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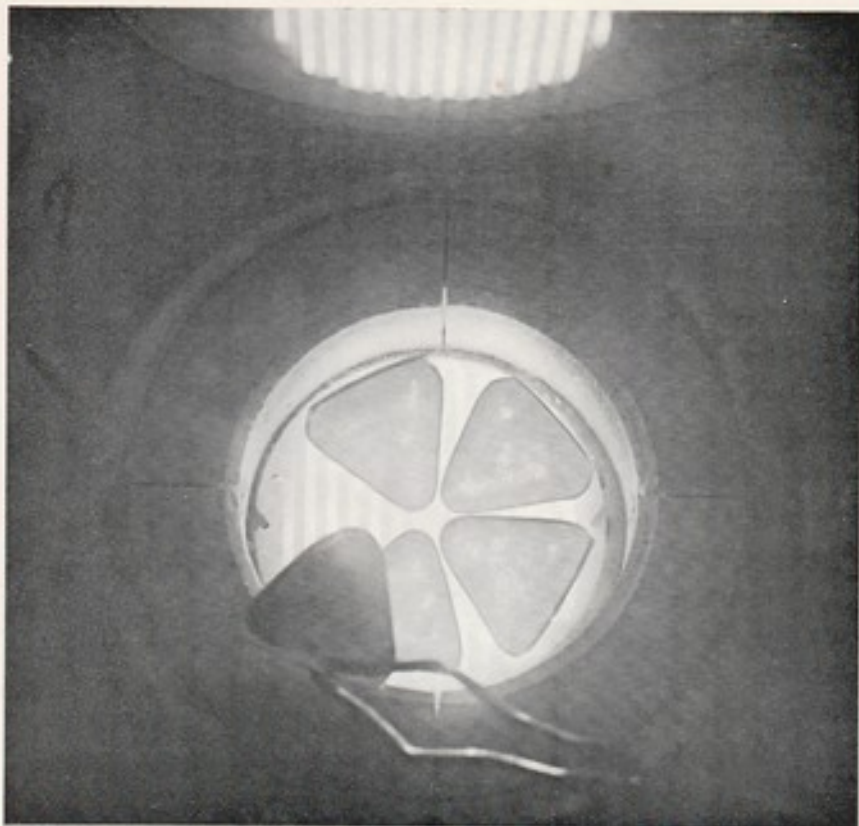


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Vol. 4 No. 2

May 1969

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Editor: Anthony Evans

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Comments and Quotes

- Safety first when collecting from natural waters
- Research into effects of chlorine on carp

Out and About

GETTING out and about, for the purposes suggested by Mr D. Smalley in his article this month, seems a very practical way for fish-keepers to get their share of country air (maybe even a little sunshine as well) during the summer months. To catch one's own supply of live foods and perhaps collect some useful pond plants are aims with appeal, although we were reminded of some dangers in this when reading a recent scientific report.

This report gave the results of a survey made by Dr J. C. Chubb of parasites occurring on fishes in the Shropshire Union Canal, Cheshire. On 853 fishes netted (mostly roach and perch, with some bream, pike and eels), 27 different kinds of parasites were found. Among these were some species that are far from rare in aquaria: white spot was found on the skin of roach and gill flukes abounded in the fishes examined. None of the infestations was judged by the investigators to be of proportions that would cause large-scale deaths of fishes. However, fish-keepers know too well that degrees of parasitism tolerated by fishes in the wild soon increase in the small volume of the aquarium or garden pond to be a killer.

If your out and about activities take you to natural waters that are occupied by fishes, do not be tempted to use live stock from them in your aquaria or ponds without first

screening (live foods) and quarantining or disinfecting where possible (water plants). The dangers are not imaginary ones!

Chlorine a Carp Killer

THE hazard of placing fish in a tankful of water newly drawn from a tap is one that is well known and largely appreciated by aquarists, who take steps to disperse the chlorine that may be present by allowing the water to stand for a few days, by agitating the freshly drawn water or by adding to it one of the aquarium-keeping aids sold for this purpose. That the threat is very real and a source of loss for commercial fisheries has now been illustrated by recent research undertaken by three Polish biologists of the fisheries department of Warsaw Agricultural University on the effect of chlorine on carp. Carp kept in ponds are used quite extensively as food in central Europe and research was undertaken because of the increasing practice of European municipal water authorities to chlorinate the water. It was found that as little as 0.1 to 0.2 milligrams of chlorine per litre of water could cause the carp to die within a day or two. Particularly at low temperatures, the fish's breathing becomes shallow, the fish become sluggish and death follows within 30 to 40 hours. The remedy suggested by the research workers for commercial fisheries is that, where the water is known to be chlorinated, it should be filtered through peat.



OBITUARY

Dr William Thornton Innes

1874—1969

WILLIAM T. INNES is dead. To the younger generation of aquarists this may not mean so much, but to those of us who saw the formative years of the hobby between the two great wars, it marks the end of an era. In those days 'Bill' Innes was a father-figure to us all, his monthly magazine *THE AQUARIUM* kept us constantly informed and his great book *EXOTIC AQUARIUM FISHES* was our *vade mecum*. His friendliness, enthusiasm and shrewd observation illuminated everything he wrote.

In 1874, only nine years after the end of the American Civil War, William Thornton Innes was born in Philadelphia. After a formal education, young William began his career as a copyholder in his father's printing business, soon became a director and eventually, on his father's retirement, carried on the firm with his brother.

In the meantime he had married and had become fascinated by the fancy goldfish that began to find their way into the western world about that time as part of the fall-out from intrusions into Imperial China. From there his interest extended to other kinds of fish and his first book began to take shape.

Naturally, having a printing concern at his command gave him a long start over the majority of authors; it enabled him to produce a better format at lower price. But this has little to do with the success of his works. He knew his subject and he was able to expound it in direct, lucid style—attributes seldom found together in the works of his successors.

He contributed a great amount to our knowledge of fishes, but did not think of himself as an ichthyologist. Indeed, he seemed always to be rather awed by the conventional ichthyologists working on pickled specimens in museums and writing papers intelligible only to a few others doing the same in other museums. I doubt whether he ever realised what an important part he played in re-directing ichthyology from the study of the dead to the study of the living fish. He was touchingly flattered when I once referred to him as a distinguished ichthyologist, but he certainly was that.

This first book of his was called *GOLDFISH VARIETIES AND TROPICAL AQUARIUM FISHES*. It appeared in 1917, the darkest period of the Great War, but with the coming of peace a year later it stimulated a war-weary people eager for fruitful relaxation. The book went into edition after edition and the hobby of aquarium-keeping grew apace.

In Europe, too, great things were afoot. Germany, always a pioneer in this field, had not only a monthly magazine but also a weekly journal devoted to aquaria, while the first British periodical appeared in 1924.

With the hobby there developed a trade to meet its demands, and by 1929 technique had so improved that a

new book was published by Innes—*THE MODERN AQUARIUM*.

At that time America was faced with a growing economic crisis and it is probably not an accident that the launching of the magazine *THE AQUARIUM* in 1929 coincided with Roosevelt's New Deal.

The hobby was soon booming and collectors were scouring the tropics to find novelties for the home aquarium. Many of these came to the hand of Innes, who described and pictured them in the magazine after getting them scientifically dealt with by his revered ichthyologists, particularly Dr (now Professor) George Myers. Some of these introductions proved to be previously unknown and new scientific names had to be devised for them.

In 1936 a French collector found a living jewel—the neon fish—familiar enough now, but a breath-taking discovery at the time. Myers named it *Hyphessobrycon innesi*, thereby associating one of the loveliest things in the aquarium with the name of William T. Innes for a time.*

The year 1935 saw the publication of *EXOTIC AQUARIUM FISHES*, his greatest monument. It set a quite new standard in text, layout and illustration and no serious aquarist could afford to be without it. The first edition was soon out of print, but in any case the flood of new introductions made a revised version necessary. Indeed, from that time on there was a steady succession of one new edition after another. In each, some of the older species were dropped to make room for new ones in order to keep the volume in manageable size. As a result, most of us accumulated rows of Innes editions on our shelves, for completeness.

"When in doubt, consult Innes" became the watchword and for some of us this is still true, for although many other works have been produced since, the best of them owe a good deal to Innes and none of them has improved on his method of presentation.

His first book, *GOLDFISH VARIETIES* etc., which has survived fifteen editions, was replaced in 1945 by *GOLD FISH AND WATER GARDENS* in which the old material was refurbished and provided with some beautiful coloured plates of water lilies. At this time he also produced a smaller book, *YOUR AQUARIUM*, to help revive interest immediately after the Second World War.

As might be expected, Innes was much honoured both in the aquarium world and in the printing profession, and served as president or chairman of a number of bodies. He was a member of the American Museum of Natural

Continued on page 6

* See commemorative article on page 68.

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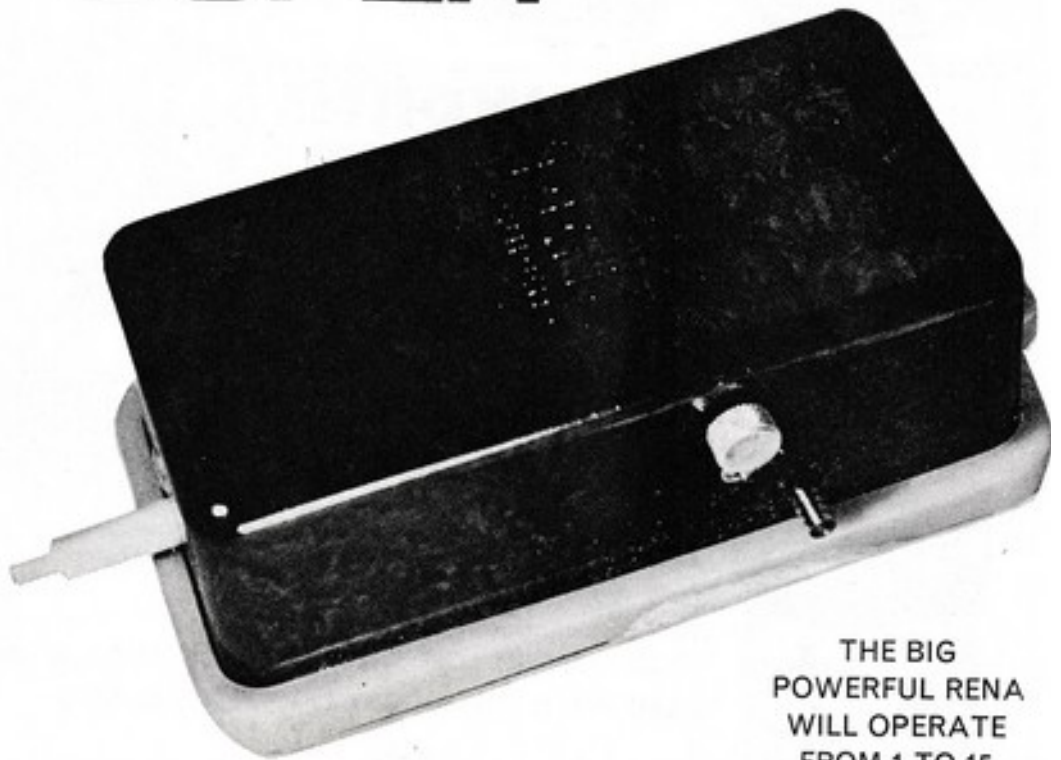
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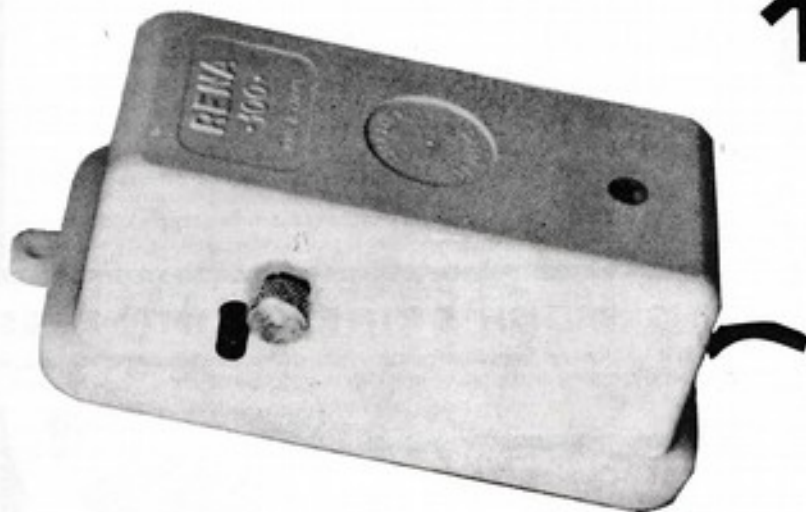
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TURN TO PAGES 91 and 92 for other interesting news from K.B. Tropical Fish.

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LETTERS

Society Tapes

THANK you for helping many club committee members to sleep more easily at night by suggesting, in your March editorial, an interesting way to while away an hour or so at meetings. As you state, the idea of corresponding on tape is not new. Many aquarists, myself included, have friends all over the world, few of whom they are ever likely to meet. But very few clubs have corresponded as a body, mainly, I am sure, because of a lack of the kind of publicity which you are now prepared to offer. Before you commit yourself to publishing what may be pages of unnecessary print, may I suggest a few 'Rules of Play'?

Any number of tracks, usually two or four, may be recorded on a tape in either of two modes, monaural or stereophonic, at any of four preferred speeds, on any size of reel. It is obvious that a standardised tape is essential. I suggest the most universally acceptable tape: recorded monaurally on two tracks, at 3½ inches (9.5 cm.) per second, on a 5-inch reel. Such a tape, I realise, would cramp the style of clubs with access to elaborate tape recorders, but it would ensure that those with less sophisticated machines were able to participate in the exchanges. Battery portable recorders are not suitable unless they are of the 'constant speed' type.

I recommend the use of standard-play tapes rather than the thinner double or triple-play kinds. Some tape recorders are prone to 'snatch' tapes on starting or stopping, which results in the stretching and eventual breakage of thinner tapes. A standard-play tape, recorded as suggested, allows up to an hour of recording time—enough for most meetings!

So much for technicalities; now, the ethics of tape recording. Do not discuss other clubs or individuals in a derogatory way; tapespondents, though geographically diverse, form a very small world! Bear in mind that PETFISH MONTHLY has a worldwide circulation, and foreign clubs may wish to participate. Religion, politics and national customs are unlikely to be major subjects on aquarist societies' tapes, but it is still easy to cause offence. Treat incoming tapes as you would wish your own to be treated; do not handle them roughly, expose them to heat or magnetic sources, or retain them for longer than is necessary. Return each tape in the way in which it arrived, i.e. surface or airmail, first or second class mail, registered post, or Phonopost. (Club treasurers are advised to enquire at any post office for details of Phonopost rates and conditions.)

I urge all committees to consider taking part in this exchange, however reluctant their members may be to talk into a microphone. One or two 'flops' may be inevitable, but eventually we shall all be producing

tapes of a professional quality and providing each other with easily obtained programmes.

I look forward to a long and interesting series of tape exchanges through the medium of PETFISH MONTHLY.

Wittering, Peterborough

RAY S. HOLMES

WITH regard to your comments on tape discussion and programmes between clubs in the March PFM, this sounds a good idea as many societies have to rely on local knowledge. However, I doubt whether a coherent tape would result from general club meetings. Having been a member of a few tape-sponding circles I think it would be better if individuals were to record their experiences in various aspects of the hobby and this recording could then be played at a general meeting of the recipient society. I would further like to suggest an idea whereby PFM compiled a list of individual aquarists who would be willing to tape-spond with one another, similar to the ones which appear in the tape magazine.

Tareis, Chester

R. DUTTON

We are willing to publish names and addresses of aquarists who would like to exchange tapes in the way suggested by Mr Dutton.—220703.

Low Voltage Lighting

A TYPING error produced the fault in our article that was referred to by Mr E. J. Byatt in Letters (PFM, March). Our diagram in the January issue was correct but the text wording should have been: 'A transformer is used to convert the mains supply to, say, 6 or 12 volts AC'. There is absolutely no need to convert to DC for low-voltage lighting.

Falmouth, Cornwall

D. BROWN

J. BROWN

Minimum Requirements for Marines

I ENJOYED that article on 'Minimum Requirements for Marine Fish' (PFM, January) as this is right down my line. Expensive equipment doesn't ensure success.

People do not need all that expensive equipment to keep salt water fish. In fact, I would say that invariably the hobbyist with the huge tank, ozoniser, skimmer and all types of elaborate equipment usually has nothing but problems with his fish.

I always stress a small tank, 10-20 gallons, with a sub-sand filter and a small outside filter containing activated carbon. Let the bubbler stems from the sub-sand filter give off a strong surge of bubbles, which will both aerate and filtrate the aquarium.

In the past 18 years, while working with salt water fish full time, I have set up well over a thousand salt water tanks from 2 gallons to 8 ft. giants. I have tried all of the fancy and expensive equipment and still feel that the simple sub-sand filter method as mentioned above is by

far the most practical. Not only is it less expensive but it actually works better! We have thousands of marine aquarists here and I personally do not know any who are using ozone at the present time. Practically every aquarist is using the sub-sand filter method, which I developed many years ago. It works!

