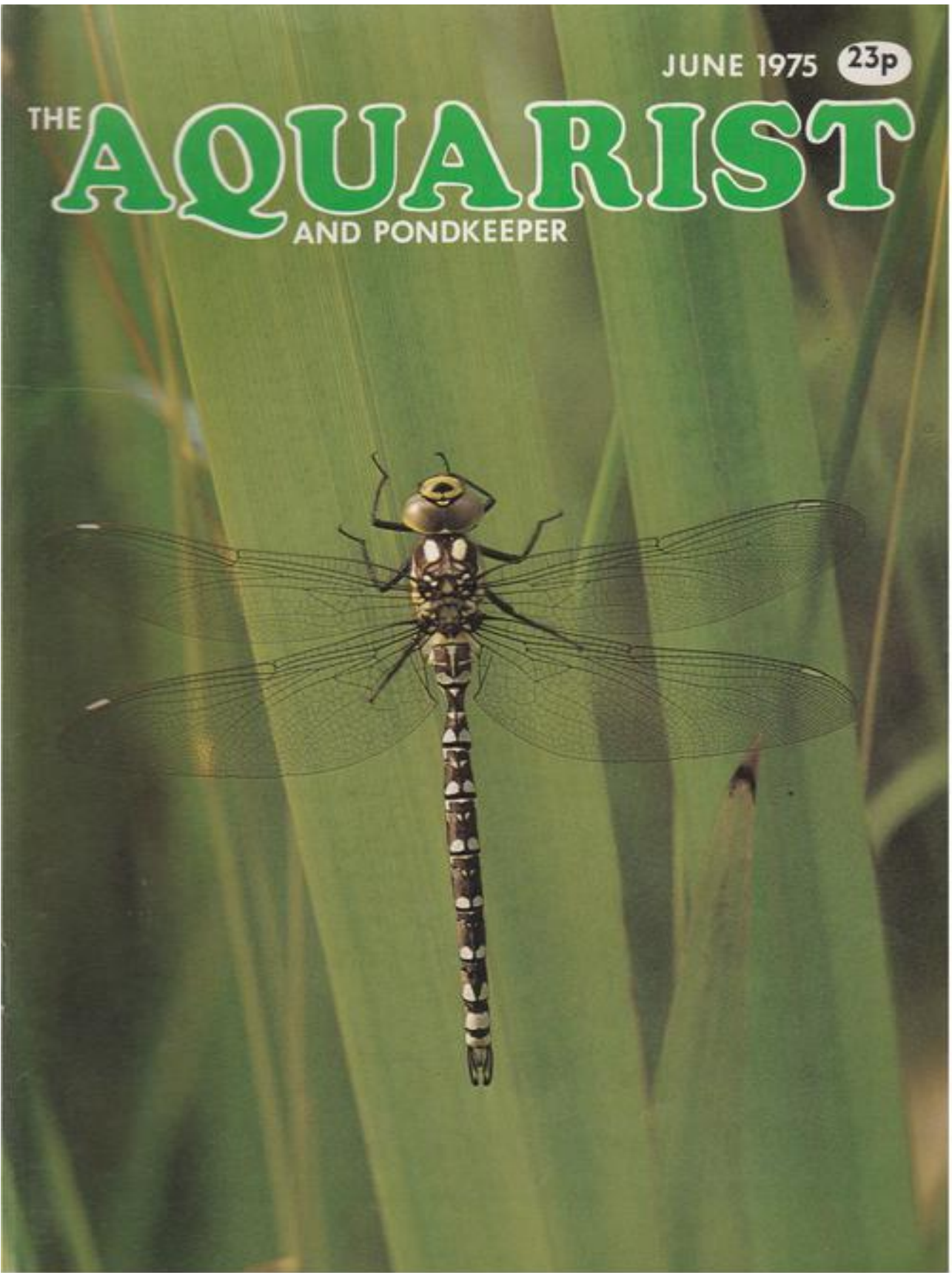


JUNE 1975 23p

THE AQUARIST

AND PONDKEEPER





THE AQUARIST

AND PONDKEEPER

The Aquatic Magazine with the Largest Circulation in Great Britain

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Our Cover:
Aeschna cyanea dragonfly recently emerged from pupae case.

June, 1975

Contents

	PAGE
The Scottish Aquarists' Festival, 1975	82
Our Readers Write	84
What is Your Opinion?	86
The Giant Scissortail	91
Some Lesser-Known Amazon Sword-Plants	92
Our Experts Answer: Tropical Queries	95
Coldwater Queries	96
<i>Geophagus surinamensis</i>	98
Product Review	100
From a Naturalist's Notebook	102
Viewpoint	105
Herpetological Notes	107
Junior Aquarist: Breeding Tubeworms in the Aquarium	109
British Koi-Keepers' Society News	111
News from Societies	112

The Editor accepts no responsibility for views expressed by contributors.

81

THE SCOTTISH AQUARISTS' FESTIVAL

— 1975 —

THE THIRD S.A.F. soon got well under way, after the judging on Friday. A difficult job well handled.

Judges, traders, visitors and the S.A.F. committee all had a most enjoyable evening at our pre-show dance, which has now become an annual event. A bearded section from the South, really seemed to enjoy our baked tatties, and I swear that some had at least six.

The show is increasing in stature, thanks to the growing support we are receiving from South of the Border, as well as from Home Societies whom, I am glad to see, have now been bitten by the S.A.F. bug. Seventeen societies competed this year. On display was the Goldfish Society pond and also a pond with five lovely Trout which had been kindly loaned by the Stirling Trout Farm. These were a big attraction to the Aquarists/Anglers. Traders once again put on a fine display of fish, tanks, plants and equipment.

