished aquaria Master K. McPherson (Bailey Seconda School, Challenge Shield).

## In Brief . . .

. . . A NEW section of the **FANCY GUPPY ASSOCIATION** is about to be formed in the Poole-Bournemouth area. Anyone interested is asked to write to, call upon or telephone any evening Mr G. R. Davis, 25 Scarf Road, Canford Heath, Poole, Dorset (Poole 5050).

. . . 53 out of the 80 people present at the first full meeting joined the re-formed **GRIMSBY & CLEE A.S.** Mr R. Cullam was elected chairman, and Mr L. Evans treasurer. Details of membership from secretary Mr C. Freear, 23 Lindsey Drive, Healing, Nr Grimsby, Lincs.

. . . Mr R. BILLING won the **LEEK & D.A.S.** 'Aquarist of the Year' cup and Garry Thompson, aged 8, the shield for the 'Junior Aquarist'. The committee for next year elected at the A.G.M. is: Mr W. Ash; vice-chairman, Mr F. Clowes; secretary, Mr C. K. Morris; show secretary, Mr M. Gerrard; treasurer, Mr P. Ormeroyd; committee, Mr R. Tunnicliffe, Mr G. Thompson and Mr F. Myatt. The

programme for the year can be seen at Pets Corner, Stockwell Street.

. . . CHANGE of officers for **READING & D. A.S.** The new Chairman is Mr C. Masters, and the secretary is now Mr P. Merritt (1 Short Street, Caversham, Reading Berks).

. . . NEWLY formed is the **NORWICH & D. A.S.** The present membership of 17 meets on alternate Thursdays at the Grove Hotel Newmarket Road, Norwich and new members are invited to attend. A temporary committee has been formed with Mr P. Groves as chairman and Mr T. Garner (4 Silfield Road Wymondham) as secretary.

. . . THE FIRST meeting of the new **HINCKLEY & D. A.S.** took place in October. Details from secretary Mr R. Worth, 14 Netherby Road Hinckley, Leics.

. . . OFFICIALS elected at the **FREELANCE A.S.** A.G.M. were chairman, Mr A. Howes; secretary, Mr P. Durham (103 Waverley Road Plumstead, London, S.E.18); treasurer, Mrs E. Kenyon; show secretary, Mr F. Kendrick; committee, Mr J. Fullman, Mr B. Ford, Mr Ackland.



... The **BRITISH AQUARIST STUDY SOCIETY (BASS)** elected the following officers at its annual general meeting: president, Mr D. Cook; chairman, Mr H. J. Aylott; vice-chairman, Mr P. Bird; secretary, Mr F. Tomkins; treasurer, Mr F. Keens. At this meeting Mr Phillip Gurr lectured on the history of modern fish, illustrated with slides and fossil specimens, and Mr Frank Tomkins and Mr Brian Hawkins (F.G.A.) gave a talk on the guppy. The meeting closed with a visit to the Aquarium of the London Zoo.

... AN association called the **SOUTH THAMES AQUARIST GROUP** has been formed to promote inter-club activities amongst member clubs. The elected committee are: chairman, Mr R. E. Dudley (S.P.A.S.); secretary, Mr G. Licence (Croydon); treasurer, Mr P. M. Howes (Freelance); committee, Mr Leaver (Lavengro); Mr C. Fellerman (Clapham). Clubs already affiliated are Clapham, Croydon, Dulwich, Freelance, Lavengro, South Park. Other clubs south of the Thames will be welcomed and should contact the secretary at 217 Morland Road, Croydon, CRO 6HE, Surrey.

... A MERRY Christmas to all from **BRACKNELL A.S.** (the 'District' has been dropped from their name). Reports at the A.G.M. showed a very successful year with the club again retaining the Three Counties Bottle League Cup. Newly elected officers are: president, Mr K. Roberts (landlord of the Admiral Cunningham, where the club meet every first and third Monday in the month); vice-president, Mrs Joyce Roberts; chairman, Mr Alan Keith; vice-chairman, Mr Jack Norris; secretary, Mrs Gill Carter (The Old Court House, Ascot); treasurer, Mr R. Dove; show secretary, Mr Len Little; F.B.A.S. delegate, Mr R. Armstrong; Three Counties delegates, Mr L. Jordan and Mr M. Carter; publicity, Mr T. Cockett.

... OFFICERS elected at the third A.G.M. of **LYTHAM A.S.** were: chairman, Mr E. Smith; secretary, Mr K. Townsend, assistant secretary, Miss W. Tarr (240 Heyhouses Lane, Lytham St. Annes, Lancs.); treasurer, Mr D. Richardson; show secretary, Mr E. Smith; assistant show secretary, Mr E. England; editor, Mr E. Thomson. President is Mr Jim Kelly.

... THE lecture by Mr R. Esson of the F.B.A.S. was the highlight of a most enjoyable evening for fellow club members at **RIVERSIDE A.S.** meetings are held on alternate Mondays at 8.00 p.m. at Blythe Hall,

Blythe Road, Hammersmith). At the table show, Mr M. Goss took first place with a Jack Dempsey and Mr Buckland second and third. Members were very pleased to see visitor Mr Armour win the raffle. Further details from secretary Mr C. Buckland (Riverside 9380).