Florida, U.S.A.

ROBERT P. L. STRAUGHAN
Editor, SALT WATER AQUARIUM MAGAZINE

Cover Glass Supports

I READ with interest the Aqua-tip in PFM for February. The top-glass clip seemed to me to be most complicated and I should like to add my idea.

Any sort of metal clip has been a bugbear to me until I struck on the idea of doing away with them altogether, simply by cutting the top glass to fit between the ends of the tank frame and gluing four small pieces of glass to each corner of the top glass with leftovers of Dow Corning cement, to overlap the edges of the top glass and rest on the tank frame. These pieces of glass can be of any shape, including long narrow strips the full length of the tank.

Plymouth, Devon

W. CANN

Aquarium Crab

WHILST on the beach last year in June, I collected several shrimps and shore crabs, which I introduced to my marine aquaria at home. Out of the two crabs I collected, which were each about the size of a small fingernail, one has grown to 3 inches across the body (feeding has been mostly with garden worms) but the other one has increased to only 1 inch. They are in a 24 in. by 12 in. by 12 in. tank at a temperature of between 72° and 75°F, water density 1.025 and with an undergravel filter.

There are about half-a-dozen fully grown guppies and several of their offspring in the tank with the crabs. A week ago the largest crab started to make frustrated efforts at escaping from the tank, although up to this time it had been content to remain in its confined space. After two days of these efforts and being generally aggressive to me and all other occupants of the tank, it buried itself in the gravel. After a further two days it (or she, as I now know her to be) re-appeared with a great cluster of eggs under her belly. I estimate that there are between two and three thousand eggs. The eggs are each about the size of a pin-head and yellow in colour.

Unfortunately I do not seem to have a mate to fertilise them. Either the other crab that is in the tank is too small, or it also is a female. As I write this letter, she is terminating the episode abruptly by eating her eggs. Perhaps a helpful fellow marine aquarist will assist by sending a mate for my frustrated crab. Then, who knows?

Bourne End, Bucks.

A. M. J. WOOD

Arpee's Cryptocorynes

ON reading in 'Personal Comment' the December and March issues of PFM of Arpee's loss of the *Cryptocoryne* plants, I feel I might be able to shed a little light on the cause of the loss. I, too, had a similar

incident about 2 years ago, but not by the introduction of tree branches.

At the time of my trouble I could not understand why every *Cryptocoryne* plant in the tank should change from fine healthy plants into a mass of rotten jelly-like substance in the space of 18 hours. I might add that this tank had been established some 4 years and contained *Cabomba* and Amazon sword plants as well as 1 *Cryptocoryne* plants, the last named forming a complete carpet over at least two-thirds of the tank. The fish in the tank consisted of a shoal of cardinals and harlequin

My theory on the cause of the trouble is based on the conclusions reached by discussions with some of the aquarist friends, some of whom have been keeping fish for around 20 years or more. At one time or another most of them had suffered the same trouble, always in tanks that had been established for at least 2 years and containing mostly *Cryptocoryne* species, which suffer the same rapid decomposition in every case. Most of them cleared out their offending tank completely and started again from scratch, but one of my friends at myself decided to leave the tanks in question alone after cleaning out all the dead vegetation. In both cases after a period of some 2 months the *Cryptocoryne* plants began sending out new leaves and are now growing quite normally again.

When we discussed these incidents one evening, one common factor came out in every case and this was the increase in temperature of the tank water due to either a faulty thermostat, or, in one case, the tiny fingers of my friend's young daughter turning up the control of the external thermostat. The temperature in every case reached at least 94°F and in some cases the fish died and in some they survived; also only *Cryptocoryne* plants were affected and not any other species of plant. There is a possibility that a build-up of mineral salts etc., amassed over the years in an old-established tank could be related to these incidents and be triggered off into a chemical reaction at higher temperatures. We already know that 'temporary hardness' can be removed from water by boiling; in fact the lime content is deposited on the sides of the vessel used when the temperature reaches 150°F, so possibly a similar reaction takes place in old-established fish tanks.

I hope this helps to solve the mysterious collapse of *Cryptocoryne* plants in tanks, which I am sure a lot of your readers have experienced and have been told is due to something put into the tank or to 'crypto-disease'. I have in my fish house a tank planted with only *Cryptocoryne* species and it has been set up for about 2 years. I am intending to try an experiment on it later this year to see if my theory is right.

May I take this opportunity to say how much I enjoy reading Arpee's 'Personal Comment' in PFM and hope his *Cryptocoryne* plants are growing once more.

Leeds, 17

G. BINK

Little'uns Do Come Off Best

I AM of the opinion that Mr Crabbe's letter regarding the judging of fish (PFM, March) badly misinterpreted Mr C. A. T. Brown's explanation (PFM, January). Mr Crabbe takes a very small point from Mr Brown's excellent explanatory letter and makes this comment 'If this award (Best Fish in Show) is recognised, as he suggests, simply as "a means of giving another award"

it does seem that some way of allowing for judges' bias towards large size ought to be found'. He goes on to say 'Invariably, the awards go to the biggest fish and not to the good little'uns'.

From the tone of Mr Crabbe's letter, I should imagine that he does not show in the north or north Midlands, where, more often than not, there are four judges and the judging is done in pairs. This, in itself, eliminates most of the bias for large or small fish. My wife and myself exhibit almost every weekend during the show season and have won 'Best Fish in Show' with the following: dwarf gourami, ramirezi, reitzigi, swordtail, fighter and orange chromide, the last named being the Champion of Champions at the British Aquarists' Festival, Belle Vue, 1968. We also show large fish, but have always had more success with small ones.

Workop, Notts.

J. DERNIE

Fifty Per Cent Success

WITH reference to the letter from D. Crabbe of Bristol on the subject of large fish always receiving the award for 'Best in Show' (PFM, March)—last year I entered fish in about ten open shows and although I was not lucky enough to receive the best fish award, I would like to list some of those that I remember: Hendon—tiger barb; Uxbridge—*Corydoras*; Reading—one of the small pencil fish; Brighton—*Corydoras*; Mid-Herts.—*Aphyosemion australe*.

These are just the ones I can remember off-hand, but five out of ten is not a bad average for the 'little-uns'!

CHARLES S. A. WITHERS
Show secretary, Mid-Herts. A.S.

Transatlantic TOPICS

CONSIDERING the high prices asked for marine fishes in Great Britain, it's small wonder that this branch of the hobby has attracted only a limited number of supporters. These dedicated enthusiasts can take heart from a report reaching me that the keeping of marine fishes in aquaria is booming in the State of Florida!

Inhabitants of the Sunshine State don't have to worry if their lack of specialized piscatorial knowledge results in the decimation of their tanks; they merely don underwater diving equipment and go out and collect some more—free! That should cause an envious 'snorkel' over here.

* * *

During the last 30-odd years of American aquatic shows only two albino fighters (*Betta splendens*) have ever come to light; now a third has been added to the short-list by the appearance of a specimen at a Fort Lauderdale, Florida, Show.

Correction! That should read 'fourth', because Barney Cox, energetic and enthusiastic editor of the 'Underwater Gazette', South Suburban A.S. publication, Illinois, purchased an albino *Betta* at a fish auction in the Windy City some 3 years back.

Despite the expertise of both Barney and a professional dealer friend, Duke Deacons, they failed to get the fish to mate with other

By JIM KELLY

fighters. The unhappy end to this tale came when our rarity committed suicide and ended his splendid life as a celebrity on the floor of the fish house. Maybe the stories about albino fish having poor eyesight will be strengthened by the final short-sighted act of this *Betta*?

* * *

The average American fish club might not be able to boast the large attendances at our meetings over here, but American clubs lick us to a frazzle when it comes to extramural activities for members.

Attempting to widen the interest of fishkeepers outside of the regular club meeting and the annual show is a difficult task, but I think that our efforts by comparison are just about as authentic as King Alfred's cakes or George Washington's little axe. The hobby to our American cousins means a 'togetherness' that embraces all the social activities from outings and picnics even to shared holidays in the company of fellow members.

Over here, except for the show staff doing all the organising and construction, most shows start for



the aquarist when he walks into the show room, usually around lunch-time. A few exciting minutes follow whilst he struggles with the mystic ritual of benching his entries, then a long break is taken until it is time for prizegiving and the journey home. Although these last remarks don't apply to all our shows they do fit the majority, and even if you don't like them you must admit they are true.

At a show Stateside the first item for the day is a slap-up breakfast for the participants, who come under the title of 'fish baggers and haulers'. They claim that after struggling in a fish room jar-ring entries for the show, you are ready for a bite and a chance to let off steam and simmer down. The club provides this at the home of a member near the hall—expenses paid by the club. One

Continued on page 62

Small Pool Challenge



Photo

JOHN GATES

This lightweight rigid pond is easy to install by placing in a hole of about the same shape and size. Gaps should be filled with dry sand

Encouragement and advice on small pool water gardening for those put off by expense, maintenance fears, or simply not having sufficient space for the larger pond

By JOHN GATES

EVERYONE is captivated by the sight and sound of water in a garden pool. And at some time or other most people with even the smallest patch they can call a garden, have a keen desire to create their own. For many keen gardeners and aquarists the temptation can be resisted for long and soon plans are under way. This is fine for those who have a sufficiently large garden to take the usual 200 gallon pond that find most favour, but others who are fortunate are often discouraged from keeping a pool at all.

The old adage that small ponds are more trouble to maintain than large ones is true only in one respect,

Making a Small Garden Pond from



After the excavation has been made of the size required the hole should be lined with discarded plastic or paper to form a thick pad between the 500 gauge sheeting and the soil



Old plastic bags being layered in the hole



The completed pond made from 500 gauge polythene sheeting as shown in the pictures on the preceding pages

Photo BRIAN FURNER

make use of one of those delightful stone fountain ornaments which are usually set in the middle of large pools. Only instead of putting it in the small pool and so restricting the growing and swimming space, choose an ornament that can stand at the edge of the pond. Suitable ones are themselves small, like the griffin, usually mounted in pairs, the boy on a dolphin, or the lion's mask which is made to set into a wall. On this type of fountain the water is made to fall into the pool below from the figure's mouth. Alternatively, a simple water-course and fall may suit your particular plans better and this will certainly be less expensive.

The water plants can usually be transplanted from April to August or early September, but a newly filled pond should be allowed to stand and mature before introducing them. Four or five days will suffice during which time chlorine will have had time to escape from tap water. Use plastic planting crates for as many plants as possible. The small pool is restricted in just what it can accept in this way but at least the central feature plant, which is most likely to be our friend the lily, should be set in a basket of this type.

Avoid at all costs the temptation to fill the bottom of the pool with medium for planting purposes. If you want to make servicing easy and have proper and complete control over

plants, containers of some description must be used. For marginal plants it is all right to use ordinary clay flower pots, which have the bottom hole slightly enlarged to allow for the exploratory root growth. In all cases use gravel or stones as a top layer to keep the soil in place.

Purchase the largest planting basket the pool can take for the main plant and this will also be able to take about four submerged oxygenating plants. The other plants you will need are: deep marginals, requiring 6-18 inches of water over the top of the planting container; shallow marginals, requiring only up to 6 inches, and a floating plant (which must be chosen carefully for the size of the pool). It is quite easy to over-

crowd the pool so that the fish are hardly ever seen and one tends to forget when buying the plants that they actually grow!

Snails are optional. But the fish are not. Here again it is important not to overstock. Fish will grow to the capacity afforded by vacant swimming space. In other words a small pool with only six fish will allow them to grow to a far larger size than the same pool would with twelve. Select carefully from such fish as the goldfish, shubunkin, comet-tailed goldfish and golden orfe.

Please don't be put off running a pool just because you cannot have the size you wanted at first. Splash out in a small way—you'll be glad you got your feet wet.

Safety Precaution for the Family

PERHAPS the most common objection to having a pool in the garden, where there are young children in the family, comes from the wife. There is no denying that a pool can be a hazard to toddlers free to wander away from the constant watch of mother's eagle eye. And, after all is said and done, if they cannot wander outside in the garden leaving mum to get on with the cooking or making the beds, where can they play? This is a matter for the family concerned but from my own experience I can say that it is not an insurmountable problem. The small pool is perhaps the best compromise as it is an easy matter to make a temporary, transportable cover for a pond of this size. We found that the child's playpen would fit around our pond very well, so this was used whenever our little girl was in the garden and certainly gave us peace of mind.



Personal COMMENT by ARPEE

EXPENSES are generally accepted as being things we should keep down, especially as all the forces we know of seem to be pulling in the opposite direction. I had a particular purge last winter on depressing the electricity bill, as this was one of my accounts which forever seemed to be on the climb. The edge has been taken off the full impact by arranging payment of my annual account by monthly banker's order—this can be applied to any normal electricity account, by the way, if you apply to your local office.

Some quite real economies were achieved by deactivating any tanks that were not actually housing either fish or plants, and some further economies were made by closing up the inmates of two understocked tanks into one, and closing down the other. If you have a few tanks scattered around the house, some in warm rooms, and others in less congenial surroundings, it might be worth regrouping them temporarily in the warmer area to avoid losses from excessive radiation. In the latter event the temperature of the room itself will be raised by the warmth emanating from the tank installation, and this might be a welcome factor from the point of view of the domestic economy.

If you decide to leave your tanks where they are, it would pay to double glaze the fronts with false frames and drop expanded polystyrene sheet between the two glasses each night to seal the warmth in. This would only be worth doing in really cold spots, but it is surprising how many aquarists are faced with situations like this.

A measure towards greater electricity economy would certainly be welcome in the field of switching equipment, and I hope that the day will come when some manufacturer faces this issue squarely. Far too much of our equipment gets wired in more or less permanently, and unless you are electrically minded things get switched on and they stay on, come what may. The cost of this is apparently not great at the time, but it all adds up when the final bill is assembled.

Simple switchboards in varying sizes, and in units that could be interlinked, would be most useful, and I suggest that they would be far safer than some of the terrifying amateur contrivances one sees from time to time. Since my own system puts me in mind of knitted spaghetti, I speak from experience.



The writing of a column like this can never be a solo job, since the reactions of readers are all-important. It is therefore always of interest to hear direct from members of the hobby who have ideas or slants on any theme, however apparently unimportant, because this gives me

something of the feel of the distribution of current problems and of their actual nature.

It seems that more readers get concerned when my light bulbs explode and when my cryptocorynes die than at any other time! Whilst I hope my share of aquatic disasters will never rise much above the average, the kindly interest shown by readers in their rectification makes me quite unashamed in revealing my weaknesses, as I am quite sure there are many fishkeepers in similar straits who are likewise not averse to turning their losses to some account.

The discussion about the losses of cryptocorynes has evinced particular interest, and in the Letters pages of this issue there appears one from Mr Binks of Leeds, who makes the suggestion that a severe temperature change can bring about the breakdown of these plants. I find this a particularly interesting letter because it is stated that a change took place within 18 hours, which is about the same as in my case, and because it contained the suggestion that 'cryptocoryne disease' (whatever that is) was a bit of a red herring. Whilst it is possible that the quite drastic temperature rises referred to might have, in effect, brought about a 'boiling', there was not, in this respect at any rate, a common factor with my own experience.

I think, however, that the writer gives a pointer to the underlying factors of these phenomena when he speaks of the build-up of mineral salts being triggered into some form of activity when the temperature soared. I did not originally accept the salt build-up theory because I was not completely satisfied about what was being poisonous, and further, why the deterioration was sudden and not gradual. I now think I may be a little nearer the truth, and Mr Binks' remarks tend to support the notion that the plants may have suffered from what I can only call osmotic dehydration.

I was about to water some plants in my greenhouse the other day with a liquid containing artificial fertiliser and I noticed, just in time, that the unseasonably hot sun had completely dried out the soil in the pot. I duly watered the plant with plain water first and then applied the liquid fertiliser an hour or so later. You can easily kill a plant, or seriously endanger its existence, by surrounding it with a liquid in which the concentration of dissolved salts is greater than the normally low concentration of dissolved salts within the plant. This is because when two solutions are separated by a membrane which allows the passage of water, the stronger of the two tends to draw water from the weaker until equilibrium is reached. This is termed osmosis.

Relating this to our cryptocorynes it could well be that, although the external concentration of salts was not in itself poisonous to the plants it brought about a collapse of cell tissue in the manner suggested above in such a fashion that recovery was not possible. With land plants the symptoms can be recognised fairly readily (limpness and flagging) and corrective measures can be taken, but if this theory is in any sense correct it is quite clear that the aquarist has a much more tricky situation before him. The question as to why other plants are not apparently affected is not fully answered, though I think most readers would agree that different species would have different reactions to any anti-influences: some degenerate more

rapidly and differently from others, and some seem to suffer no ill-effects.