The Festival was officially opened on Saturday by the well-known Scottish T.V. personality, Phil McCall, and Mr. George Reid, Hon. President of the F.S.A.S. presented the Trophies on Sunday.

The Tetra-Min Trophy for the Best Tableau was won by Ayrshire A.S. with "Clochmerle" a fine visual adaptation of the well-known French story. The M & M trophy for the Best Pair of Egglayers, (a lovely pair of *Tilapia mariae*) also went to this stand.

Second tableau went to Lanarkshire A.S. with a "Carpet Kleener" which also "picked up" the Lanarkshire trophy for Breeders Livebearers, with a team of Green Swordtails. These are a species of fish which have been missing from the show bench for some time. Lanarkshire also found both the time and sufficient entries for a second tableau, "A Wooden Horse."

The third prize went to Muirhouse A.S. who didn't get a single wrong number with their "Telephone" entry and they succeeded in ringing the bell with a few "First" tickets as well.

Amongst entries from societies competing for the

first time were a Tanker, Oil Rig and a Dice. All good attempts which made valuable contributions to the Show. "The Aquarist" trophy for the Club with the Highest Number of Points went to Hartlepool A.S., and to celebrate their first Scottish Aquarist Festival they also walked off with the following awards:

G. Henderson trophy for the Best Livebearer with a *Xiphophorus variatus*.

Woodcock trophy for Best Characin with *Distichodus sexfasciatus*.

Friendship trophy for Danio, Rasbora and T. Minnow with a *Rasbora argyroteenia*.

Belle Vue trophy for *Betta splendens*, Muirhouse trophy for Gouramis with *Trichogaster trichopterus*.

Rift Valley trophy with *Labeotropheus fuelleborni*.

Fotheringham trophy for Best cichlid with *Cichlasoma citrinellum*.

A very high standard has now been achieved with furnished aquaria. This does much to enhance the show for both the aquarist and the general public. The winning tanks which were pictures to behold, both appeared on the Northumbrian A.S. stand and received the N.E.L. trophy for furnished aquaria (society entry) and the F.N.A.S. trophy for furnished aquaria (individual entry). This society secured the Alcoa trophy for breeders egglayers (a team of *Pseudotropheus zebra*), and the Stan Taylor trophy for Best Barb (*Lemon-fin Barb*) the latter being judged "Best Fish in Show" and carrying off the Bobby Wood trophy.

Remaining trophies were won by Aireborough A.S., The Edinburgh Pondkeepers trophy for Best Cold-water (a lovely Lionhead), Dunfermline A.S., The Aquarama trophy for Best Livebearer Pair (Golden *Molliesia velifera*), and Edinburgh A.S., The Mark Aitken trophy for Catfish 'A' (*Corydoras aeneus*).

Without doubt an excellent show with a really high standard of fish.

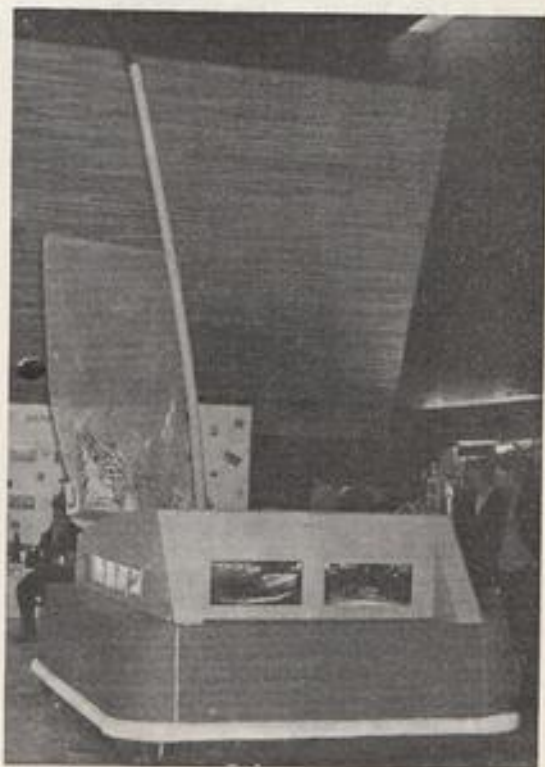
(Right): A visual presentation of the classic French story "Clochmerle" which won the first award for Ayrshire A.S. in the Best Tableau contest.



(Bottom Left): A happy young man accepts "The Aquarist" trophy from George Reid on behalf of Hartlepool A.S. who notched up the highest aggregate number of points for a tableau.

(Below): Lancashire A.S. won second prize in the Tableau section with this "Carpet Kleener".

(Left): Third prize went to Muirhouse A.S. for this huge model of "A Telephone".



OUR READERS WRITE

Continental Goldfish Breeders

Can anyone help me to find breeders of fancy goldfish in either Holland or Germany, also any information of coldwater societies on the Continent would be most appreciated.

J. A. FUTTER,
60 Squadron,
R.A.F. Wildenrath,
B.F.P.O. 42.

Fish-Egg Eater

With reference to Tropical Queries, page 19, April 1975, *Aquarist & Pondkeeper*.

The *Haplochromis melanopterus* is related to the *H. maxillaris*, *H. obesus* and the *H. cromus*, all of which occur in Lake Victoria. They are all fish egg and larvae eaters, so not very welcome in aquaria. They are, indeed, very rare species. More, however, is known of the *H. maxillaris* and the *H. obesus*, these species grow to about 16 cm.