... **MR B. SALSBUURY** of **HARLOW A.S.** had a double success in winning the club furnished aquarium competition both at the Mid-Herts open show and at the Reigate & Redhill show the following day. Club members have visited the Brighton Aquarium, where they were shown behind the scenes by the assistant curator, and the London Zoo Aquarium.

## Badge of the Month



**Mid-Herts Aquarist Society** Secretary, Mr T. Summers, 29 Beaconsfield Road, St Albans, Herts.

... NEW officers for **SWILLINGTON A.S.** are: president, Mr P. Reynolds; vice-president, Mr W. Emmett; treasurer, Mr R. Stringer; show secretary, Mr W. Gawthorne; social secretary, Mrs Stringer. Mr G. Nash was re-elected secretary, and Mr P. Reynolds is also publicity officer (60 Lawrence Road, Leeds 8, Yorks.). Members have enjoyed talks on filtration by Mr W. Emmett, on fish foods and feeding in relation to the needs of the fish by Mr K. Bateman and crossword quiz and taped musical quiz provided by Mr Emmett. Table show winners have been: plants, 1, 2 and 3, M. & J. Linden. Furnished jars: 1, Mr M. Linden; 2, Mr and Mrs Flint; 3, Mr and Mrs Stringer. Large cichlids: 1, Mr G. Binks; 2, Mr W. Gawthorne. Small cichlids: 1, M. & J. Linden; 2, Mr G. Nash; 3, Mr M. Cole. Livebearer pairs: 1, Mrs Emmett; 2, Mr and Mrs Stringer; 3, Mr G. Nash.

... THE badge of the **SURROUNDING AREA OF KETTERING**

**AQUARIST SOCIETY** shows an Oscar and was designed by the wife of the secretary Mr Peter Turner-Downing after many hours spent watching the fish. The club is 2 months old and meets twice monthly, the first Friday in the month being the main meeting held at the Rockingham Road Girls School, Kettering. New members will be made very welcome and should contact Mr Downing at 9 Channing Street, Kettering.

... **DETAILS** have now reached us of **BRAMPTON A.S.** The club meets on fortnightly Mondays at 7.45 p.m. at the Morton Youth & Community Centre, Carlisle (next meeting 2nd December). The chairman is Mr R. Baxter and the treasurer Mr R. M. Colman. Recent activities have included a course of lectures for beginners, the production of a quarterly newsletter, and a visit to the B.A.F. in Manchester. Prospective new members will be very welcome and should contact secretary Mr N. R. Goldsmith, 4 Dacre Road, Brampton, Cumberland.

... **NEW FOREST A.S.** (meeting on the third Monday of the month at Lymington Community Centre) were given a practical demonstration by fellow member Mr Colin Knapp on glazing tanks, followed by a discussion on the merits of various treatments of the metal frame. Club member Mr Ron Moseley then described his experiences in keeping and breeding cichlids, *Apistogramma agassizi* and *A. ramirezi*, illustrated by his own excellent colour slides. Table show results, judged by Mr K. Hinton and Mr D. Harding were: shubunkins: 1 and 2, Mr D. Letts; 3, Mr R. Travers. Breeders trophy: 1, Mr M. Lee; 2 and 3, Mr R. Moseley. Two special awards were given to fish shown by Mr L. Menhennett.

... **WINNERS** of the October table show at **HORSFORTH A.S.** were: Specified class: 1, Mr C. J. Tate; 2, Mr A. Jobbins; 3, Mr Bowland. A.o.v. 1, Mrs P. Hall; 2, Mr C. J. Girndham; 3, Mr W. Andsley. A.o.v. juniors: 1, Master D. Shaw; 2, Master S. Elstob; 3, Master S. Holmes.

... **MR ALBERT VILLIERS** greatly entertained the members of **TONBRIDGE & D. A.S.** with his talk and film about his experiences collecting tubifex, a recital laced with many humorous anecdotes which delighted the club members. The current leaders in the club trophy competition are vice-chairman, Mr John Bellingham and secretary, Mr I. Mathieson, with 15 points each.



## Classified ADVERTISEMENTS

### AQUATIC SUPPLIERS

**TROPICAL FISH AND PLANTS.** Fresh supplies weekly. Food, tanks, accessories. Ronada Ltd, 153 Queen's Rd, Blackburn (phone 57654). Opposite Queen's Park Flats. Open 6 days, 9.30 a.m.-6.0 p.m.; Closed all day Monday.

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*Continued on page 39*



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

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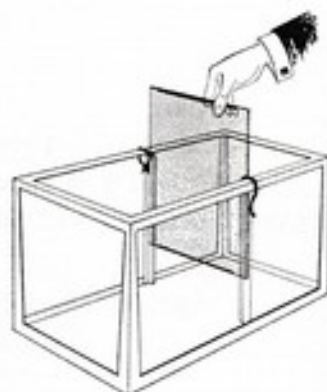
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