One rather telling point in favour of osmotic dehydration is that I have noticed that the leaves of some of the tougher cryptocorynes degenerate to a clearly defined line, rather than simply die back completely. To me this suggests that at a given moment, just as soon as things returned to tolerable limits, the degeneration ceased. Could this point have been that at which I introduced rainwater in place of the third of the contents of the tank which I had earlier removed? Those who, like Mr Binks, feel inclined to experiment towards something more definite than these suppositions may find these notes a useful starting point; I shall be carrying out a few tests myself during the coming weeks and will commit anything interesting to these columns. I should be pleased to hear from other readers who have other ideas on the subject.

It should, perhaps, be stressed that experiments must take fish life into account, as it is with these creatures that we are most concerned. Any conclusions based on the behaviour of plants alone would no doubt be of interest to the botanist, but it is the practical fishkeeper whose interests count most in the present context, and the conditions he is most likely to meet should therefore set the tone of the programme of experiments.



There have been notes in PFM recently about various psychological aspects of aquarium fishes, and for those who may be in any way sceptical I would back the assertions quite strongly from my own experience. One writer alluded to the need for company which some fishes seem to display, and Teton and Serfass mentioned the value of bamboo canes in the culture of angel and similar fishes who seem to be reassured by patterns that were familiar to their ancestors, such as the reed-like growths of bamboo in their native rivers. I have often encountered a type of nervousness in fish that had been transferred to quiet quarters before breeding.

Even though conditions were theoretically ideal I often failed to induce ripe pairs to spawn unless they could see other groups of fish swimming about. For several weeks, for example, I tried to spawn a good pair of poor minnows and a pair of flames that had hitherto been just about as productive as any fish could be. They were in adjoining tanks, but visibility from one to the other was prevented by a polystyrene panel which I had interposed between the adjacent end panels. Absolutely nothing would happen—until the two pairs were returned to their community tanks, whereupon they promptly performed perfectly. In desperation I put the two pairs into their respective spawning tanks one Friday evening and removed the polystyrene panel the following morning. Within a few minutes driving was going on in both tanks and very good results were obtained.

I would not say that the apparent confidence that comes from company is universal. With neons and glow lights privacy seems to be an advantage rather than otherwise, and I can imagine that many a honeymoon pair would be put off if a Jack Dempsey happened to be in the next tank down the line, in which case the polystyrene divider would come right into its own. I have mentioned in earlier articles how my angels have spawned time after time on bamboo leaves in preference even to Amazon swords, and fanciers of this variety would do well to plant a small clump of the broad-leaved bamboo in their gardens (or get to know someone who already grows them). The oft-repeated advice to have angels and discus spawn on bits of slate is all very well, but there is more to raising a brood than just getting the eggs, and I suppose that it is possible that some of the egg- and fry-eating indulged in by these fascinating fish might be avoided if greater attention were given to matching the spawning environment with that which exists in Nature. I think there is a lot of room for the exchange of information on matters like this. I was interested to hear a fellow aquarist telling recently of his experiments in spawning egglayers. He found that mops made of certain colours were favoured, whereas those of other colours were ignored. I won't steal his thunder, however, and will concentrate on efforts to make him write a letter to the Editor.

Transatlantic TOPICS

Continued from page 57

typical menu sent to me was: orange juice, eggs, bacon, sausages, toast, cake and coffee.

Then, having released their pent-up emotions about the one they couldn't catch they head for the show and help visitors to bench their fishes.

What puzzles me is where they find the energy from? After a meal like that I could easily sleep through the judging!

The Gods, according to Juvenal, coined the phrase 'know thyself'. The citizens of Athens inscribed it on the wall at Delphi—an admirable precept, but there are times when it is often more important to know your enemy. To those aquarists who place copper under this heading and worry whether their tanks have a surfeit of it need no more be in doubt about this.

An American company has just

marketed a test kit, based on proved methods of recording the concentration of copper in water, suitable for the hobby and unaffected by pH (in the aquarium range).

Simple to use, the outfit makes a direct colour comparison with known amounts of dissolved copper in freshly prepared standards, sensitive enough to register concentrations of 0.05 parts per million. Just in case little Johnny decides to try it out on himself, parents will be glad to learn the kit contains no dangerous or poisonous chemicals.

Sufficient for a complete year's testing under average conditions, the complete outfit retails in the U.S.A. at around £3.

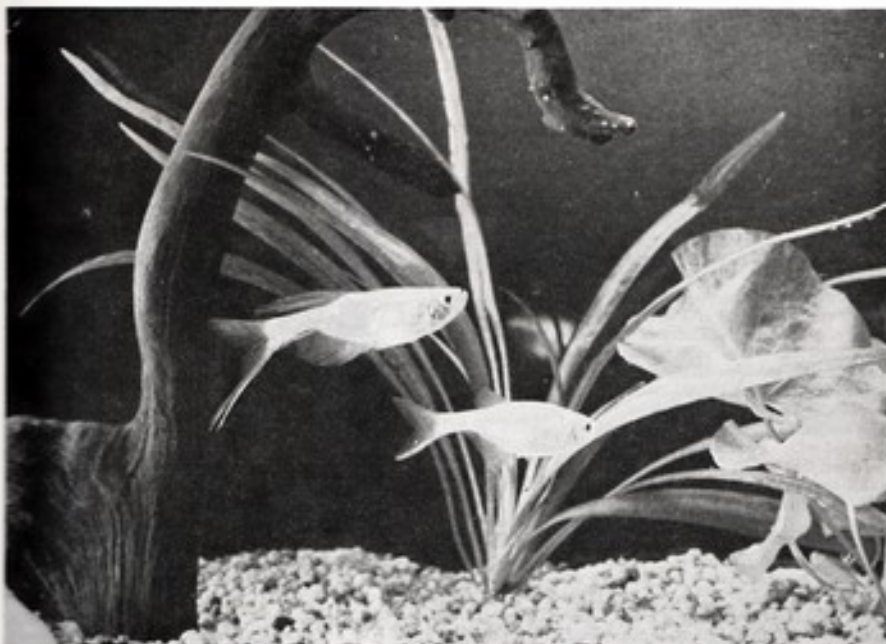


Photo RUDOLF ZUKAL

Spawning the Paddle Gill (or Swordtail Characin)

(*Corynopoma riisei*)

By J. LEE

AFTER long years of fishkeeping and of collecting hundreds of different species and different families of some of the oddest fishes to be seen in the aquarium, I came across a real 'odd ball' at a big open show in the Midlands. It took me a full hour to decide whether or not I liked the fish I saw in front of me (there were about eight pairs at the adult stage), but it seemed that the longer you looked at them the more they grew on you, and in the end the fascination was so strong that I had to have some. These were my first swordtail characins.

I purchased two pairs at a reasonable price (12s 6d a pair) and, on returning home late from the show and having had a rather tiring day, I found a tank already containing a mixed group of cardinal tetras, neons, rosaceus and a few pencil fish and put the new fish in there. They settled into their new surroundings well and

I was able to take a great interest in these unusual fish and study their behaviour.

After a few weeks had gone by I started to prepare to breed them. They were conditioned on tubifex, white worms, daphnia, chopped earthworms, fish roe and cyclops. The swordtail characin is not a breathtakingly coloured fish but its body has a pleasing pinkish or silver hue that really sparkles at breeding time. Both fish were fully adult and about 2 in. or slightly less in length. The male's dorsal fin is very high and shaped like a ship's sail in the wind. The bottom lobe of the caudal grows out to a great length, giving the fish the name of 'swordtail' characin (though, of course, there is no link with *Xiphophorus helleri*), and the anal fin has a paddle-like appearance.

The female, although of the same body size, has a small, ordinary dorsal and anal fin and all the striking features of the male are absent in the female. Perhaps the most remarkable features of all in the male are the two slim, outgrowing appendages or filaments that protrude near the gill plates and on the end of which is a white spot or patch. When first seen these really look very peculiar. The filaments appear, one on each side of the body, and are used with a paddle-like effect in any direction.

I bred the swordtail characin in an 18 in. by 12 in. by 12 in. angle-iron tank that had been well washed out. No compost was used and water was added to a depth of about 10 in. (the water used was old water filtered from a community tank). On testing the water was found to be neutral, but water hardness was not checked as I did not think it necessary. A few crystals of sea salt were dropped in. Then in the tank I placed a thick bunch of small Amazon swords, about three or four *Aponogeton* bulbs and some fresh young Indian ferns. The breeders were placed in the tank the next morning and as this was a Sunday I was able to watch the procedure that eventually took place.

Spawning Behaviour

For the first hour or so the male swam through the plants, displaying all his long finnage, at a distance from the female but with both filaments fully extended as if enticing the female to him. Then all at once he seemed not to bother at all, as though all interest in spawning was over as far as he was concerned. After some time the female came into the front and started to move up and down the leaves on the Amazon sword plants and amongst the thickets in the centre cleaning leaves. Eventually she started to stick eggs on the underside of the prepared leaves, but right through this procedure at no time was the male present or even seen anywhere near the eggs. This is because the eggs are already fertilised at this stage.

Several theories have been put forward about the spawning of this species. It was suggested that the milt of the male was discharged during the courtship display and taken into the mouth of the female and placed upon the plant leaves when they have been cleaned. Another theory suggested that the milt was discharged into the water and fertilised the eggs in this manner. In fact, the male sperms are enclosed in a capsule in the male's body and are transferred within this spermatophore to the female's oviduct.

A swordtail characin spawning often results in about



100 or more eggs, but in this case there were only about 50 or 60. The temperature at the time of spawning was 78–80°F (26–27°C). The fry hatch in about 36 to 48 hours and at this stage the female suddenly stands strident guard over her brood, cichlid fashion in fact. So anxious is she to shield her young that she even refuses to eat for while. The male simply ignored the babies and female altogether.

The fry are very small and transparent and after absorbing their egg sacs must be fed on the smallest animal life for the first few days. They were fed cyclops and pieces of hard-boiled egg yolk pinched in the water. By the second week they were taking brine shrimp and later micro worms. On this they grew fairly well until, after a few weeks, they were able to take Grind worms and sifted daphnia and it was not long before they started to look like swordtail characins. Mosquit larvae are their diet in their natural habitat, Trinidad and they are a hardy and very tolerant fish and can stand temperatures from 60° to 85°F (though keeping them at high temperatures will cause them to grow more rapidly and shorten their lives).

To see about 40 to 60 in a well-planted tank is a fine sight—though if kept with highly coloured fish like neon and cardinal they look rather out of place owing to their extremes in colour. I found, after a while, that a 24 in. by 12 in. by 12 in. tank containing half swordtail characins and half deep-red swordtails gave a very nice balance in colour and made a very satisfying picture. Most swordtail characins took nearly all foods offered and on occasion were given tit-bits of scraped liver, freshwater mussel and even spinach.

A word of warning—they are expert jumpers as found out when taking the glass covers off and seeing one or two flipping around on the fish house floor. I kept these fish, bred them and parted with them all in the same year and although I'm sure there are still some in the country here and there I have never seen any since. I would certainly wish to breed them again if I could find any.



GUPPY

World

CLONE is a word that sounds charmless enough (it could even be mistaken for the word clown if you said it sufficiently fast) but there is nothing amusing about its significance. The dictionary says it means a group of individuals identical with each other all derived asexually from one sexually produced individual.

Picture a tank containing hundreds of identical guppies all mirror images of the creature that has just won the Best In Show award and you have it. If that sounds like science fiction I can assure you it is rapidly becoming scientific fact.

Dramatic advances in molecular biology have laid bare the essential mechanics of inheritance and it is but a short step from understanding about life to controlling the processes involved. Plant growers (plants present fewer problems here than animals) have been producing identical growths for years, so that, for example, the rose bush, 'Peace', flourishing in a garden in Cornwall is the exact copy of the same rose in an Aberdeen garden.

Just imagine the advantages of producing guppies in their thousands all alike as two peas in a pod! The mind boggles at the thought! But then, with all the fun gone from the hobby—so will I be!

• • •

If an author writes a poor book and is lucky enough to have it published, it soon ends up in the bookseller's 'pick-where-you-like' reduced price tray and our literary sensibilities are not offended. A badly executed painting inevitably finishes up out of sight and mind in some attic and once again causes no offence—but a bad guppy can go on spreading its contamination to generations yet

unborn. The sins of the fathers is a truism of the guppy breeder.

But what exactly do we mean by a bad guppy? Our previous description hints at deformity and we agree that many body and fin deformities can be congenital, but what else? Ask the specialist society member and he will plump for: 'any fish that doesn't conform to the laid-down standards'. His compatriot in other aquatic groups would be satisfied with any large and colourful guppy and take his chances on the judge.

It seems that, like so many things, beauty is in the eye of the beholder and good and bad can be all things to all people; why even someone's trash

By PETER UNWIN

has been turned into a treasure, and fish that many wouldn't have in their tanks are spoken of, proudly, by others. Then isn't that what makes this business so fascinating?

• • •

Aaaggghhhh! That favourite deployment of the writer could stand for almost anything—the throat-clearing of C. S. Forester's 'Captain Hornblower', the cry of Tarzan etc. But to me it represented my outburst when I did a comparison of the marks awarded to fish in an aquatic show. The differences between the marks awarded to the guppies (by the trained specialist judge) and those awarded to the other exhibits were just about as large a gulf as the Grand Canyon of Colorado.

If a guppy judge says a *Poecilia* is worth 75 points out of a possible 100, he is awarding it a Silver Award.

That seems fair; after all, it is an accepted good mark, accepted by most education authorities in the land, but it seems to most 'qualified' (but untrained) judges a poor mark indeed; they express their pleasure on beholding a good fish by upping their points into the 80s and even 90s!

This puts the fancy guppy exhibitor at a distinct disadvantage when competing with other fish at aquatic shows. Surely in this enlightened day and age some judges are aware that this gulf exists? It seems it is about time 'aaaggghhhh' cleared more than just one's throat?

• • •

Those who have been trying to breed the half-black guppies and find that their stock is deteriorating can take heart. Reports have been going the rounds that this type of guppy requires temperatures between 68° and 70°F (20-21°C) to give of its best.

• • •

With summer just around the corner we shall soon be pestered by that world number one 'hate' the flies—unless of course you have discovered the answer to that question, and found out where they do get to in the winter?

With the intrusion of these creatures into our homes and fish houses, may I repeat the warning that chemicals used in most of to-day's fly sprays are deadly to guppies; just how, was demonstrated in 1936 when the Khartoum authorities sprayed the River Nile with D.D.T.—though the spray contained as little as 0.017%, it still killed thousands of fish in the river.

If you or your family do use these sprays then please cover your tanks with a sheet of plastic and leave them covered for some time after spraying; the droplets can float about for quite some time.

This advice also applies to hair, furniture, paint and all the other chemicals that now come 'aerosol wrapped'.



Out and

By D. SMALLEY

Photographs by the author

Equipment for the trip is checked carefully before the day

SOME people might think that the Saquarist has a dull, stay-at-home hobby, but this simply is not true. Any fishkeeper will gain much enjoyment from getting out and about and, whether he is a coldwater or tropical enthusiast, he will not only learn a great deal but will also be able to collect interesting specimens of pond and plant life by visiting local native ponds.

The photographs with this article were taken on such a trip made by the Essex Group of the G.S.G.B. (Goldfish Society of Great Britain). Some members were looking for new

sources of daphnia and other live food, while some were seeking marginal plants for their home pools.

Careful route planning before the trip will pay dividends (for this an Ordnance Survey map of the proposed area is a great help), as also will selection of equipment to be taken: obviously items such as Wellington boots and a net are essential for everyone! The inclusion of equipment such as an axe and a rake in the photograph may mystify some, but their use will become clear later on.

Many ponds abound in native

plants worthy of a place in a home pond or aquarium. Often clumps of plants such as willow moss, hornwort or elodea will be annoyingly out of reach of a net—not the best tool with which to collect plants. So here is where a rake and lead prove very useful. In fact most plants can be satisfactorily collected in this way.

It must be emphasised that any plants gathered from native ponds should never be introduced to a home pool or aquarium until they have been thoroughly disinfected and allowed a good period of quarantine. This is to ensure that no un-

BOOK Review

THE GOLDFISH by George F. Hervey and Jack Hems. 271 pages. 50 line illustrations. 15 half-tones. 1 colour plate. Faber & Faber Ltd, London, 42s.

AS I well remember reviewing with no small enthusiasm this book when it first came out in 1948 I received this revised edition with great pleasure and was interested to try to discover in what ways the book had been changed. Most noticeable is the absence of the original illustrations, and on this I join voice with that of the authors in their Preface in saying that the loss is unfortunate. In the sections that first made THE GOLDFISH unique—those dealing with the history of the domestication of this fish and its representation in

literature and the arts—few changes were called for and the scholarly treatment of the subject is as much a delight to read as I remember it to have been before. But in my opinion the sections on the care and keeping of the goldfish have been left too much as they were. Twenty years have produced changes on the fish-keeping scene that might well have been taken into account.