More information can be found in *The Cichlid Fishes of Lake Victoria, East Africa: The Biology and Evolution of a Species Flock*, by P. H. Greenwood, published by the British Museum (Natural History).

B. HICKMAN,
Chairman, Northern Area B.C.A.
"Tamerisk",
14 Crumstone Court,
Longmeadows,
Garth 21,
Killingworth,
Newcastle 12.

Cichlids

It would be of help to the beginner if Mr. Whiteside added some corrections (in parenthesis, of course) to some of the material he uses in his monthly feature. In the April 1975 issue, a Mr. J. Dymott wastes more than half a page on cichlids. He informs us that he has never spawned the *peaceful* (my italics) jewel fish, *Hemichromis bimaculatus*. As for *Herichthys cyanoguttata* (sic), *Cichlasoma severum* and *C. nigrofasciatum*: these he includes among what he calls "the supposedly vicious fishes" he has kept.

Nobody who has given board and lodging to a

jewel fish (*H. bimaculatus*) could possibly call it peaceful; and all knowledgeable aquarists know that small *C. severum* soon outgrow their charming looks and fetching ways and become persistent bullies (I mean in a community tank stocked with large-finned or easily intimidated species). At best *C. nigrofasciatum* is not sociable; at worst it is a spiteful little beast. To return to the Texas cichlid (*Cichlasoma (Herichthys) cyanoguttata*). Professor Sterba observes "it is not very compatible with other species or with its own kind." I cannot agree more. I refer those who have not kept the Texas cichlid to the writings of William T. Innes, Axelrod and Vorderwinkler, George Cust and Graham Cox and others of similar standing.

Mr. Dymott says, "I would like to know anyone's real reasons for not keeping cichlids. Most of the reasons I hear are: they are too big; they are vicious; they dig up plants; they dig pits all over . . . they are natural bullies. How on earth can anyone use the above statements to cover over 1,000 fishes from three continents?" It is not difficult to understand why. Not many cichlids which come on the market are suited to sharing quarters with other fishes or behave themselves in a tastefully planted tank.

Now for Mr. Dymott's 1,000 different cichlids from three continents. I hasten to remind him that in all probability in Africa alone there are scores of species which have neither been seen by zoologists nor collectors. Or put in other words, they remain unknown to science and the aquarium keeper. Meantime, and all the time, there are remote lakes and rivers to explore not only in Africa but in Asia and tropical America too.

JACK HEMS,
Leicester.

Non-Competitive Society

In your January issue you included a letter from Mrs. E. M. Brown of Gwent in which she told of the recent formation of a club designed to cater for the hobbyist without any connection with the competitive 'showing' of fish.

As Secretary of the Romsey Association of Fish Hobbyists, I am pleased to be able to tell Mrs. Brown that our organisation, formed entirely on the same basis, is proving as popular as hers. Since our formation in January our membership has risen to nearly 30.

We believe that whilst there is a place within the hobby for competitive showing there are a large number of people who simply wish to learn more about their hobby. Our programme includes speakers, films, etc., but is mainly based on the participation of our members who by their own experiences can

help others, less experienced than themselves.

One of the major items in our programme this year will be an exhibition—not show—when we hope to be able to show the people of Romsey the enjoyment to be gained from keeping tropical and coldwater fish in the home. With this in mind we shall be pleased to hear from manufacturers, distributors, etc., who can offer us assistance.

Our funds are provided by the usual annual subscription but are supplemented by auctions and raffles. Prizes for the raffle are normally donated by our members. The auction is for unwanted fish, plants and accessories, with the proceeds to our funds.

We have been told that we shall not be able to survive without involving ourselves in showing, but I should hate to have to suggest this to our meeting, because the birth of R.A.F.H. has proved enjoyable and rewarding. We are all now looking forward to seeing our 'baby' grow.

It would appear there is ample room for many more organisations like ours and I shall be pleased to hear from other Secretaries. It may even be that one day there will be a National organisation of Societies formed for the sole intention of getting the maximum enjoyment from the hobby whilst excluding the competitive element.

MRS. M. AVERY,
Romsey Association of Fish Hobbyists
"Ifanwen," 15 Beverley Gardens,
Romsey SO5 8TA, Hampshire.

Newsletter

I would like to thank all the people who wrote to me regarding the N.G.L.S. newsletter and who later became corresponding members of our society. The N.G.L.S. News now travels all over Great Britain as well as to America, Germany, Norway and the Persian Gulf and we are hoping to have entries from these countries at our second "All Livebearer" Open Show in August.

At the moment we have heard that some of the newsletters are going astray in the post, so if anyone has not received either the February or April issues would they please let me know.

Anyone interested in receiving future copies of the newsletter should write to me and I will be pleased to give them all the details.

MRS. JUNE RENTON,
(Secretary, N.G.L.S.),
128 Dunstan Tower,
Garth 18,
Killingworth,
Newcastle upon Tyne NE12 0TX.

Julidochromis ornatus

May I first congratulate Mr. R. L. Carter on

his success and very well-written article on the *J. ornatus* and then go on to disagree with him with his opinion about their peacefulness.

Three years ago I purchased five *J. ornatus* on a fish expedition to London. On returning home they were placed into a 3 ft. x 12 in. x 15 in. tank filled with rocks and valis. Within two weeks, two paired off in one half of the tank and the next day I arrived home from work to find one of the other three dead. It had obviously come to a brutal end by the marks and fin damage. Solution: a tank partition. On returning home the following evening, I discovered that not only were these fish vicious but extremely good jumpers, the two remaining of the trio were dead, with the same body marks and the larger of the pair occupying the half of the tank containing the two corpses.