Examples of sections that come under this category are those on transporting fish, on dried foods and on rearing young goldfish; hand-spawning is used to an extent today that merits more than the brief and not very helpful notes on the procedure that are given. Amateur fish culturists are so well catered for with useful accessories these days that one

could have expected some recognition of this to have appeared in the discussions on filters, heaters, pumps and ponds. Although the book's Bibliography has been expanded, the additions are not impressive. How could the work of Robert Afleck have been missed? Why is the only book on genetics research to be listed a text of 1915?

A major error uncorrected from the first edition is the advocacy of 'chromate of mercury' for the treatment of fish diseases. The authors must surely mean the organic compound mercurochrome.

The coldwater fishkeeper will want to have THE GOLDFISH on his shelves, though it is no longer the complete and up-to-date text, meeting all the goldfish enthusiast's needs, that it was 20 years ago.

ANTHONY EVANS

About

wanted pests are introduced with the plants.

Incidentally, the Group on its outing searched high and low for a willow. The roots of this tree, when boiled, make an ideal spawning medium for goldfish and many species of tropical fishes. However, the willow proved too elusive on this occasion, and so the axe taken to trim off the roots was not used. Often a really sharp knife proves a better tool for this purpose and is, of course, handier to carry.

Daphnia is in short supply in many areas; nevertheless, a source may be very much nearer than at first realised. The net used to collect daphnia is a landing net handle and a collapsible frame. These two may be disconnected and a variety of nets fitted as required, according to the size of mesh necessary. A word on the amount of daphnia to be collected—as daphnia soon die if overcrowded, never collect more than you can transport home easily and without overcrowding.

Perhaps the best method of transporting most forms of water life is by using plastic bags. Fish, daphnia, plants etc. can all be satisfactorily carried in this way, without spilling water everywhere. For double security, it's often a good idea to place two or so bags in a bucket, which can be safely carried in the back of the car.

If you've now been convinced of the value of outdoor trips, ask your club secretary to arrange an outing for your club. He will probably have a good idea of possible sites, and everyone is sure to have a very enjoyable time.



Group members stand well clear as John Cross casts rake and line to the pool centre



The haul from the pool is inspected by John Cross, Ron Dodkin and George Fleming (left to right)

Dr W. T. Innes

Continued from page 50

history in New York, of the Philadelphia Horticultural Society and of the Academy of Natural Sciences of Philadelphia. A Doctorate of Letters was conferred upon him in 1951 by the Temple University, Philadelphia.

Regrettably, I was never able to meet him, but I came to know him through correspondence and for many years received a card each Christmas bearing a photograph of

himself and his wife Mary in some current activity. After the death of Mary in 1950 these ceased; indeed, the drive seemed to leave him after that, until in 1956 he gave up the editorship of *THE AQUARIUM*.

The exciting period, when each month revealed a new kind of fish—or several new kinds—to be described and depicted in the characteristic Innes way, is gone. There is not much new to be found in freshwaters now. And the man most associated in our minds with that period has passed on with it, at the age of 95. He should be remembered.

A. FRASER BRUNNER

In Memory of

The Man for Whom the Neon Tetra was Named

WILLIAM T. INNES wrote this account of the way the neon tetra first came to the notice of ichthyologists, and how the new fish was given his name, for his magazine **THE AQUARIUM** in which it appeared in November, 1936

EARLY this year (1936) the writer received a letter from Mr J. S. Neel, a valued correspondent in Paris, who raved about a new fish, 'the most beautiful ever discovered', and he offered to send a sample pair as proof. Having seen many species supposed to be 'the most beautiful', friend Neel's statement was received with mental reservation, although permission was given to send the sample pair. In due time these arrived in New York, and were cared for by a dealer friend.

Having been previously subjected to many false alarms, the writer did not hurry to New York, but waited the convenience of any fancier friend who might be making the trip. In the meantime, those who chanced to see the fish in its temporary quarters began to spread glad tidings of its wonders. Purchase offers came both from those who had seen it and those who had not. They started at \$15, and went up to fabulous figures. These came from breeders who wanted to 'get the jump' on the market. One importer offered \$20 per pair for all that could be bred.

It is anybody's guess as to whether any of these gentlemen would have won on their gamble, for the species so far has not proven itself to be a free breeder. In a way this is a good point, and as long as we know it can be bred, it gives us something to strive for. It challenges our ability as aquarists. At the same time it assures owners that it will not soon become common.

In all there have been only two importations, the original one to Paris, and a recent one direct to the United States. A few of the first lot to Paris (collected by M. Rabaut for M. Lepant) found their way to Hamburg, where, we understand, a few of them were bred. From these young a spectacular shipment was made on the airship Hindenburg to Lakehurst, from which point they were carried by motor car to the Newark airport, thence by plane to the Shedd Aquarium in Chicago, completing the entire journey in less than 60 hours. Unfortunately, they became badly chilled on the transatlantic flight, most of them later dying, but were replaced, much to the delight of the management and visitors at the Shedd Aquarium.

Director Chute made an interesting observation on the dead fishes. He wrote us: 'Regarding the neon fishes, you may be interested in an unusual phenomenon

that we noticed in connection with our shipment by airship from Germany. Four of these fishes were dead when the airship arrived. The fifth one died before the can was put on the plane for Chicago. Mr Cochu placed all five fishes in a sheet of letterhead paper, folded it up and put it in an envelope attached to the can. When we opened the paper here in Chicago, the red colouring from the fishes had made bright red blotches on the paper corresponding in shape to the spot on the fishes' body. This, I think, is unusual to have the colour come off of the fish and stain paper in this way.'

This incident undoubtedly shows the presence of a great deal of pigment, which in turn accounts for the fact that the fish does not lose much colour when frightened or transferred. This is a point to be appreciated by exhibitors. The colours in many fishes are prismatic effects, not dependent on pigments. These kinds change rapidly.

The fish has shown remarkable durability under a variety of conditions, practically none of the original importations dying in transit. The writer managed to secure two well-preserved specimens from Mr Neel (who handles M. Lepant's stock in Paris). These were forwarded to Dr George S. Myers, then of the National Museum in Washington, for study. He pronounced them to be new, and in the PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON for July 3, 1936 named the fish *Hyphessobrycon innesi*, an honour deeply appreciated by your humble scribe. The name is pronounced High-fess-o-bry-kon inness-eye (Innes is pronounced as though spelled Innis).

Returning to the thread of our story, Mr Neel's gift pair finally reached Philadelphia, where they made another furore, the writer being among the last to view his new acquisitions.

Such great claims have been made from Paris, Hamburg, New York, Chicago and Philadelphia for this fish that it is likely to suffer from over-praise. It seems that no fish could fulfil such expectations. It would be a pity to have anyone disappointed in a fish which would be sure to win praise on its merits, were it not preceded by a blare of trumpets, however sincere the trumpeters may be. As the colour-pattern of this fish is simple and easily described, we shall . . . give an impartial mental picture of it.

Most specimens . . . would be comparable in size to the average adult male guppy. The outstanding features are the broad splash of red on the sides, topped by a brilliant metallic line changing from blue to green. The red, which joins under the rear part of the body, is clearer and brighter than we show, while the metallic blue-green line, starting at the top of the eyeball, is even so much more brilliant than we are able to show in printing inks. Otherwise the fish has and needs no other colours. The front view is unusual. The eyeballs are like bright little lamps of the same colour as the metallic stripe. Their eyes and stripe appear to best advantage when viewed by an overhead electric light.

The fish moves about the aquarium with leisurely grace, does not fight, is not 'scary' and eats ordinary foods. The few we have had have been carefully fed on live *Daphnia* for the most part, but they also take prepared foods.

From our short experience, we believe this fish likes a temperature of about 74°, but that it is happy anywhere

between 70° and 80°.

In the matter of sex, the female is a little larger, fuller, and has not quite as brilliant a dash of red. . . . There is also a slight difference in the shape of the forward part of the red area. We placed our own pair in the expert hands of Mrs Latham to breed. She spawned them once, but the eggs were infertile. Mr Stoye has so far had no better luck with his pair, which reminds us that it is through his kindly offices as consignee that the recent American consignment has been made possible, and which seems likely to prove the most outstanding importation in years.

The very good descriptive popular name for the fish, 'neon tetra' or 'neontet', was originated by M. Lepant, of Paris, and was used on a circular prepared by him. The name is so fitting that Mr Lew Willumsen, on seeing the new importation, independently hit upon the same name for them. Certainly the fish reminds one of a Broadway contrast in red and blue neon lights.

Readers' Queries Answered



Preventing Fungus on Eggs

Can copper sulphate be used effectively as a compound to combat fungus on fish eggs? If so, what are the proportions for its use, or does this vary with the species of fish laying the eggs (I am interested in breeding angel fish)?

Although the use of copper sulphate is mentioned in the aquarium literature in connection with the treatment of some parasitic diseases notably for *Oodinium* the dose of copper sulphate to be used is extremely critical, and it should be remembered that copper salts are extremely poisonous to fish; for example, 25 mg./litre kills large trout within a few hours (this is equivalent to a dilution of 1 : 500,000 copper sulphate). Far safer for use as an anti-fungal agent are the dyes from the diphenyl aminoethane group used as the basis of several of the proprietary fungicidal agents. Their toxicity to the fungi depends on temperature and their safety as drugs depends on both length of time in use and concentration, but the proprietary reme-

diaries recommend correct and perfectly safe dosages. Methylene blue is another fungicide and its use is to be particularly recommended in the hatching of angel eggs. Only a slight colouring of the water with this dye is required.

Breathing Difficulties

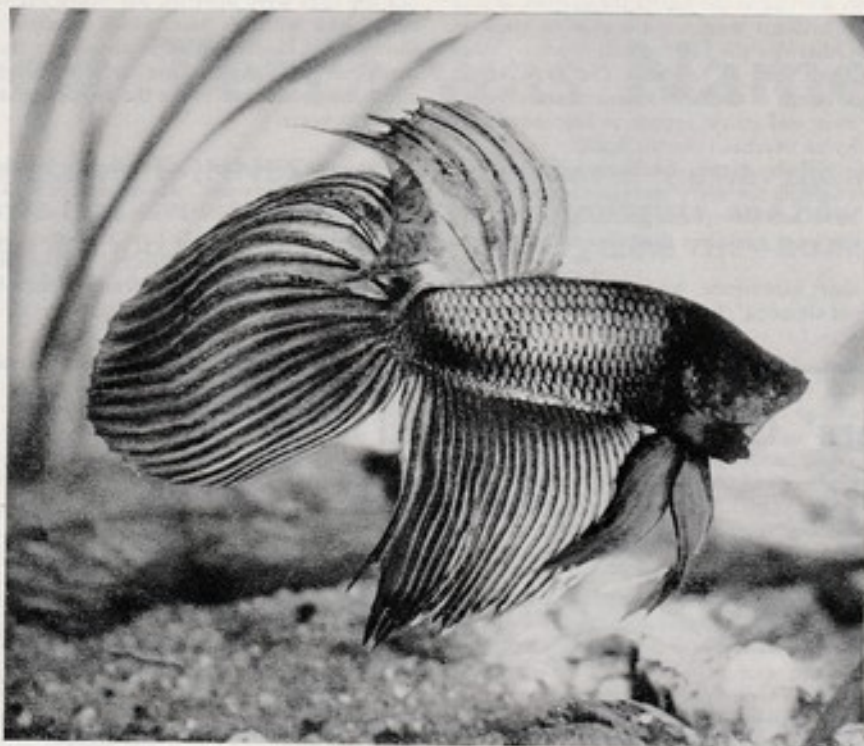
I have noticed that certain fish in my tanks have been extending their mouths, like a yawn, and fins for a second or two. Is this natural and why does it occur? Also I have recently lost fish and their mouths, at death, are extended.

In quite a number of fishes, the mouth is described as 'protractile', which means that it can be protruded or withdrawn at will (e.g. family Cyprinidae). So the protrusion can be quite a normal movement. Very unusually, an individual fish may be suffering from a stone lodged in the gills, or a tumour of the thyroid gland will produce the same result. Far more likely, however, your fishes are exhibiting breathing difficulties. Overcrowding, overfeeding, delay

in removing dead fish from the tank may all cause conditions to become foul. Typical symptoms of fishes that are suffering from lack of oxygen include swimming near the water surface, swimming more rapidly than usual or even jumping out of the water if they are normally fast-swimming species or mouthing at the water surface if they are not. Ultimately the fishes suffering from oxygen deficiency die of suffocation and the widely gaping mouth after death is indicative of this.

It is not difficult, however, to remedy the conditions causing the trouble. Check that the tank is not overcrowded (for small fishes 10 square inches of water surface for each inch of fish body length and for larger species 24 square inches to each body inch is still a quick method of determining roughly the numbers of fishes to keep in the tank). Make certain that the gravel has not blackened through overfeeding with dried food (if so, the black gravel must be siphoned out). Make sure that the tank contains a good plant growth and that the plants are given sufficient light to grow well, particularly during the winter. Immediate steps to remedy the situation should include siphoning the bottom of the tank and changing a third of the water. This operation can be repeated two or three times at intervals of a week or 10 days.

Breeding Better Bettas



A breeder's account of personal experience with these popular fish and the history of the development of his strain that proved highly successful on the show benches

By D. DURRANT

Photograph by BURKHARD KAHL

THE following article, I must stress, deals with my own experiences in breeding the Siamese fighter. I would point out straight away that I have never delved into hardness of water or pH factors.

My first experiences of fighters was watching the magnificent sight of a pair spawning in a tank in a friend's house. I recall my friend telling me to keep well away from the tank, not to startle the spawning fish. I also recall his remarks on how stupid the male fish was in allowing the female to eat half of the eggs! After watching this pair of fish spawn for several minutes I decided there and then that this was the fish I most wanted to breed.

That was about 7 years ago. Having attended a few open shows in the home counties I was aware that good line-bred fighters were in short supply. I was faced with the problem of having to produce a good line of fish from the stock that was available on the market at that time.

I decided that good finnage was the first essential in a fighter, so I purchased the largest fighter of most attractive finnage that I could find in any shop. This fish was a Cambodia male, having a beautifully clear cream body with red fins. Wanting to breed with this fish as soon as I had purchased it, and not being able to buy a Cambodia female at this time, I bought a blue female that was in

spawning condition (this female was not all blue as there were streaks of red in the finnage).

These fish were placed in an 18 in. by 12 in. by 12 in. tank planted thickly to the rear for protection of the female, as males can be very spiteful after spawning is finished. The following morning the male had built a huge bubble nest and the female was hiding in the plants to the back of the tank. By midday the pair had spawned and the female was once again driven into the plants while the male looked after the eggs. The female was then removed. The temperature at this time was 80°F (27°C).

In 36 hours the eggs hatched and the male fish constantly picked up any fry that fell from the nest. This first male fighter I owned was a wonderful father with his young fry. All the while the fry were absorbing their yolk sacs he was in constant attendance to replace any baby fish that fell from the nest. I have since learnt that not all fighters are as good a parent as was my first fish!

As soon as the fry were free swimming *Infusoria* was made from old banana skins and dripped into the tank at a speed of one drop per 5 seconds. This was kept up for 2 days. After 2 days newly hatched brine shrimps were given. I must stress that I find that a 2 days-old fighter cannot swallow a whole brine shrimp, but they can break the shrimps in their mouths until the whole shrimp is consumed.

This food was followed by sifted daphnia, chopped tubifex and all the usual dried foods. After 3-4 months these fish had developed quite a good finnage and were a mixture of assorted colours. The main coloration seemed to be a dark brown, with blue, red and cream streaks in the finnage.

This was the start of my line of fish. I have only crossed out once since that first spawning and that was with a red female. From this first spawning I then selected the largest and best finnaged males, and bred them with the reddest and largest finnaged females. I kept breeding brother and sister, father and daughter, mother and son until, in early 1967, I had the finest red fighters I had ever seen anywhere (in my own opinion).

This was the time that I started showing fighters. I have since shown these fish all over the south of England and won many awards. One that I was very pleased to gain was a 'Best Fish in Show' award. This award made my fish eligible for the Champion of Champions contest at Manchester. I entered but did not gain an award, but in the fighter class I did gain the first and second awards, to my delight.

I have found that after 7 years of line breeding and only crossing out once in all that time my strain of fish has deteriorated terribly. Finnacle is shorter and colour is fading. I have therefore started crossing out with another strain. These other fish are not line bred but have excellent finnage, so I hope to produce more good fighters in the not too distant future.

Observations on Fighter Breeding

Fighters in good condition will breed in almost any situation. They will breed as early as 6 weeks old, but when aged are very fond of eating their own eggs. Water conditions are not very important: I have used fresh tap water, aged aquarium water and rainwater and have found these all to be satisfactory. Fresh tap water seems to invigorate the fish and spawning usually takes place straight away after it is used.

Tank set-ups are not very important either. I now use 6 in. by 5 in. by 12 in. tanks for the actual spawning and raising the fry to about 3 weeks old. The young fry are then transferred to larger tanks for growing on.

I have spawned fighters in a container as small as a 6 in. diameter goldfish bowl, but this I do not recommend unless a nylon mop or some other form of protection is provided for the female to hide behind, and only if you attempt to breed in this set up when you are home and can watch at frequent times to remove the female once the pair have spawned. I always use two mops in my 12 in. tanks when spawning fighters.

Always choose females that are ripe with roe; daphnia, tubifex, bloodworm and *Bemax* soon get the females in this condition.

Behaviour of Male Fighters

In my experience no two male fighters ever act in the same way, whether in a community tank or when breeding. If you intend breeding fighters along any particular line always keep five or six males of the line you require or you may meet disappointments.

Firstly some males will eat the eggs after the spawning act is completed. Some males will even eat the eggs whilst the spawning act is being carried out. Other males will not bother to pick up the eggs and will watch the female devour them. It seems that some other males will not breed at all. Then there is another type of male, who, as soon as he is put with a female, closes up all his fins and hides in the corner. These males I feel lack something owing to the line breeding and will never alter.

One small trick I have learned for use with a fighter that continually eats eggs and that is otherwise such a good specimen that offspring are required from it. Set up a tank with an opaque divider in the centre. Be sure that the water level is such that the fish cannot jump over the divider (a fighter can jump some 3 or 4 inches clear of the water).

Place a pair of fighters in each half of the tank at a time when you know that you will be around to watch proceedings. All you then have to do is wait and hope that both pairs will spawn at roughly the same time. If you succeed this far then as soon as the fish that eats the eggs has finished spawning with the female, remove both fish. Remove the female from the other pair then take out the divider and carefully blow the nest over the surface to the nest of the other male. He will then carry on looking after the eggs as though they were from his own female.

Another method that can be used when the male eats the eggs after the spawning act is completed, is to remove the male and female as soon as the male drives the female away. Then, with a small plastic food box, scoop up the eggs into about 1 inch of water. Float the box into the tank and this will keep the eggs in shallow water. If you attempt to hatch fighter eggs in deep water they will normally hatch all right, but I have found that the fry usually suffer from swim bladder troubles.

Raising Fighters

For feeding of young fighter fry, I use *Infusoria* for the first and second days. This I culture from banana skins in 4 in. by 4 in. jars: an evil-smelling mixture at times but a good first food! After 2 days I give *Infusoria*

plus brine shrimps. After 10 days or so ground tubifex can also be given and then sifted daphnia and so on to all the larger foods. Keep the temperature at around 80°F (27°C).

One question often asked is when do you part the males developed from one spawning. This seems to depend on the fish concerned. Some males will start fighting at 6-7 weeks of age. Others will not fight until 4-5 months old and others hardly scrap at all. I never part my males until I have to, and that is at the first sign of scrapping.

I have found that females also fight and when I have shown breeder's teams have had to separate the females as well as the males. These females will also display with

fins spread in the same manner as the males.

Selected fish are grown on in tanks spread around the fish house, and others are grown in jars. If fighter males are grown on in jars frequent changes of water are necessary otherwise the build up of bacteria seems to cause the finnage to suffer and become tatty.

Just one other thought. I have heard it stated that tropical fish cannot be kept and bred in fish houses heated by paraffin heaters. My fish house is heated in this way. The air pump is inside the fish house and draws in air from around the roof of the house. I do from time to time get trouble with oil scum on top of the water, but never have any trouble with the fish.

I hope that through this article I may assist some other aquarist in breeding a better strain of bettas!

Round the Bulletins

A review of some of the world's aquarium society publications

By P. F. CAPON

The Oklahoma City A.S. publication is called the O'QUARIST. In it Bill Fisher tells of 'The Day the Leaks Came'. It all started when Bill decided to try his hand at raising firemouths, the prospective parents having been borrowed from a local dealer.

Whilst floating the pair in their new quarters, a 20 gallon tank, the familiar sound of water dripping on to carpets was heard. Firemouths, rocks, sand and aged water were stored in every available container and the tank was relegated to the backyard for the night.

Next morning aquarium sealer was purchased and applied to every seam, crack and crevice. After allowing 2 days for setting the tank was set up and the firemouths were introduced. No sooner were the fish installed than the familiar sound was heard again.

Afraid of the dealer friend's remarks if he had to be told of the loss of his firemouths through too long a sojourn in a 2 gallon bucket, Bill purchased a new 29 gallon tank. The new tank was duly installed and filling proceeded; but it was only half full when it, too, began to leak. Back to the dealers went the new tank to be replaced; the replacement also leaked. Then an irate phone call resulted in the dealer delivering yet another tank, which didn't leak.

Bill does not say whether the fire-

mouths eventually bred; possibly they did not as after all that time in a bucket they probably thought of it as their natural habitat. We all have the occasional leaky tank but Bill Fisher really has had more than his fair share.

The spawning of arawanas (*Osteoglossum bicirrhosum*) is recorded in THE WET THUMB (Cleveland A.S.) in an article by Mr and Mrs Vince reprinted from THE TROPICAL AQUARIST. The first spawning of arawanas occurred in a 360 gallon tank on 30th August 1964, but the parents ignored the eggs, which then formed fungus. Whether the eggs were fertile or not is not sure; they may have only been attacked by fungus because of the parents' neglect.

Tex, whose full name is not given, spawned the first pair and had further success on 16th September 1966.

Two weeks before the spawning the female had refused food, whilst the male gorged on 100 goldfish a day! The pair positioned themselves over a depression in the gravel, the eggs were laid and fertilised in seconds, and then both parents took the eggs into their mouths.

After 3 days the female ate her share of the eggs. On the seventh day the male spat out the 'egg-shells'; all the time he was mouth-brooding the male refused to eat. On the forty-fifth day the first fry was noticed but the male immediately took it back into his mouth. No more fry were seen until the fifty-ninth day, when two more ventured out of father's mouth.

After 60 days more fry ventured out and explored but retreated to the safety of father's jaws at the first sign of danger. At this stage the young fish were 2 to 2½ inches long.

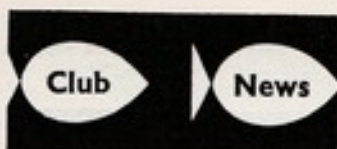
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ONLY the fourth person to be so honoured, Mrs L. Brown is the first woman to be made an honorary member of **SOUTHAMPTON & D.A.S.**, in recognition of her service to the Society since she joined in 1949. At the meeting, Mr R. Matley of Bournemouth A.S. gave a comprehensive talk on livebearing fishes. He made the point that livebearers, from being regarded as fish only for beginners, were engaging the attention of more experienced aquarists who had discovered the interest in 'line'-breeding to improve the existing strains. To continue the theme of the meeting, the table show was for livebearers and judges Mr Sprinks and Mr McCann made the following awards: Advanced: 1 and 2, Mr Russell. Mollies: 1, Mr Heard; 2, Mr Mansbridge; 3, Mrs Russell. Swordtails and a.o.v.: 1 and 3, Mrs Russell; 2, Mr Mansbridge. Guppy: 1, Mrs Russell; 2, Mr Heard; 3, Mrs Hardwick.

THE ASSOCIATION OF MANCHESTER & D.A.S. first open show received 303 entries from 22 societies. Mrs V. Parkes of Merseyside A.S. won the best fish in show award and Merseyside A.S. also won the trophy for the society with the most points (76). Section winners were the following:

Guppies: 1, Mr B. Worrall (Warrington); 2 and 3, Mr G. Hammet (Huddersfield). Mollies: 1, Mr G. Hammet; 2, Mr G. Kershaw (Heywood); 3, Mrs Grimshaw (Sunnybrow). Swordtails: 1, Mr Kelly (Merseyside); 2, Mr G. Hammet (Huddersfield); 3, Mr F. Ledger (Top Ten). Platys: 1 and 2, Mr B. Thompson (Gorton); 3, Mr Phillips (Ashton-u-Lyne). A.o.v. livebearers: 1, Mr L. Kaye (Top Ten); 2, T. & W. (Sunnybrow); 3, Mr Wakefield (Osram). Small anabantids: 1, Mr F. Mulla (Merseyside); 2, Mr A. G. Esteves (Top Ten); 3, Mr W. Smith (Merseyside). A.o.v. anabantids: 1, Mr and Mrs Bone (Huddersfield); 2, Miss H. Newall (Glossop); 3, Mr W. Chapman (Valley). Fighters: 1, Mr A. E. Addison (Warrington); 2, Mr S. Senderski (T.A.B.); 3, Mr T. Senderski (T.A.B.). Small barbs: 1, Mr D. J. Hopwood (Rochdale); 2, Mr Middleton (Sunnybrow); 3, Mr and Mrs Webb (Salford). Large barbs: 1, Mrs Grimshaw (Sunnybrow); 2, Mr Kershaw (Heywood); 3, Mr Watson (Sunnybrow). Small cichlids: 1, Mr W. Smith (Merseyside); 2, Mr L. Kaye (Top Ten); 3, Mr A. G. Esteves (Top Ten). Large cichlids: 1, Mr K. Parkes (Merseyside); 2, Mr I. Watson (Sunnybrow); 3, Mr B. McDermott (Merseyside). Angels: 1, Mr D. Trace (Ashton-u-Lyne); 2, Mr R.

Hughes (Gorton); 3, Mr G. Hammet (Huddersfield).

Small characins: 1, Mr R. Lord (Rochdale); 2, Mr J. T. Morris (Bolton); 3, Mr A. G. Esteves (Top Ten). Medium characins: 1, Mr K. Parkes (Merseyside); 2, Mr S. Harrop (Osram); 3, Mr B. Parkin (Huddersfield). Large characins: 1, Mrs V. Parkes (Merseyside); 2, Mr J. Murphy (Salford); 3, Mr D. Thomalla (Merseyside). Rasboras: 1 and 2, P. & H. (Gorton); 3, Mr and Mrs Webb (Salford). Danios: 1, Mr P. Tempest (Oldham); 2, Mr and Mrs Hoggarth (Rochdale); 3, Mr A. Middleton (Sunnybrow).

Sharks: 1, Mr W. Isaac (Rochdale); 2, Mr S. Harrop (Osram); 1, Mrs Grimshaw (Sunnybrow). Foxes: 1, Mr R. Moorcroft (Merseyside); 2, Mr F. Mulla (Merseyside); 3, Mr R. Hughes (Gorton). Toothcarps: 1, Mr W. Chapman (Valley); 2, Mr C. Shaw (Merseyside); 3, Mr J. Roberts (Nelson). Small catfish: 1, Mr Kershaw (Heywood); 2, T. & W. (Sunnybrow); 3, Mr A. Newall (Glossop). A.o.v. catfish: 1, Mr B. Phillips (Ashton-u-Lyne); 2, Mr F. Mulla (Merseyside); 3, Mr A. G. Esteves (Top Ten). Loaches: 1, Mr A. Quinson (Valley); 2, Mr F. Mulla (Merseyside); 3, Mr M. D. Smith (Glossop).

Brooders egglayers: 1, Master A. Kaye (Huddersfield); 2, Mr and Mrs Webb (Salford); 3, Mr J. W. Higham (Warrington). Brooders livebearers: 1, Mr R. Moorcroft (Merseyside); 2, Mr R. Tomkinson (Glossop); 3, Miss B. Kaye (Huddersfield). Pairs livebearers: 1, Mr G. Hammet (Huddersfield); 2, Mr and Mrs Hoggarth (Rochdale); 3, Mr B. Worrall (Warrington). Pairs egglayers: 1, Mr D. Thomalla (Merseyside); 2, Mr B. Parkin (Huddersfield); 3, Mr F. Ledger (Top Ten).

Fancy goldfish: 1, Miss Bone (Huddersfield); 2, Mr S. Walsh (Accrington); 3, Mr A. Isherwood (Accrington). A.o.v. coldwater: 1 and 2, Mr C. Whitney (Accrington). A.o.v.: 1, Mr R. Moorcroft (Merseyside); 2, P. & A. Devine (Ashton-u-Lyne); 3, Mr D. Thomalla (Merseyside). Juniors: 1, Master D. Moorcroft (Merseyside); 2, Master B. Seabright (Gorton); 3, Master A. Kaye (Huddersfield).

THE SOUTH THAMES AQUARIST GROUP has now held two very successful meetings—the first being a social at the London College of Printing when over 100 members and guests enjoyed a wine and cheese-tasting evening and dancing; and the second the inter-group 'Best 12 fish contest', when again 94 members and friends met at the United Democratic Club in Wimbledon. The six clubs forming the group were all represented (each club being allowed 12 entries). Mr Harry Towell judged the entries and 12 awards were made to the following:

THURROCK A.S. are the first society to report that they have available a number of recorded tapes of club talks on fish care and other topics. They would be very pleased to loan these to other societies in exchange for similar ones. Please contact secretary Mr J. M. Aspinall (48 York Avenue, Corringham, Essex) to make exchange arrangements.

FIRST details of the coming MIDLAND OPEN SHOW have now reached us. It will be held as usual in the Bingley Hall, Broad Street, Birmingham 1 and this year's dates are 13th-16th August. Details from Mr J. Witts, 120 Franklin Road, Kings Norton, Birmingham 30.

First award and the S.T.A.G. plaque for best fish in show: Mr F. Glynn (S.P.A.A.S.) for singletail (coldwater; 83 points).

Second award: Mr P. Saunders (Clapham, sciassortail, 82). Third award: Mr R. Pickard (S.P.A.A.S., brown acara, 81.4). Fourth award: Mr P. Saunders (Clapham, giant damio, 81). Consolation awards to: Mrs A. Thompson (fremouth, 80.5); Mr C. Wood (red platy, 78.5); Mr J. Kendrick (freelance, combtail, 79); Mr A. Howes (freelance, Jack Dempsey, 79); Mr F. Glynn (S.P.A.A.S., fantail, 79); Mr R. Dudley (S.P.A.A.S., London shubunkin, 79); Mr P. Saunders (Clapham, flying fox, 80); Mr J. Hart (Clapham, Malayan angel, 80).

Having tested their strength in two directions the committee of the Group now looks forward to bigger and better events. First of these has been a challenge match with M.A.L. at Northampton. Plans are also going ahead for a visit to a Ministry of Agriculture and Fisheries Research Station and a visit to a fish farm in Holland; and under discussion is the anniversary dinner and dance in September. The Group would welcome contacts from clubs interested in competition or participation in social events and the secretary, Mr Gerry Licence (217 Morland Road, Croydon, CRO 6HE, Surrey) would welcome hearing from them.

SUFFOLK A. & P.A. have held their first closed show and Exhibition. A very good attendance produced over 100 exhibits, which were judged by Mr E. R. Nichols (F.B.A.S.) and Mr T. Gardner and Mr C. W. Williamson of Norwich A.S. A black widow belonging to Mr W. Card was awarded best fish in show and Mr J. Green's furnished aquaria was the most popular exhibit. Other results were:

Characins and barbs: 1, Mr W. Card; 2, Mr V. Green; 3, Mr G. Goodchild. Cichlids and labyrinths: 1, Mr A. Cook; 2, Mr W. Card; 3, Mr V. Green. Livebearers: 1, Mr K. Fellingham; 2 and 3, Mr J. Phillips. Catfish and loach: 1, Mr J. Green; 2, Mrs L. Cook; 3, Mr A. Cook. Furnished aquaria: 1, Mr D. Barber; 2, Mr J. Green; 3, Mr K. Fellingham. Coldwater: 1 and 2, Mr B. Chapman; 3, Mr G. Goodchild. Reptiles: 1, G. Goodchild. G. Goodchild also won the Junior Cup.

MR GERRY DAVIS, Chairman of the Judges & Standards Committee

of the **FEDERATION OF GUPPY BREEDER'S SOCIETIES** was awarded a Fellowship of the Society at this year's annual A.G.M. in recognition of his years of dedication to the Federation. Officers elected at the meeting were: president, Mr H. Esterbrook; vice-president, Mr G. Davis; general secretary, Mr R. F. Bayntum, Cherry Orchard, Ibstone, nr High Wycombe, Bucks; provincial and overseas secretary, press officer and P.R.O., Mr F. D. Hall, Fernham Road, Shellingford, Faringdon, Berks; show secretary, Mr J. Wheeler; librarian, Dr C. Purdom.

A small drop in membership that was reported from the North of England and Scotland was more than offset by reports of growing interest from aquarists on the south coast and in Ireland. A great deal of discussion took place on amendments suggested to standards and pointings in the Standards Handbook arising out of the Judges Conference in January. The results of this will shortly be published in a new Standards Handbook. Specialist breeders, it is expected, will be pleased with the new pointing which favours the smallfinned varieties, and promises a greater number of entries of the original F.G.B.S. types on the show bench.

A WARM recommendation of the Hendon & D. A.S. new lecture on barbs comes from Mrs P. M. Hoult, secretary of **COLWYN BAY & D. A.S.** The lecture was specially prepared for the society by Mr Keith Purbrick and Mrs Hoult writes "This is one of Hendon's new lectures, and when it becomes available to the societies I highly recommend it as excellent entertainment and most enlightening". This has been just one of the many excellent lectures members of the Society have been enjoying. The use of wood and fibre-glass for tank construction and of treated card for hoods was explained by Mr J. E. Hoult. The Hendon lecture on brine shrimp was followed by a lecture by Mr M. Ashburn on the techniques of photographing fishes that was illustrated with a wide selection of equipment. Dr C. W. Haskins, president of the Society, also had a large selection of samples to illustrate his lecture on "Fossil fish to tropic fish" and two films on rocks to give visual background to his talk.