After a few months they bred with the identical procedure that Mr. Carter describes; there were six youngsters and when they had reached a length of 1 in. they were placed in a tank of their own. Would you believe the same events repeated themselves? Four were killed leaving one pair of offspring which, incidentally did not go on to spawn.

I did notice a slight difference in the sexes of these fish although this is not a reliable guide, just my own observation. The black edge on the male's anal fin rays spreads slightly further into the fin than that of the female.

This letter is not meant to deter people from keeping this most beautiful cichlid (which by the way, is the B.C.A.'s emblem), but in my opinion they should be kept in as large a tank as possible. This will enable them to create their own territories, or kept in pairs by sexing them by the anal-fin differences I have mentioned above.

J. REEVES, B.C.A.,
36 Peter Street,
Hill Top, West Bromwich,
West Midlands.

Badge-collector

As one of your regular readers, I have taken the *Aquarist* since I started keeping tropical fish about two years ago. I wonder if you can help me? Besides keeping fish one of my other hobbies is collecting Lapel Badges. I wonder if any of your readers have any odd ones that they could give to me?

I would be most appreciative. Incidentally your badge is the one that started me off in this hobby. I purchased it from you in October, 1973 at Belle Vue.

L. JOHNSON,
18 Hexham Road,
Gorton, Manchester 18,
Lancs. M18 7RH.

WHAT IS YOUR OPINION?

by B. Whiteside, B.A.

Photographs by the Author



IN THE April edition I published several photographs of a pair of unknown *Apistogramma* species I had and asked readers if they could identify them for me. I am pleased to say that a number of readers sent me letters concerning the fish and suggested the species. Sadly, since I photographed the pair of fish and wrote about them, the male fish died. When I put the lights out at night the male was large, attractive and very much alive; next morning he lay dead on the bottom of the tank—and there wasn't the slightest sign of disease on his body. Actually, since last writing I've had a couple of disappointments. I went to London for a few days' holiday at Easter and when I returned I found that my large tank of gouramies contained several corpses. The 30 in. x 15 in. x 15 in. tank contained a variety of gouramies, e.g. pearls, kissing gouramies, dwarfs, three spots, opalines and honey gouramies. All were appropriately large and healthy when I left, and there were several bubble nests in the tank and many fry amongst the plants. On returning I removed the floating corpses and checked the tank for diseases, etc. Everything appeared to be normal—and yet over the next few days most of the fishes died off. The exceptions were one pearl—out of five large adults, one dwarf, the pair of kissing gouramies and a pair of *Corydoras* that shared the tank. I wondered if either of the two motor filters operating in the tank might have managed to release oil onto the water surface; but I couldn't find any signs of it. It's very disappointing when one loses a number of large fishes and cannot find any evidence to indicate the cause. A week after the fishes appeared to have stopped dying I introduced some new ones and they, like the original survivors, are still in excellent health. I'm still wondering if the fishes were overfed while I was away. The same person fed the fishes in all my tanks and there were no casualties in any other tank. Would you care to suggest the cause or causes of death?

While I was in London I paid a return visit to Abbey Lodge to see how Mr. Douglas Rose's fishes had developed since I saw them in August of last year. (Readers may recall that I have included comments about, and photographs of, Douglas's aquatic creatures in previous features). I was amazed to see how large Douglas's piranha had grown since my last visit.

Part of the fish's growth could well be attributed to the fact that it ate its partner some months ago. The only part it did not consume was the jaw; and Douglas was able to show me the dead fish's set of nasty looking little teeth. I can appreciate fully the fact that he does not put his fingers into the tank containing the remaining fish! Douglas's large marine tank is still thriving and I was again able to see all the marine fishes and invertebrates I had seen on previous visits. I was particularly attracted by the increase in size of many of the creatures—and I was rather incredulous when invited to watch a beautiful cleaner shrimp make its way from the base of the tank to the water surface to take flaked food from Douglas's fingers. It's the first time I've seen a tame shrimp being finger fed. Mr. Rose's tank of cardinals, decorated with petrified wood, contained fewer plants than it had on my last visit; but the cardinals had grown considerably. The slightly amber water and the Gro-Lux lighting enhanced the blue and red colours of the fish.

I am very pleased to note that our hobby is really thriving in Northern Ireland; in fact I feel sure there must be more aquarists per head of population in Northern Ireland than in any other part of the U.K.—although I stand to be corrected. I recently had a telephone call from Mr. Bill McAuley, of Belfast, and he informed me that Ulster's annual big show will be going on as usual this year. The only details I have at present are that it will be held in August, in Bangor, County Down. I hope to include further details and reports in future editions. When I was a youngster wearing a school cap I was one of the founder members of the Larne and District Aquarist Society. The group thrived for a number of years and did a lot of useful work before it fell through. In the mid-sixties it was revived, only to fall through once again. Thus I'm delighted to learn that Mr. Samuel Smith, of Newington Avenue, Larne, Co. Antrim, will be making an attempt to get the club going once again. I feel sure it should survive this time as the hobby is spreading like wildfire in the town at the moment. I send the club my best wishes for a successful revival.

On now to this month's letters—and I'm pleased to report that the increased postal charges have not affected the volume of mail I've received for this

feature. My thanks to all those who have written; please continue to do so. I look forward to hearing from those who have not contributed before. Remember, this is the feature in which you get the opportunity to pass your experiences and information on to other aquarists—and these pages are open to beginners and experts, amateurs and professionals, alike.