AT the start of the show season, Mr G. B. Hawshby, editor of the YORK & D. A.S. journal 'Lateral Lines' describes some of the underlying reasons for the pleasure that he and so many other enthusiastic hobbyists derive from visiting open shows: 'Firstly, it is only at these shows that one is able to see so many varieties of fish usually several of which are new to me... Secondly I am able to meet and discuss problems with some of the most experienced aquarists in the business who willingly supply practical information which unfortunately is not to be found in so many of the current textbooks. Finally my ego benefits greatly from the boost it gets if one of my entries is awarded a prize. This gives me immense satisfaction for in the main the only fish I show are the ones which I have bred myself.'

SWILLINGTON A.S. meet on the first and third Wednesday of each month at the County Primary School, Church Lane, Swillington, nr Leeds and fishkeepers in the area are very welcome to attend and join in. For newcomers to the hobby there are lectures such as that given by Mr Peter Reynolds on setting up a new tank, panels of experts to answer queries and talks on separate species such as piranhas. The first quarterly members' table show was judged by Mr R. M. Faircliffe of Tadcaster. The best fish in show award went to Mr Reynolds and Mr P. Haigh received the Harry Spruce trophy for guppies. Other results were:

Mollies: 1, Mrs M. Emmett; 2, Mr P. Reynolds; 3, Mr D. Dickson. Platys: 1, Mr and Mrs P. Flint; 2 and 3, Mr G. Binks. Guppies: 1 and 2, Mr P. Haigh; 3, Mr P. Reynolds. Swordtails: 1 and 2, Mr P. Reynolds; 3, Mrs M. Emmett. Plangs: 1 and 2, Mr P. Reynolds; 3, Mr and Mrs P. Flint.

THE purchase of an epidiascope (very cheaply through a local newspaper advertisement) by **UXBRIDGE & D. A.S.** enabled club member Mr Tom Summers to illustrate his first lecture to the Society. This was on catfish with special reference to *Corydoras* cats. A lecture by Mr J. Thorne of Hounslow on fish diseases proved most informative. Club members are busy preparing for their open show in May when they hope to meet many old friends and lots of new ones. There are excellent

trophies to compete for; the show committee's slogan is "You support us and we'll support you".

MEMBERS of WARRINGTON A.S. have presented Mr Ron Tenci former publicity officer, secretary and chairman of the Society who has now moved to Oldham, with plaque recording honorary life membership of the Society for all his efforts on its behalf. Mr Tenci, thanking members voiced what perhaps the basic motivation of club activity—he explained that he had done what he could because I enjoyed doing it and because of the sense of belonging to a warm group of friends as well as fellow aquarist.

The club's committee resigned en bloc this year to give new members chance to serve the club. Office elected at the A.G.M. were: president, Mr A. Higham; chairman, Mr L. Crawford; secretary, Mr Addison (5 Hewitt Street, Latchford Warrington, Lancs.); treasurer, Mr S. Worrall; show secretary, Mr Higham; assistant, Mr D. Gavi F.O.T.M. secretary, Mr M. Baker committee, Mr and Mrs E. Clark Mr and Mrs J. Alcock, Mr Reedy, Mr B. Philcox, Mr Wootton, Mr Blackmore, Mr Healey.

HORSFORTH A.S. juniors was entertained their elders when they took over the evening's entertainment in March. M.C. Master Elstob introduced a varied programme. Master D. France ran game called "Song Titles", Mrs J. Dugdale gave a slide show Canada and the ice glaciers with commentary, Master K. Kirkbrigg presented a picture quiz and Mrs D. Shaw assisted by Master Williamson admirably undertook the comedy section with jokes and imitations. The monthly table show was judged by Mr G. Holmes. The best in show trophy, given and presented by Mr P. Foster, awarded to Mr Girdham. Other results were:

Pairs: 1, Miss J. Helm; 2, Mr K. Shaw; 3, Mr R. Hampson. Barbs: 1, Mr Girdham; 2, Mr M. Pollard; 3, Miss J. Helm. L. bearers: 1, Mr D. Corns; 2, Master Shaw; 3, Mr Barker. Cichlids: 1, Mr Hampson; 2 and 3, Miss J. Helm. Anabantids: 1, Mr R. Hampson; 2, Mr W. Aud; 3, Mr A. Wood. Characins: 1 and 2, R. Hampson; 3, Mr M. Pollard A.O.V. Mr D. Corns; 2, Mr M. Pollard; 3, J. Dickinson. Catfish and loach: 1, Mr Hampson; 2, Master D. Shaw; 3, Mr Corns. A.O.V. junior: 1, Master S. Elstob; 2 and 3, Master D. Shaw.

HUCKNALL & BULWELL A.S. were hosts to Alfreton & D.A.S. for the return inter-society show. There were over 100 entries to be judged by Mr Bruce Inman of Nottingham, who awarded the following places:

Livebearers: 1 and 2, Mr Linely (A); 3, Mr Wright (A). Characins: 1, Mr Linely (A); 2, Mr S. Hill (A); 3, Mr Wright (A). Sharks and loaches: 1, Mr Pugh (A); 2, Mr Garratt (H); 3, Mr Power (H). Cichlids: 1, Mr Garratt; 2 and 3, Mr Linely, Loaches, 1 and 2, Mr Wright; 3, Mr Owen (H). A.o.v. tropical: 1, Mr Foster (H); 2, Mr Smith (H); 3, Mr Richardson (H). Pairs egglayers: 1 and 2, Mr Linely; 3, Mr Hill. Breeders livebearers: 1, Mr Johnson (H); 2, Mr T. Garratt; 3, Mr Lenzons (A). Junior a.v.: 1 and 3, Miss Susan Hartwell (H); 2, Jayne and Paul Harrington (H).

The Society is to form a Junior Section, with free membership for the under-sixteens. Meetings are to be held on Sunday mornings and will include lectures from the senior members, who will help to organise and finance the junior section. Further details can be obtained from Mr M. Harrington of 5 Greenwood Vale, Hucknall (in PFM for March this address was incorrectly given as that of Mr Foster, P.R.O.). The seniors of the club are hoping to stage several public exhibitions in the area. Any interested fishkeeper is invited to attend one of the twice-monthly meetings at The Half Moon Hotel, Bucknall, where the club are installing two tanks in the lounge.

BRIGHTON & SOUTHERN A.S. members had a very good evening's entertainment viewing their own slides. These slides covered a wide range of fishes and showed a great variety of tank decor. At the table show for a.v. catfish and livebearers (breeding pairs), there were 87 entries to be judged by Mr Nutt who, however, not only succeeded in judging all the entries but found time to talk about them and give members much helpful advice about their fishes. Positions in the two classes were:

Livebearers: 1 and 3, Miss M. Scott (82, 77). K. Williams was placed first in the junior section. Catfish: 1, Mr E. Cox (84); 2, Mr P. Tighe (82); 3, Mrs M. Tighe (81). In the junior section K. Williams was again placed first (68 points). E. Williams was second (67).

At this meeting a new treasurer, Mr Ron Doe, was elected.

AFTER only 3 years of the club's existence, reports given by officers at the **MID-SUSSEX A.S.** annual

meeting showed the Society to be in very fine shape. A membership of 82, a credit balance in the bank and lots of new ideas such as chartering a plane to visit fish farms in Scandinavia, twinning with an American club and building a club house, would ensure the Society's continued growth. 91 trophies, medals and ribbons were presented to club members by Mr Conway Gabe, Editor of the **MID-SUSSEX TIMES**:

Exhibitor of the Year: 1, Mr D. Soper; 2, Mr C. West; 3, Mr R. Johnson. Fish of the Year: 1, Mr R. Johnson; 2, Mr E. Jeffrey; 3, Mr C. West. Home aquaria: 1, Mr D. Rebbetts; 2, Mr R. Johnson; 3, Mr D. Soper. Furnished jar: 1, Mr N. Short; 2 and 3, Mr D. Soper.

Novices class: 1, Mr S. Prior; 2, Mr S. Caulderbank; 3, Mr A. Prior. Breeders' class: 1 and 3, Mr D. Soper; 2, Mr J. Reeve. Cichlids: 1, 2 and 3, Mr D. Soper. Catfish class: 1, Mr C. West; 2, Mr R. Smith; 3, Mr L. Jeffrey. Guppies (male): 1 and 3, Mr D. Soper; 2, Mr B. Daxial. Guppies (female): 1, 2 and 3, Mr D. Soper. Livebearers: 1, Mr S. Smith; 2, Mr E. Jeffrey; 3, Mr C. West. Labyrinths: 1, Mr D. Soper; 2 and 3, Mr M. Sparshott. Barbs: 1, Mr C. West; 2, Mr A. Saunders; 3, Mr D. Soper. A.o.v.: 1, Mr M. Sparshott; 2, Mr C. West; 3, Mr D. Soper. Characins: 1 and 3, Mr D. Soper; 2, Mr R. Johnson. Rasboras: 1, Mr J. Reeve; 2 and 3, Mr R. Johnson.

Junior awards: Home aquaria, Master P. Miles. Exhibitor of the year, Master P. Miles.

THE HUDDERSFIELD T.F.S. open show was again a great success this year. Mr R. Wilkinson of Halifax won the best fish in show trophy, and Mr J. Brown of Mixenden the

trophy for best pair of egglayers. Other winners were:

Guppies: 1, 2 and 3, Mr W. J. Orton (82, 81, 78, Salford). Mollies: 1, Mr and Mrs J. & H. Dornie (80, Dukeries); 2, Mr E. Sister (74, Independent); 3, Mr G. Hammet (73, Huddersfield). Swords: 1, Mr J. F. R. Robinson (72, Aireborough); 2, Mr N. Gibson (74, Huddersfield); 3, Mr J. Gresty (71, Sunnybrow). Platys: 1 and 2, Mr A. Esteves (74, 73, Top Ten); 3, Mr B. Thompson (70, Gorton & Openshaw).

Small barbs: 1 and 3, Mr and Mrs Buxton (84, 76, Barnsley); 2, Mr and Mrs J. & H. Dornie (78, Dukeries). Large barbs: 1, Mr K. Parkes (84, Merseyside); 2, Mr and Mrs Grimshaw (82, Sunnybrow); 3, Mr J. A. Whiteley (81, Aireborough). Small characins: 1, Mr R. Wilkinson (85, Halifax); 2, Mr J. Gresty (82, Sunnybrow); 3, Mr F. Sonley (80, Independent). Characins, large: 1, Mrs Parkes (83, Merseyside); 2, Mr J. A. Whiteley (82, Aireborough); 3, Mr J. Tunney (81, Stocksbridge). Carp and minnows: 1 and 2, Goodwin Bros. (77, 74, North Staffs); 3, Mr P. Reynolds (68, Swinton). Danios and rasboras: 1, Mr and Mrs Grimshaw (74, Osram); 2, Mr F. Gregory (72, Osram); 3, Mr and Mrs Hoggarth (71, Rochdale). Sharks and flying foxes: 1, Mr R. Walker (80, Sheffield); 2, Mr J. Tunney (78, Stocksbridge); 3, Mr F. Mullis (77, Merseyside).

A.o.v. anabantids: 1, Mr A. Esteves (79, Top Ten); 2, Mr D. Thompson (77, Loughborough); 3, Mr A. E. Whitelock (76, Tadcaster). Fighters: 1, Mr D. W. Smith (73, Tadcaster); 2, Mr C. Asquith (70, Castleford); 3, Mr R. Bycroft (68, Top Ten). Dwarf cichlids: 1, Mr B. Frost (78, Dukeries); 2, Mr and Mrs J. & H. Dornie (77, Dukeries); 3, Mr J. Gresty (76, Sunnybrow). Large cichlids: 1, Mr F. Thornton (81, Aireborough); 2, Mr K. Parkes (79, Merseyside); 3, Mr M. Naylor (78, Halifax). Angels: 1, Mr J. Gresty (80, Sunnybrow); 2, J. & R. Robinson (78, Aireborough); 3, Mr A. Hudson (77, Huddersfield).

Toothcarps: 1, Mr I. Greenall (80, Tadcaster); 2, Mr N. Fearn (79, Stocksbridge); 3, Mr R. Walker (78, Sheffield). Small catfish: 1, Mr A. Esteves (79, Top Ten); 2, Mr J. Blamires (78, Huddersfield);



Photo

THE MID-SUSSEX TIMES

Mid-Sussex A.S. member Mr D. Soper (left) receives Exhibitor of the Year award from Mr Robin Johnson, current holder of the award

3, Mr P. Reynolds (77, Swillington). Large catfish: 1, Mr B. Philips (83, Ashton-under-Lyme); 2, T. & W. (82, Sunnybrow); 3, Mr F. Mulla (80, Merseyside). Loaches: 1, Mr A. Quinton (80, Valley); 2, Mr M. Ward (79, Mixenden); 3, Mr R. Walker (77, Sheffield).

Breeders livebearers: 1, Mr J. Tunney (84, Stockbridge); 2, Mr R. Heeley (82, Barnsley); 3, Mr J. Greenwood (80, Halifax). Breeders egg-layers: 1 and 2, Mr and Mrs Buxton (83, 81, Barnsley); 3, J. & R. Robinson (80, Aireborough). Pairs livebearers: 1, Mr J. Greasy (Sunnybrow, 84); 2, J. & R. Robinson (83, Aireborough); 3, Mr H. Gardner (81, Aireborough). Pairs egg-layers: 1, Mr and Mrs J. Brown (83, Mixenden); 2, Mr J. A. Whiteley (80, Aireborough); 3, Mr J. Howard (79, Barnsley). A.o.v. tropical: 1, Mr F. G. Sibson (80, Worksop); 2, Mr H. C. Naylor (79, Halifax); 3, Mr P. A. Devine (78, Ashton).

Common goldfish: 1 and 3, Mr E. W. Eaden (77, 74, Sheffield); 2, Mrs Davies (76, Heywood). 1 and 2, Mr E. W. Eaden (80, 78, Sheffield); 3, Miss E. Bone (Huddersfield). A.o.v. coldwater: 1, Mr J. Hooper (79, Bradford); 2 and 3, Mr E. W. Eaden (78, 76, Sheffield). Juniors: 1, Susan Robinson (79, Aireborough); 2, Master H. Rhodes (77, York); 3, Master White (Keighley, 76).

RECENT activities of FARNBOROUGH & D.A.S. have included the manning of a stand for 4 days at the Farnborough Festival of Arts. On display were a 3 ft. community tank, a second tank set up with breeding livebearers and a third one containing blue gularis that were spawning. The interest shown by both children and adult visitors made the venture a great success. A return match with DIDCOT & D.A.S. resulted in a win for Farnborough by 163 points to 137 (1, Mr Wilkinson, Didcot, harlequin; 2 and 3, Mr D. Jones, Farnborough, cherry barbs; 4, Mr Wilkinson, Didcot, botia). The society was also successful in an inter-club contest with BASINGSTOKE A.S. All the places were taken by Farnborough, who won by a margin of 61 points (labyrinths: 1 and 2, Mr R. Wynd; 3, Mr R. Armstrong. Barbs: 1, 2 and 3, Mr D. Jones. Livebearers: 1, 2, and 3, Mr R. Armstrong.

MISS H. MORGAN of BRISTOL A.S. secured top honours in the annual table show competition with 38 points (2, Mrs C. Allenson; 3, Mr F. Brown). Club members have recently enjoyed a comprehensive lecture by Mr John Wheeler of Bradford-on-Avon on the tropical side of the hobby—freshwater and marine. Mr Wheeler explained from the start that his experience with marine fishes was of only some few months duration and the fact that such an accomplished aquarist could detail his first steps in a new side of

Badge of the Month



Aireborough & D.A.S. was formed by 11 enthusiasts on 21st February 1961 with help and advice from members of Bradford & D.A.S. The original founder member was Mr H. Myers; now the membership is well over 80. The clown loach displayed on the badge and on prize cards and club stationery was chosen from a number of designs by members.

Meetings are held on the first Thursday of the month at the Co-op Hall, Otley Road, Guiseley, nr Leeds. Besides this meeting the Society holds an "Open House" in most months, which is an informal get-together in a member's home. In 1967 the Society started a "Breeder's Award System" to promote the breeding and rearing of tropical fishes and this created quite a lot of interest with local societies. Also, during the past 3 years the Society has had the sole distribution rights in this country of a series of tape-recorded lectures by the Canadian author and lecturer Mr W. L. Whitem. Secretary Mr G. E. Walker (2 West End Terrace, Guiseley, nr Leeds) welcomes enquiries from prospective new members.

the hobby won over his audience. Experiences with the clown fish as a suitably robust variety for the beginner and the problems of keeping and feeding butterfly fishes proved of great interest and led to a wider discussion of feeding problems and fish food for freshwater tropicals. The table show for goldfish (judge Mr S. Davis) saw Mr H. Jago winning the first, second and third places with new member Mr Mildon very successfully achieving fourth place. The guppy class (judge, Mr J. Wheeler) results were 1 and 2, Mr F. Brown; 3, Mr S. Lloyd.