Mr. J. E. Baker's letter reached me from 22 Comet Close, Lyneham, Wilts. He writes: "As far as I can judge, from the black and white photographs of the dwarf cichlid shown in your article in the April edition, the fish would appear to be *Apistogramma borelli*, a small peaceful species from South America. I have kept a pair of these fish for some time in my

Keep up your good work in the magazine."

Mr. T. Wood lives at 62 Tanfield Road, Birkby, Huddersfield, Yorkshire. He states: "I think your Editor may be in error in suggesting that the fish in your photographs are *A. cacatuoides*, although the *Dictionary of Tropical Fishes*, by Hans Frey, seems to bear this out. Your fish look very similar to mine, which were obtained from a dealer as *A. borelli*. The colour of the male is olive based with dark brown markings as shown in your photographs. Fins are purple to blue, as are the unusually large lips. The caudal fin is latticed and has a small yellowish mark on the upper half. The dorsal has the first and second rays extended black, whilst the third and fourth rays are extended orange. The female is yellow with the



27 in. community tank and they have spawned several times; but unfortunately the female ate the eggs before they hatched, due to annoyance from the tetras, barbs, etc. in the tank with them. Unfortunately the male died after being transferred to a smaller breeding tank, so I now have only the female." (It would appear as if Mr. Baker and I have identical problems with this attractive species). The writer continues: "The difference in size between the male and female is quite surprising, the male being about 3 in. long and the female only 1 in. The spawning took place in a plastic flower pot laid on its side; and as far as I could count there were about 20-30 eggs attached to the top of the inside. They are very peaceful cichlids; they don't dig in the gravel or eat plants—or at least they didn't do it in my tank. They will accept the usual flake freeze-dried or live foods. Apparently there are several other species which are very similar and sometimes they are confused. They are: *A. trifasciatum*, *A. ortmanni* and *A. cacatuoides*.

dark markings. Isn't it a beautiful species! There is a good photograph of the fish in *Freshwater Tropical Fishes*, by Gilbert. Secondly, you ask about dealers making excessive profits on certain fishes. As a confirmed killifish addict I find it both difficult and expensive to obtain them. Having easily bred *Aphyosemion gardneri* on several occasions I do not see how dealers dare ask £2 per pair!" (Unfortunately I don't have Gilbert's book and cannot compare photographs. Sterbas's description of *A. borelli*, in the 1966 edition of his standard work, sounds like the fish I had; but his drawing of the fish differs from my photograph in several important details. Hervey and Hems describe the fish in their latest book, but no photograph or drawing is provided. They give the common name of *A. borelli* as the umbrella cichlid, the title being a pun on the scientific name of the fish; and they state that the species is "rather pugnacious").

Mr. I. Sellick, of 280 Northridge Way, Hemel

Hempstead, Herts., is the editor of *Cichlidae*, the journal of the B.C.A. He writes: ". . . Your *Apistogramma* species is more likely to be *A. borelli* than *A. cacatuoides* (as suggested by Mr. Perkins) as the former is commonly available in the shops in this area. Most of the stock is, I believe, bred in Germany, although like yourself there are many people reproducing them. With regard to Michael Delaney's letter (April edition), I agree that an index would be useful; but if he were only to spend a couple of evenings going through his magazines writing each article on a separate record card headed with author and date he would soon have a personal index that would be far more useful than any published by the magazine. I do this for my personal library and can find any article or book, from among the 2,000 plus catalogued, in a matter of seconds. While I admit that *The Aquarist and Pondkeeper* is not my favourite magazine,

read about fishes other than those they keep; and, secondly, if this information wasn't there what would happen if the fish suddenly appeared on the market? At that sort of price one would be glad of some information to hand to avoid the possibility of loss. Incidentally, the last *S. angelicus* I saw for sale was £16, about 20 doors away from Master Delaney, but now many years ago. Having got that off my chest I must admit that I never thought I would see the day when I'd run to the defence of *The Aquarist*!

"With regard to dealers making excessive profits, I think that prices are very reasonable considering the present cost of air freight, electricity to run the shop—especially with the latest increases, rents, rates and the dozens of overheads that most people don't consider; not forgetting that the cost of living has gone up for shopkeepers as well as customers, so the dealers' profits need to increase in step with inflation . . .



his comments are quite unjustified. Nowhere does *The Aquarist* pretend to be an all-fish magazine; in fact its motto, '*Aqua cuna vitae ager nobis*' I believe, when loosely translated, means 'Water, the cradle of life, our field (of study);' implies that everything to do with water from Protozoa through to aquatic vertebrates, and from algae to aquatic angiosperms, are to be studied. In this context every article is relevant; there is no comparison with T.F.H. or PetFish Monthly—or any other fish-only magazine—as the fields of study are different. From *A Naturalist's Notebook* is probably the most interesting and informative article in the magazine, covering as it does the entire spectrum of life implied in the magazine's motto. Eric Hardy is a well known and respected naturalist and doesn't bear ill-informed, pointless criticism of this kind from someone who surely cannot call himself a lover of nature.

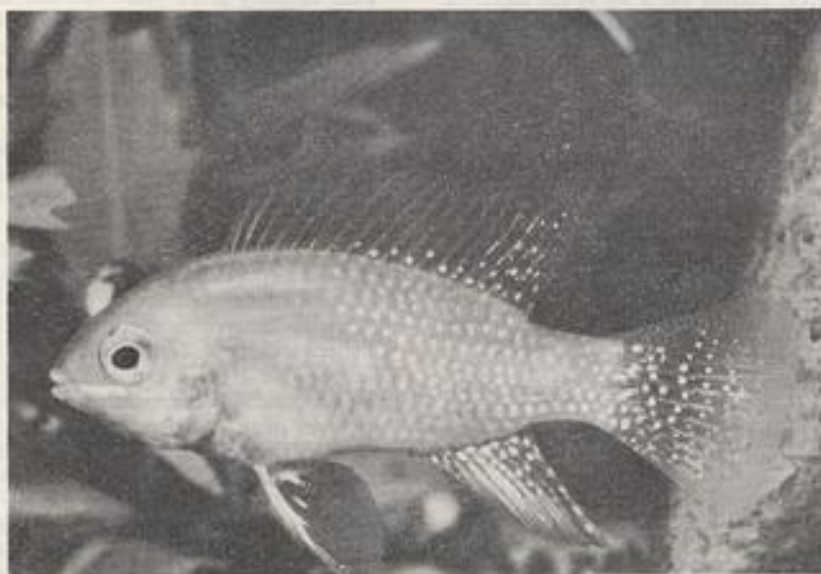
"The reason every book contains information about *Synodontis angelicus*, not forgetting *Brachydanio rerio* and 1001 other species is, firstly, some people like to

Microworms are a free living nematode, *Panagrellus redivivus*, and are best grown in one of the proprietary brand media such as I.G.M. The worm was originally isolated from paper-hangers' paste, so presumably any flour paste type of medium, made up to a sloppy consistency, would do. A related nematode, *Panagrellus silustea*, is found growing in felt beer mats, once common in Germany. If kept in a shallow, covered, glass dish at normal room temperature the worms will rapidly multiply viviparously, and start to swarm up the edges of the container from where they can be removed with a soft paint brush and washed into the tank." (It would appear that my dwarf cichlids were *A. borelli*. If anyone in my area has a male fish for sale I'd be pleased to hear from him or her).

The next letter comes from Mr. R. Brown, whose address is Giffachwen Farm, Six Bells, Abertillery, Gwent. He writes: "A simple answer for Mr. P. Turner, regarding noise when a filter is turning over well, is to put a sponge filter over the outlet pipe of the

filter. This breaks up the bubbles. Any member of Blaenau Gwent Fish Club could have told him this works." (A local aquarist recently asked me about this problem and I was able to pass on Mr. Brown's useful tip. I recently replaced the diaphragms on two different brands of air pumps and was astounded at the greatly improved output of air. Over a year or two the efficiency of pumps drops off owing to deterioration of rubber diaphragms and valves; and one is inclined not to notice such deterioration as it happens so slowly. If your pump has been operating for a long period without the diaphragm or valves being changed it could well worthwhile to replace these items with new ones. The relatively low cost can produce a relatively large increase in air output and, hence, the efficiency of filters and aeration).

severum cichlid christened Fred. To make the male's task a little easier I removed Fred to another tank—where he sulked until he was returned to his larger home. When the young 'kribs' were free swimming I decided to move them to a 2 ft. tank, to rear as many as possible. The only fish in the 2 ft. tank were two small albino *G. aeneus* catfish—completely safe I thought. The young 'kribs' were never seen again! My opinion and that of several others, is that the cats were too small to eat the 'kribs.' However, unless you or your readers can offer an alternative solution I must assume that that's what happened. Your column is by far the best reading in the magazine." (I feel that your baby *P. kribensis* probably just died as a result of being moved to a new environment at such a young age. Some years ago



Mr. G. Mayo, of 13 Coronation Drive, Frizington, Cumbria, considers Hans Frey's book *Illustrated Dictionary of Tropical Fishes* to be the best book he has seen on the subject. He thinks my fish may not be *A. cacaoides* and sent me an excellent drawing to back up his opinion.

Mr. C. Davidson lives at "Cicero," Balmellie Place, Turriff, Aberdeenshire, and his subject is *P. kribensis*. (Photograph 1 shows one of my female specimens). Mr. Davidson writes: "A pair of *P. kribensis* recently bred in my tank, in a flower pot facing the front. They (*sic*) were soon moved to the rear of the tank, out of the way of prying eyes I suspect, behind a large rock. The female cared for the eggs, and later the young, while the male kept half the tank clear of fish. This was no mean feat as the tank is 5 ft. long! The only fish he could not control was a large, golden

I moved baby fish away from their parents, into an empty tank, and they died. Since then I have raised quite a few batches of "kribs" in an 18 in. x 10 in. tank housing a selection of "kribs" of different sizes, together with four half grown pearl gouramies. The single adult male regularly spawns with one or other of the several adult females, and while the mother fish tends the youngsters the male keeps other fish out of the way. However, the tank is so full of plants that I do not know how many fishes are in it. What I do know is that it obviously suits both the "kribs" and the gouramies as both breed regularly. Earlier this week I fished about a dozen "kribs"—varying in size from about $\frac{1}{2}$ in. to 2 in.—out of the tank and gave them away to a friend; and there are still plenty of others swimming amongst the plants. I know that there is at least one female fish with a brood of

young at the moment. Following the suggestion in last month's feature I recently acidified the tank water slightly to see if I could produce some young, male "kribs." I'll let readers know if the experiment works).

Tunstead House, Simonstone Lane, Simonstone, Burnley, Lancs., is the address from which Mr. M. Bullock writes. "Plants of *Vallisneria* flourish best in my 24 in. x 15 in. x 12 in. tank. It was planted with five *V. asiatica* and they now number 20. The base of the tank consists of an Algarde U/G filter covered with 1½ in. of medium sized gravel. The tank is lit by a 15 watt Gro-Lux tube. The water is soft and the temperature around 75°F. These plants flourished for about two months but now their growth has stopped. This could be owing to a large growth of floating weed which has covered the whole of the water surface, cutting out a lot of the light. I have also had success with *V. spiralis* under the same conditions, without the U/G filter, and with the temperature at about 73°F."