FISHKEEPING enthusiasts bated through arctic conditions to attend the first open show held by the TOP TEN A.S. but in spite of the weather it was a great success. Held in the spacious and pleasant surroundings of Huddersfield Town Hall, 523 entries from 32 societies were received. These were judged by Mr C. Walker (F.N.A.S.) and Mr G. Holmes (F.N.A.S.) Prize were presented by Mr J. Marsden the president of the Society. Mr R. Taylor of Aireborough won the Deane Aquarium trophy for the best fish in show and the J. Marsden Challenge Cup went to Mr W. Parkin (Huddersfield) for the best pair. Mr J. Igoe of Rainworth won the Rawlins trophy for the best live bearer, Mrs V. Parkes (Merseyside) was awarded the Ladies prize and the prize for the exhibitor gainst, the most points was won by Mr F. Buxton (Barnsley). Further results were:

Guppies: 1, 2 and 3, Mr W. J. Otto (Salford). Swordtails: 1, Mr B. Kirto (Wakefield); 2, Mr N. R. Gibson (Huddersfield); 3, Mr M. Woodley (Dukeries). Platys: 1, Mr J. Greasy (Sunnybrow); 2, Mr A. G. Esteves (Top Ten); 3, Mr B. Thompson (Gorton). Mollies: 1, Mr J. Igoe (Rainworth); 2, Mr and Mrs J. & H. Dornie (Dukeries); 3, Mr J. Greasy (Sunnybrow). A.o.v. Livebearer: 1, Mr A. Hirs (Ind.); 2, Mr L. Kaye (Top Ten); 3, T. & W. (Sunnybrow).

Small Barbs: 1 and 2, Mr F. Buxton (Barnsley); 3, Mr and Mrs J. & H. Dornie (Dukeries). Large Barbs: 1, Mr K. Parkes (Merseyside); 2, Mr and Mrs Grimshaw (Sunnybrow); 3, Mr J. A. Whiteley (Aireborough). Small Characins: 1, Mrs P. M. Robinson (Huddersfield); 2, Mr F. Buxton (Barnsley); 3, Mrs J. Wike (Huddersfield). Medium Characins: 1, J. & R. Robinson (Aireborough); 2, Mr G. Wilkinson (Halifax); 3, Mr A. Whyte (Halifax). Large Characins: Mr K. Parkes (Merseyside); 2, Mr J. A. Whiteley (Aireborough); 3, Mr J. Mond (Aireborough).

Aptarogramma species: 1, Mr R. Taylor (Aireborough); 2, Mr J. Greasy (Sunnybrow); 3, Mr D. Jackson (Dukeries). A.o.v. Dwarf Cichlids: 1, Mr and Mrs J. & H. Dornie (Dukeries); 2, Mr A. Hudson (Huddersfield); 3, Mr B. Smith (Merseyside). Angels: 1, Mr D. Trace (Ashton); 2, Mr A. Hirst (Ind.); 3, Mr J. R. Robinson (Aireborough). A.o.v. Cichlid: 1, R. Taylor (Aireborough); 2, Mr K. Parkes (Merseyside); 3, Mr S. Hirst (Mixenden). Male Fighters, Self Coloured: 1, Mr Woodley (Dukeries); 2, Mr L. Kaye (Top Ten); 3, Mr R. Bycroft (Top Ten). Male Fighters, Multi-Coloured: 1, Mr C. Asquith (Castleford); 2, Mr D. Smith (Tadcaster); 3, Mrs Davies (Heywood). Dwarf, Giant, Thicklip, Gourami: 1, Mr A. G. Esteves (Top Ten); 2, Mr A. Whitlock (Tadcaster); 3, Mr M. Heeley (Barnsley). A.o.v. Anabantid: 1, Mr M. Woodley (Dukeries); 2, Mr A. Hudson (Huddersfield); 3, Mr and Mrs Bone (Huddersfield).

Tooth Carps: 1, Mr Greenhall (Tadcaster); 2, Mr R. Taylor (Aireborough); 3, Mr D. Smith (Tadcaster). Sharks & Flying Foxes: 1, Mrs Hargreaves (York); 2, Mr J. A. Whiteley (Aireborough); 3, Mr F. Gates (Castleford). Danios & Minnows: 1, Mr A. G. Esteves (Top Ten); 2, Mr and Mrs Raybould (Rotherham); 3, Mr P. Moorhouse (Bradford). Rasbora: 1, Mr and Mrs Webb (Salford); 2, T. & W. (Sunny-

Hastings and Bexhill A.S. have installed and now maintain an aquarium in the Salvation Army Home at St Leonards. Members are seen with Brigadier Crowhurst and Mrs K. Good (donor of the tank)



brown); 3, Mrs E. Wilkinson (Halifax).
Corydoras: 1, Mr D. Smith (Tadcaster);
2, Master D. Lacey (Aireborough); 3, Mr
B. Thompson (Gorton). A.o.v. Catfish: Mr
B. Phillips (Ashton); 2, Mr F. Gates
(Castleford); 3, Mr L. Kaye (Top Ten).
Loaches: 1, Mr S. Hirst (Ind.); 2, T. & W.
(Sunnybrow); 3, Mr F. Mulla (Mersey-
side).

Breeders Livebearers: 1, Mr J. Tunney
(Stockbridge); 2, and 3, Mr Healey (Barn-
ley). Breeders Egglayers: 1, and 3, Mr P.
Buxton (Barnley); 2, Mr J. Wright (Alfre-
ton). Female Livebearers: 1, Mrs J. Wike
(Huddersfield); 2, Mr B. Megson (Aire-
borough); 3, Mr G. Thickbroom (Castle-
ford). Female Egglayers: 1, Mr B. Megson
(Aireborough); 2, Mr and Mrs Webb
(Salford); 3, Mr J. R. Robinson (Aire-
borough). Pairs Livebearers: 1, Mr J.
Greedy (Sunnybrow); 2, Mr R. Wilkinson
(Halifax); 3, Mr J. R. Robinson (Aire-
borough). Pairs Egglayers: 1, Mr W. Parkin
(Huddersfield); 2, Mr J. A. Whiteley (Aire-
borough); 3, Mr F. Mulla (Merseyside).
A.o.v. Tropical: 1, Mr A. Whitlock (Tad-
caster); 2, Mr P. Jackson (Dukeries); 3, Mr
J. Wright (Alfreton).

Juniors: 1 and 3, Master A. Kaye (Hud-
dersfield); 2, Mr S. Smith (Merseyside).
Ladies: 1, Mrs V. Parkes (Merseyside); 2,
Mrs Moorhouse (Bradford); 3, Mrs Hooper
(Bradford). Fancy Goldfish: 1, Mr P. Moor-
house (Bradford); 2, Mr Eden (Sheffield);
3, Mr and Mrs Bose (Huddersfield).
Common Goldfish: 1, Mr Eden (Sheffield);
2, Mrs Davies (Heywood); 3, Mr A. Town
(Castleford). A.o.v. Coldwater: 1, Mr
Hooper (Bradford); 2, and 3, Mr Eden
(Sheffield).

With the success of the above show still in mind the Society have again booked Huddersfield Town Hall as the venue for their second open show on Sunday 22nd March 1970 (secretaries please note).

THE Midland Aquarists Convention, the annual convention and open show of the MIDLAND ASSOCIATION OF AQUARISTS' SOCIETIES, is being held this year on Sunday, 11th May at the Moseley Secondary School, College Road, Moseley (the sponsor Society this year is the MIDLAND AQUARIUM AND POOL SOCIETY). Benching is from 12.0 to 3.0 p.m. and the Convention, with guest speaker, starts at 3.0 p.m. There are many awards both for the individual and for societies and show secretary of M.A.A.S. Mr A. E. Allsop (50 Cubley Road, Hall Green, Birmingham) looks forward to meeting many old friends. For details please ring 021-777 1642 or Loughborough 3369.

In Brief . . .

. . . A NEW Society is **AMESBURY & D. A.S.**, secretary Mr R. S. A. Harvey (Sha-Tin, Kitchener Road, Amesbury, Wilts.). At the inaugural meeting, Mr M. Sainsbury was elected chairman and the enthusiasm and ideas put forward by the 20 fishkeepers present promise well for the future. It would be much appreciated if anyone willing to give lectures or talks would contact the secretary.

. . . **COVENTRY P. & A.S.** members have enjoyed a talk on the make-up of a fish by Mr D. Jones and Mr W. Blundell. Table show results were: Pairs livebearers: 1, Mr D. Bain; 2 and 3, Mr D. Easingwood. Coldwater: 1, 2 and 3, Mr B. Bromfield. Pairs egglayers: 1, Mr T. Grant; 2, Mr E. Sheehy; 3, Mr E. Leggett.

. . . **MR JACK NORRIS** is the new chairman of **BRACKNELL & D. A.S.**, replacing Mr Alan Keith who has had to relinquish the post through business commitments. From the A.G.M. to be held in October club nights will be on the second and fourth Monday in the month (instead of the first and third as at present).

. . . **MRS J. WRIGHT** has won the **GOSPORT & D. A.S.** home furnished aquaria competition. Mr J. Stillwell, who judged it, also spoke on water, illustrating his lecture by tests on the club's community tank. Table show results: A.v. labyrinth: 1, Mr Ellick; 2 and 3, Mr Little-

proud. A.v. catfish: 1, Mr Ellick; 2 and 3, Mr Littleproud.

. . . A SPOT-the-picture competition tested members' knowledge at the **ENFIELD & D. A.S.** February meeting. 30 pictures of fishes and plants had to be identified and out of a possible score of 30 Miss C. Collins achieved 29 points. The table show for labyrinths was won by Mr Howe (2, Mrs Howe; 3, Mr J. Whittaker).

. . . **MID-HERTS A.S. A.G.M.** had to be postponed because of a blizzard, but when it was held 2 weeks later the officers elected were: president, Mr Tom Timms; chairman, Mr Peter Bird; secretary, Mr Clive Walford (57 Axe Close, Marsh Farm Estate, Leagrave, Luton, Beds.); treasurer, Mr Bill Davison; show secretary and P.R.O. Mr Charlie Withers; assistant, Mr Laurie Weller; committee member, Mr Bob Rumney. Mr and Mrs Roy Skipper, and Mrs Charles MacRae, were guests of honour at the annual social and prize giving. Awards presented: Pets Galore Cup (highest total points), Mr Peter Barnard; Hitchin trophy (most points in open shows), Mr Bill Davison; ladies trophy, Mrs G. Parker; junior shield, Master Anthony Withers; Founders Cup (highest pointed fish), Mr Rob Savage for an angel (Mr Savage also won the Withers trophy for the best cichlid with this fish); Weller trophy for best guppy, a joint award to Mr Laurie Weller and Mr Charlie Withers; Aquascope Cup for the best contribution to the Society's magazine, a joint award to Mr Terry Mahoney and Mr Charlie Withers.

... **BARNSELY T.F.S.** held their March meeting at their new headquarters, the Alhambra Hotel, Barnsley. 37 members saw a slide show, presented by Mr R. Hampson, entitled 'The Fin and Gill Club' which gives an inside look at the hobby in an American prison. The table show for livebearers was won by Mr R. Heely (2, also Mr R. Heely; 3, Mr Holmes).

... **AT** very short notice and despite heavy business commitments, Mr. Roy Skipper gave members of **WALTHAMSTOW & D.A.S.** a most informative lecture on his personal experiences and methods of keeping, breeding and rearing discus. There were excellent close-up colour slides, and since Mr Skipper disclosed all the technical information required, club members hope to be rearing batches of young discus by the end of the year. For information on forthcoming meetings contact secretary Mr A. R. Chandler, 68 Uplands Road, Woodford Bridge, Essex.

... **CAMBRIDGE & D.A.S.** have enjoyed an extremely good year. Membership of up to 60 and average attendance at meetings of 30 will provide an enthusiastic group to celebrate the Society's 21st anniversary this coming year. Special activities to create interest in the hobby in the locality are being arranged. Officers elected for the year are: chairman, Mr Paul Sanderson; vice-chairman, Mr John Yeats; secretary, Mr L. Georgeson (16 Leys Road, Cambridge, CB4 2AT; Cambridge 58593); assistant, Mr MacMillan; treasurer, Mr Freeman; show manager, Mr Startope; show secretary, Mr Dant; committee members, Mr Radford, Mr Startope senior, Mr Parfitt, Mr Love senior, Mr Langley, Mr Ryder. The Society meets on the first Tuesday of the month at the Rose and Crown, Newmarket Road, Cambridge and visitors are always welcome.

... **NEW** officers of **EALING & D.A.S.** are: chairman, Mr Colin Rainbow; vice-chairman, Mr Albert Ankin; secretary, Mr Roy Barrett (8, Grove Court, The Grove, Ealing, W.5); show secretary, Mr Ray Savage; treasurer, Mr Albert King; general members, Mr Bob Sellers, Mr Charlie Ankin; junior member, Michael Sadler. Meetings

are held on the first and third Tuesday of the month at the Northfield Community Centre, Northcroft Road, W. Ealing, W.13. New members welcome.

... **NEWS** of new **INTERNATIONAL MARINE STUDY SOCIETY** officers overseas is currently to hand. New officers are: Mr Elliot Hannay, P.R.O. Australia; Mr G. Brewer, membership secretary Australia; Mr R. E. Rix, P.R.O. South Africa (Mr Rix recently visited the IMSS in England and went on to visit several members in the U.S.A.); Mr Don S. Johnson, P.R.O. America (71 Strawberry Hill, Stamford, Conn.); Mr Don Sporleder, membership secretary America (6750 N. Sargonash, Edgebrook, Illinois, U.S.A.). IMSS general secretary is Mr T. R. Hall, 49 Broadhurst Gardens, London, N.W.6.

... **THE** first round in the annual table show competition between Thurrock, Basildon, East London clubs and **SOUTHEND, LEIGH & D.A.S.**, who were the hosts, resulted in a win for East London with 17 points (Thurrock 8, Southend 5). Individual winners were: Barbs (50 entries): 1, Mr K. Baker; 2, Mr P. Campkin; 3, Mr W. Corby. Platys (25 entries): 1, Mr L. R. Barker; 2, Mr J. Hatton; 3, Mr F. Vickers. Fighters (17 entries): 1, Mr P. F. Capon; 2 and 3, Mr D. Durrant. Mr Gerald Jennings of IMSS spoke on the basics of marine fishkeeping and stressed that marines need not be expensive to keep.

... **OFFICERS** of **EAST LONDON A. & P.A.** elected at the A.G.M. are: president, Mr P. Campkin; vice-presidents, Mr R. A. Taylor, Mr P. Arnold, Mr F. Petto; chairman, Mr F. Vicker; vice-chairman, Mr A. Field; secretary, Mrs P. Harris (36 Leigh Road, East Ham, London, E.6); treasurer, Mr A. Harris; show organiser, Mr R. E. Armitage; show secretary, Mr G. Green; social secretary, Mr J. Boss; librarian, Mr C. Sweeting; magazine editor, Mr R. Dodkin; press secretary, Mrs S. Armitage; programme secretary, Mr W. Carby; equipment officer, Mr G. Green, assistant Mr L. R. Baker; committee, Mr M. Pearson, Mr K. Priest. The Society meets every first and third Friday of the month at Ripple Road, School, Barking at 8.00 p.m. New members are very welcome and the secretary will give further information.

... **OVER** 100 people attended **BRITISH AQUARISTS' STUDY SOCIETY** first Spring meeting hear lectures by Mr D. Philcox, Kew Gardens, who spoke on plant classification and its problems with special reference to *Limnophila* (*Ambulia*), and Mr H. Senior, B.A.S.S. member who works at the Zoo, who spoke about Lake Malawi cichlids.

... **BOREHAM WOOD & D.A.S.** members voted the March table show evening their most successful yet. Mr C. Withers of Mid-Hert discussed the most popular community-tank fishes. Mr N. Toulmi won in the table show for characin (2, Mr T. Burrows; 3, Mr G. Cherry).

... **MANY** new members attended the **BURTON & D.A.S.** meeting when a slide show and tape lecture on killifishes was shown. The table show for rasboras, danios and minnows was won by Mr D. Toplis (2, Mr B. Pointon; 3, Mr K. Smith).

... **MR C. GOSLING** is chairman of **OXFORD A.S.** for 1969 (secretary Mr M. King, 11 Crafts End, Chilton Berks; treasurer, Mr B. Boast). From May, meetings will be on the first Wednesday and third Friday of each month at 8.0 p.m. Beginner especially welcome. Details from secretary.

... **CLUB** member Mr Peter Hea took along many gourami fry to illustrate growth rates and feeding requirements when he lectured to fellow members of **EALING & D.A.S.** The slide-tape show at the second monthly meeting featured a slide of the club's successful Tableat at The Aquarium Show 1968 in London. New club badge designs were voted on and the resident expert Mr Charlie Ankin gave a mini-lecture on the treatment of fish diseases.