Lloyd McKie is 13 years old and his home is at Gresham, 42 Woodvale Road, Eglinton, Londonderry, N. Ireland. (It's some time since I last received a letter from a N. Ireland reader). His subject is also *V. spiralis*. "Six months ago I planted 12 *V. spiralis* in a 24 in. x 15 in. x 15 in. community tank, at a depth of 1½-3 in.(?). They rooted almost at once and began to send out runners. Now I have 24 plants all growing very well indeed. My tank is lit by 2 x 40 watt tungsten bulbs for nine hours per day. The water's reaction is pH 6.8 and its hardness 109 p.p.m. Its dissolved oxygen is 6.42 p.p.m. Green algae appears to grow quickly in this water, but they are kept down off the plants by platies and dwarf gourmies. The water temperature is a constant 78°F and it is filtered by an Airstream 'Cascade' filter, and a home-made U/G filter confined to one corner of the tank."

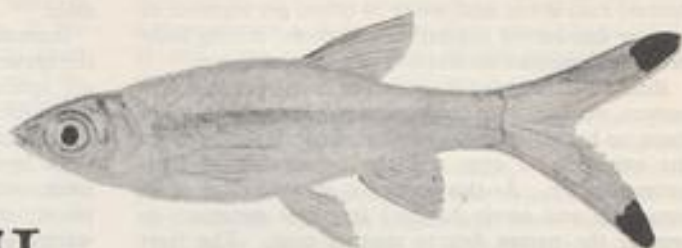
Oscars (photograph 2) is the subject of Mr. John Dyres' letter, which he wrote from 11 Mayfield Road, Rainbow Hill, Worcester. (I hope I've got the correct surname). He writes: "... On 11th October 1973 I spotted a black fish in a pet shop and asked the young lady what it was. She didn't know but sold it to me for 50p. When I got the fish home I identified it, with the aid of a book, as an Oscar, and put it in a 36 in. x 15 in. x 15 in. tank, together with a lot of swords and platies. The Oscar loved it and soon he began to grow—while the other fishes vanished! On 22nd June 1974 I purchased a slightly bigger Oscar at £1.50. When I got it home and floated the plastic bag in the tank housing the first fish, the first one, Fred, started to shake and could not wait until I had released his new mate. I think I now have a pair and I watch them playing about for hours. They have the 3 ft. tank to themselves except for one sword-tail that they seem to tolerate. I have given up trying to plant the tank as they will not leave plants alone

at any price. If you wish to keep Oscars you must provide a hide in one corner so that if the fish fight, the weaker one can retire for a rest, when necessary. To get good growth they must have space, cleanliness, filtration and the correct food. I now have five Oscars and I feed them on fatless red meat cut into thin strips, garden worms dug by my wife, and Felix Tender Morsels. You must find time each week for a 50% water change as this keeps them in top condition. My two adult Oscars have tripled their size in the time that I've had them. Fred is now 9 in. long and Alice 8 in. My other three are young reds kept in a 24 in. tank. This spring I hope to get the adults to spawn and I will let you know if I succeed. I have seen a few changes in *The Aquarist* since I bought my first copy in 1951."

Paul Hegarty is 15 years old and he lives at 146 The Glen, Palace Fields, Runcorn, Cheshire. He writes about dealers' profits. "The fish I must say makes a profit for dealers is definitely the fancy tailed guppy. My friends recently purchased a pair at 75p; after only one week they had bred, the fry making easy food for the other fishes in the tank. After only a month they had bred again so my friend decided to save the fry by putting them into an 18 in. tank. I fail to see the reason for the high price of this most prolific fish. I know they need space for their tails to develop fully, but I find this is no excuse for their ridiculous price. I have found it very difficult to discover sources for bitterlings; none of your advertisers advertise them. I have searched Liverpool and yet I cannot find one anywhere. I must say this fish has caught my heart and eye, even if only from pictures in books. In the April edition I read Miss E. Wells' letter about bitterlings and noted that there had been an article about them in the January 1975 issue. If anyone has a spare copy of that issue I would be pleased to receive it." (You could probably obtain one from our publishers, Buckley Press). Paul continues: "Another fish I have had difficulty in finding in Liverpool is the koi carp. I have never seen one in my life and often wonder what dark, black magic powers it has to cost so much. In the last issue (April) a Mr. Delaney announced his feelings upon the column *From A Naturalist's Notebook*. Although I agree with him I am sure many other readers of *The Aquarist* are fond admirers of this column." (Personally I always enjoy Mr. Hardy's features as his wealth of professional experience always produces original observations on a wide variety of aquatic environments. Many writers tend to be repetitive; Mr. Hardy always has something fresh and interesting to impart—and he tends to lead us out of the artificiality of our glass tanks into the real, outside world of nature. Remember our fishes and plants, or their ancestors, came from a wild, natural

Continued on page 94

THE GIANT SCISSORTAIL



Written & Illustrated by Jack Hems

PLENTY OF SPACE is of prime importance for this splendid fish—well worth seeking out among dealers in your own locality or further afield—that attains a length of about 8 in. (in the wild state, at any rate) and is far from sluggish or retiring in its habits. Indeed, it is almost always swimming to and fro in the middle or upper layers of the water and, as a necessary word of warning, is adept at leaping well above the surface (especially if its aquarium is left uncovered). According to the reference books, it is native to the freshwaters of the Malay peninsula and some of the islands of Indonesia.