... **A FULL** programme at the March meeting was enjoyed by 56 **CARDIFF A.S.** members. A colour-slide show on tetras was presented by Mr G. W. Churchill (commentary by Mr Humphreys). A bring-and-buy sale was tremendously successful (proceeds in aid of the club's open show). The table show for cichlids was judged by Mr Chard and Mr Humphreys. Seniors class: 1, Mr B. Gorwill; 2, Mr D. Warneant; 3, Mr Wilkie. Juniors class: 1, M. Wilkie; 2 and 3 Master B. Roberts.

... MEMBERS of **EAST DULWICH A.S.** elected to office at the A.G.M. were: chairman, Mr R. Talmon; secretary, Miss V. Tillyer 90 Grierson Road, Honor Oak Park, London, S.E.23; treasurer, Mr H. Waters. Meetings are held on the second and fourth Mondays of the month at Dulwich Baths, Reception Hall, Crystal Palace Road, East Dulwich, London, S.E.22 and new members are very welcome.

... **BRACKNELL A.C.** won the first round of the Three Counties Pottery League with 102½ points. Mr Brian Baker from Uxbridge judged the 24 entries. (2, Basingstoke 83; 3, High Wycombe 73½; 4, Reading 42.)

... **HARROW A.S.** members hope that even more entries in table shows will result from the lecture given by Mr R. O. B. List on rules to follow when showing fish. At the second monthly meeting members were enthralled at the colour slides shown by Mr Roy Skipper, covering a wide range of topics from fish diseases in this country and abroad to discuss.

... **HARLECH A.S.** have now completed arrangements for their 1969 programme and speakers include Mr J. R. Bateman, Keeper of Zoology, National Museum of Wales; Mr Barry R. James, Cheltenham Aquatics; Mr Malcolm Delingpole, secretary of the Birmingham section of the F.G.A.; and FFSM contributor, Mr R. McN. Alexander of University College of North Wales. Meetings are held on the third Tuesday of the month at Gabalfa Junior School, Colwill Road, Cardiff (7.30 p.m.) and visitors are most welcome to attend.

... THE re-elected committee of **HOVE & SUSSEX A.S.** are: chairman, Mr R. Johnson; vice-chairman, Mr J. Soper; secretary, Mr J. Reeve 6 Rumbolds Lane, Haywards Heath, Sussex; treasurer, Mr C. West; show secretary, Mr R. Smith; committee, Mrs L. Jeffrey, Mr J. Short, Mr A. Jackson, Mr B. Hewitt (newly elected).

... SHOW secretary Mr Harry Berger and his daughter Rita have again upheld the **ILFORD & D.A.P.S.** record by winning the best show award with their prizewinning goldfish at the King's Hall Show, Hackney and a first for a tilapia in its particular class. Talks

How? How can I net my fish without causing damage?

THE operative word here is 'net'. Even with sufficient skill and a large enough and soft enough net it is very hard to stop a fish from wriggling about in such a trap once it is lifted from the water, and there is always the risk of him slipping past your outstretched hand and falling on to the floor.

The best method is to use a plastic fish bag of suitable size or a large glass container. Place one of these in the aquarium and drive the fish into its mouth with a net. If time isn't limited the addition of a few live daphnia to the jar or bag will often encourage even the fussiest of fish to enter, if only out of sheer curiosity. The bag can then be closed, or the cap fitted to the jar and the fish lifted out in complete safety. When the container is lifted, surplus water can be gently poured back into the aquarium. This way has the additional advantage that the fish does not experience any change of water conditions and, other things being taken care of, the fish should be in his prime on arrival at the show.

Incidentally, never subject any fish to extreme variations of darkness to light. Fish taken from the darkness of the carrying box to the brilliantly lit show hall are often disturbed and take some time to settle down, even long enough to still be in a state of agitation when the judging is carried out!

on fish house construction by Mr Smalley and on water by Mr Ron Dodkins of East London have provided members with much useful information. Meetings are held on the second Monday in the month at St Laurence's Hall, Donington Avenue, Barkingside, Ilford (8.0 p.m.).

... MR T. W. ERREY of the F.G.B.S. lectured to members of **BASINGSTOKE & D.A.S.** on his experiences with guppy line-breeding. Table show results were: guppies: 1, Mr A. Blake; 2, Mr I. Lamb; 3, Mr F. Lange. A.o.v.: 1 and 2, Mr F. Lange; 3, Mr A. Clarke. Novice: 1, Mr A. Clarke; 2 and 3, Mr I. Lamb.

... **BOURNEMOUTH A.C.** announce, with deep regret, the death of Mr Legge, whom older members of the Society remember as a very keen hobbyist and club supporter.

... NEW secretary of **THURROCK A.S.** is Mr J. Aspinall (48 York Avenue, Corringham, Essex). Mr D. C. M. Durrant took first, second and third places in the table show for fighters, which followed on the practical judging exercise that occupied the first part of the evening.

... MEMBERS of **BILLERICAY A.S.** consider they have reason to be

pleased that their first-ever entry in a furnished aquarium class (at the King's Hall Show) won them a fourth place. The club's activities continue to enlarge. A most welcome visit was paid by Mr C. A. T. Brown, who lectured on killifish illustrated with some very fine slides. Officers for the year are: chairman, Mr P. Murphy; treasurer, Mr P. Patis; secretary, R. Purves (226 Hanging Hill Lane, Hutton, Brentwood, Essex); show secretary, Mr G. Fairley; committee, Mr I. Horsey, Mr K. Knightley.

... WITH a full and interesting programme for the year **NORTH KENT A.S.** expect to gain yet more new members. An illustrated lecture on the origin and development of fishes was given by Mr Bryon Harvey and Mr J. Morrice spoke about some of the fishes that he had bred. Summer outings are being organised by the social secretary and will include a trip to Brighton Aquarium and a collecting trip to Black Rock. Prospective members are very welcome and Mr B. Bloss of 11 Lane Avenue, Greenhithe, Kent will supply all information.

... WHEN **MERSEYSIDE A.S.** were awarded the trophy for the Northern Show League for 1968 it

was the second year of the trophy's existence and the second time Merseyside had won it. In this annual competition, points are awarded to individual exhibitors for prizes gained at the 20 member societies' open shows each year. The club starts the third year's competition with 76 points won at the A.M.D.A.S. open show and a further 15 points at the Huddersfield open show.

... MR K. BINNS has won the NOTTINGHAM & D.A.S. table show challenge trophy, the Lynn & Mackenzie Cup, with an aggregate of 33 points. The Appreciation Cup has been awarded to Mr David Holland in appreciation of the work done for the Society over the last year.

... BRADFORD & D.A.S. are very fortunate in having many experienced and expert members who form a nucleus of lecturers. Recently the club has enjoyed talks by Mr P. Moorhouse and Mr L. Taylor on marines and foods and feeding. A lecture on fishkeeping by Mr Foden and on coldwater and English native species by Mr John Cawthra ensured that all the diverse interests of members are catered for.

... LEAMINGTON & D.A.S. are swinging into the show season with the Society in excellent shape. Chairman Mr F. Underwood comments on this in the Society's newsletter—'good attendance at meetings, some fine fish in the table shows, an excellent library, some wonderful programmes lined up for the near future, a trip to Chester Zoo planned for July... a trip to the sea-side to collect temperate marines' and the open show in May. Talks by Mr D. Ward and Mr E. Leggett on decorating the back of the aquarium and fish house construction were very well received.

... TORBAY A.S. was represented by Mr J. Haynes at a delegates' meeting of the WALES AND THE WEST FEDERATION OF AQUARISTS SOCIETIES. Delegates from Cardiff, Barry, Cheltenham, Bath and Bristol also attended this meeting at the beginning of March, when it was agreed that the six yearly meetings should be held variously in Bristol, Cardiff and Torbay to facilitate travelling to them. Judging was discussed in detail. It is proposed to adopt the general rules of the F.B.A.S. and to

establish a panel of 'qualified' judges to whom names of prospective new judges should be submitted. This would not preclude the appointment of ladies as judges.

... TONBRIDGE & D.A.S. held its first social recently when Mr Fred Groves, proprietor of a local aquarium shop, presented the Club Championship Shield to its first winner, Mr John Bellington, vice-chairman, who had 32 points. Secretary Mr Iain Mathieson was runner-up with 30 points and Mr Ron Taylor was third.

Dates for Your Diary

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

3rd May. TROWBRIDGE & D.A. & P.S. Open Show. Nelson Haden Girls School, Trowbridge. Schedules from Mr C. Penny, 122 Trowbridge Road, Bradford-on-Avon, Wilts.

4th May. DERBY REGENT A.S. seventh Open Show. Railway Institute, Siddals Road (opposite Midland Railway Station), Derby. Benching, 10.45-1.30. Schedules from Mr E. Hazeldine, 57 Tewkesbury Crescent, Chaddesden, Derby.

4th May. DUKERIES A.S. first Open Show. The Winifred Portland Technical Grammar School, Sparken Hill Campus, Schedules shortly from Mrs H. Dornie, 39 Sparken Hill, Worksop, Notts.

4th May. LEIGH A.S. Open Show (A.M.D.A.S.).

10th May. UXBRIDGE & D.A.S. Open Show. Meadow School, Royal Lane, Hillingdon, Middlesex. Schedules from Mr N. Lee, 46 Airdale Road, Ealing, London, W.5.

10th May. BRIDGEND & D.A.S. second Open Show. Bridgend Y.M.C.A.

11th May. MIDLAND AQUARISTS' CONVENTION (M.A.A.S.). Moseley Secondary School, College Road, Moseley, Birmingham. Benching 12.0-3.0. Convention starts at 3.0 p.m. Show secretary, Mr A. E. Allsopp, 50 Cubley Road, Hall Green Birmingham. Phone 021-777 1642 or Loughborough 3369.

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

17th May. CARDIFF A.S. Open Show. St Margaret's Church Hall, Roath Court Road, Cardiff.

18th May. HULL A.S. second Open Show. Railway Institute, Arlaby Road, Hull. Details from Mr P. M. Shepherdson, 11 Beech Grove, Beverley Road, Hull.

Societies are cordially reminded the INTERNATIONAL MARI STUDY SOCIETY that, if they have a 'blank' evening on their current programme, it could be filled with slide-illustrated lecture from IMSS. This service is provided, 'expenses only' and is now available throughout the U.K. Further details from the general secretary, Mr T. Hall, 49 Broadhurst Gardens, Lond N.W.6.

18th May. MERSEYSIDE A.S. Open Show. Monrose Social Club, 5 Richmond Terrace, Liverpool 6. Show Secretary: W. Smith, Sunningdale Road, Liverpool L15 4HT.

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

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

24th May. TAUNTON & D.A.S. 5th Open Show. Priory Secondary Mode School, Cranmer Road, Taunton. Schedules from Mr D. J. Ramsey, 52 Parklands Row Wellington, Somerset.

24th May. KINGSTON & D.A.S. Open Show. St Luke's Social Centre, Elm Row Kingston, Surrey. Schedules from Mr Greenhalf, 39 Garth Close, Morden, Surr

25th May. WARRINGTON A.S. Open Show. Show secretary, Mr J. Higha 42 Hood Lane, Warrington (phone 35929).

31st May. CATFORD A.S. Open Show. Catford School, Stainton Road, Catford London, S.E.6. Details from Mr K. Ows 196 Langley Way, West Wickham, Kent.

31st May. HARLECH A.S. first Open Show. Gabalfa Junior School, Colwill Row Cardiff. Show schedules from Mr P. Garner, 71A Moorland Road, Cardiff.

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

1st June. NUNEATON A.S. second Open Show (provisional announcement). Details from Mr G. Cox, 36 Manor Court Row Nuneaton.

1st June. BOURNEMOUTH A.C. Open Show. Kinson Community Centre, Fellas Park, Kinson, Bournemouth. Schedules at entry form after 1st April from Mr Jack Jeffery, 30 Braemar Avenue, Southbourne Bournemouth BH6 4JF.

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

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

Continued on page 8

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Dates for Your Diary

Continued from page 80

8th June. LINCOLN & D. A.S. Open Show. (F.N.A.S. judges). Schedules from Mr W. Cassidy, 56 Hollywell Road, Cliff Gardens, Brand Road, Lincoln.

8th June. GLOSSOP A.S. Open Show. The Adult Education Centre, Talbot Road, Glossop, Derbys. Benching, 12.0 to 2.0 p.m. Open to public from 2.0 p.m. Schedules from Mr D. R. Chambers, 86 Old Road, Hyde, Cheshire.

8th June. LOUGHBOROUGH & D. A.S. second National Open Show. Loughborough Town Hall. Benching, 11.0 a.m. to 1.30 p.m. Judging 1.30 to 3.30 p.m. Schedules later from Mr I. Purdy, 61 Poplar Road, Loughborough, Leics.

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

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

14th June. LLANTWIT MAJOR A.S. Open Show. Town Hall, Llantwit Major, Glam. Benching 12.30 p.m. Open to public 3.0 p.m. Schedules from Mr J. Sanders, 26 Sandfield Road, Aberkeinfing, Nr Bridgend, Glam.

15th June. SWILLINGTON A.S. fourth Open Show. Swillington County Primary School, Church Lane, Swillington, nr Leeds. Schedules from Mr W. R. Gawthorne, 6 Manston Lane, Leeds 15, Yorks.

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

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

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

21st-22nd June. CAMBRIDGE & D. A.S. Open Show. Guildhall, Market Square, Cambridge. Schedules from Mr L. Georgeon, 16 Leys Road, Cambridge, CB4 2AT.

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

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

26th-28th June. BRISTOL T.F.C. Open Show. Enquiries to Mr E. Newman, 71 Somerdale Avenue, Knowle, Bristol 4.

29th June. MEDWAY A.S. third Open Show. St John Fisher School, Chatham, Kent. Show secretary, Mr G. A. Craft, 75 Dargets Road, Walderslade, Chatham, Kent.

6th July. HIGH WYCOMBE A.S. Open Show. Bovingdon Green Hall, Nr Marlow, Bucks. Schedules shortly from Mrs S. Thomas, Finnermore Wood Camp, Lane End, Nr High Wycombe, Bucks (Lane End 659).

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

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

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

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

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

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

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

2nd August. STROUD & D. A.S. Open Show. Archway School, Paganhill, Stroud.

29th October-2nd November. T. AQUARIUM SHOW '69 at the Royal Horticultural Society's Old Hall, London, S.W.1.

2nd August. HULL A.S. Open Show part of the HULL SHOW. East Pk Holderness Road, Hull. Details from P. M. Shepherdson, 11 Beech Grc Beverley Road, Hull.

4th-9th August. AQUA '69 Open Sh (I.F.A.S.). Wellington Hall, Belfast.

9th-16th August. PORTSMOUTH A Open Show. Portsmouth Commur Centre, Twyford Avenue, Portsmouth. Schedules from Mr J. Stillwell, 14 Saloon Avenue, Copnor, Portsmouth, PO3 6LD.

13th-16th August. MIDLAND OPT SHOW (M.A.P.S.). Bingley Hall, Br Street, Birmingham. Schedules from J. J. Wits, 120 Franklin Road, Kings North Birmingham 30.

24th August. OSRAM A.S. Open Shc The Recreation Hall, Refuge Street, Sha Oldham, Lancs. Benching 12.0-2.15 p.m.

7th September. REIGATE & REDHILL A.S. Open Show. Details from Mr Perham, 5 Bolsover Grove, Merstha Surrey.

6th-7th September. MID-HERTS A Open Show. Show secretary, Mr C. S. Withers, 15 Charmouth Road, St Albans Herts.

12th-13th September. BRISTOL A Open Show. Bishopston Parish Hal Gloucester Road, Bristol. Enquiries to J. S. Lloyd, 4 Curlew Close, Frenchay, Brist

14th September. OLDHAM & D. A. Open Show. The Study Centre, Werne Park, Oldham, Lancs.

20th September. HOUNSLOW & D. A. Open Show (to be confirmed). Youth Cent Cecil Road, Hounslow. Schedules from M. F. Smith, Anafr House, 7 The Greens Hounslow, Middlesex.

18th-19th October. BRITISH AQUARISTS' FESTIVAL, Belle Vue, Manchest

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

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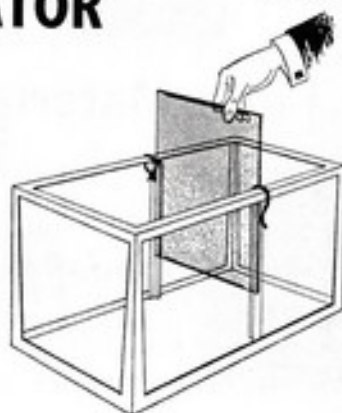
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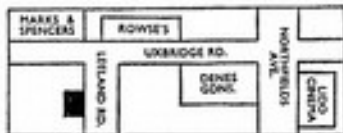
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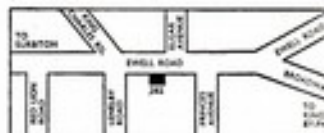
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