Rasbora caudimaculata is better known as the greater or giant scissortail because the general body shape and the dark markings in the deeply forked lobes of the caudal fin, that open and close in a scissor-like action, as the fish begins to swim, bear some resemblance to those of the ordinary scissortail (*R. trilineata*). For all that, the two species (or perhaps geographical races of the same species?) are unlike enough in several respects to be instantly told apart. For one thing, *R. trilineata* does not achieve the large size of *R. caudimaculata*, though it can exceed 4½ in. if given roomy quarters in well-aerated water. Then again, it has a silvery or glassy look, with three dark lines to give some attraction to the rather plain sides. The middle line that terminates in a blotch at the tail base has its origin near the head. The other two horizontal markings are merely dark lines which run part of the way along the upper part of the back and posterior anal surface. The only real ornamentation the fish has is in its caudal fin. The lobes of this fin are yellow in the base shading to ivory or enamel white barred with intense black near the tips.

The caudal lobes of the greater scissortail, however, are orange to brick red and terminate in bold black

tips sometimes, but not always, edged with white. Furthermore, the sides of the greater scissortail reflect a blue or green to yellowish hue overlaid with a shifting violet to pinkish sheen. A horizontal stripe is present, that is along the middle of the body, and this varies in colour according to environmental conditions such as the age and quality of the water, density of the planting, and the light. As a rule, this stripe is of a shadowy brownish to grey-green hue. The dorsal fin is suffused with red. In young fish the anterior rays are marked with black.

Although the giant scissortail is an adaptable species and will settle down in most aquariums suited to the general run of non-faddy warmwater fishes, it assumes brighter tints and is noticeably livelier and more contented-looking in soft and acid water. With regard to temperature, *R. caudimaculata* is quite comfortable at a temperature range of about 75°F (24°C) to 80°F (26°C) or thereabouts, but a slow drop to 68°F (20°C) will do no harm provided this rather low temperature is not too prolonged.

R. caudimaculata is a peaceable species but owing to the size it attains in about a year to eighteen months, it is not recommended as a suitable occupant of a tank housing a collection of very small fishes. For the rest, the giant scissortail eats all the regular fish food in a prepared form, that is granular or flake. All the same, a diet of food from a packet day in and day out is not good enough to keep a fish—any fish—in the best of condition. Clearly, then, in addition to dried food, such things as whiteworms, bloodworms, gnat larvae and shredded raw red meat should be placed on the menu.

I cannot recollect having read any accounts of *R. caudimaculata* breeding in the aquarium, but it is reasonable to assume that it has and in all probability

it spawns in the same way as *R. trilineata*. In the latter species, the two sexes (in breeding condition, of course) rush about and, every so often, get together in or near fine-leaved vegetation and there, during body pressings, produce several lots of eggs and sperm.

Because the eggs of *R. trilineata* have poor adhesive powers, many sink to the bottom. This appears to do them no harm. A week or more may elapse between the extrusion of eggs and the appearance of free-swimming fry. As this species is an avid eater of its own eggs and newly hatched fry, it is necessary to remove the parent fish to another tank. The free-swimming fry require infusorians, tiny brine shrimps, flour-fine dried food and so on for the first week of their lives, after which they should be large enough to take slightly larger forms of prepared or living food, as for example, crushed flake, gnat larvae, sieved *Daphnia* and miniscule worms.

Sexing rasboras is a matter of comparing body outlines and girth. For whereas a roe-filled female shows full sides and a quite markedly swollen abdomen, the male stays his usual sleek or normal contoured self.

There are other sexual distinctions to look for, too, such as greater activity and enhanced coloration in the male.

Increasing the acidity of the water is said to promote the spawning instinct in most rasboras; for many, if not all, species frequent waters that become softer and more acid at certain times of the year. That is to say during the rainy season. For the rains drain through thick layers of decayed or decaying vegetation which leach out acid before they find their way into the rivers, streams and lakes. Some rasboras breed in waters with a pH value as low as 5.0 or even lower.

The aquarist can provide something like these conditions if he adds pints of clean rainwater (or distilled water) to a tank set aside for breeding and then floats in it a portion of old nylon stocking filled with moss peat. It is hardly necessary to say that the bagged peat should be secured at both ends with thread. However, even after all this trouble there is no guarantee that the fish will breed. Be all this as it may, some species are more ready to breed in captivity (if conditions are right) than others.

SOME LESSER-KNOWN AMAZON SWORD-PLANTS

by Phillip J. Brown

Echinodorus macrophyllus (Kunth) Micheli. Coming from E. Brazil this is one of the largest Amazon Swords. The broad heart-shaped leaves can measure more than eight inches by four and have from nine to thirteen primary veins, these being more conspicuous on the underside of the leaves. In colour they are a pale to mid-green but may be found spotted with red. They have a rather wavy edge.

Although it can withstand a wide range of temperatures flowering stems are produced if grown at around 80°F and given a lot of space and heavy substrate feeding. Adventitious plantlets are produced on submerge flowering stems. Specimens grown in shallow water are particularly beautiful and may occasionally be seen at Kew Gardens.

Echinodorus Martii Micheli, the Ruffled Sword plant

from Brazil. This is another beautiful species that makes a fine centrepiece for the aquarium. The long strap-like leaves reach a length of fifteen inches by about three inches broad and have a distinctive ruffled margin to them. The base of the pale to mid-green leaves is long and tapering. Though appearing rather translucent in appearance the leaves are very tough and can be used in association with Angel fish. There is a prominent midrib with two to three fairly distinctive veins on either side of it which ascend to the tip of the leaf. Two of the veins start from the lower part of the blade, the others from the leaf base. It will flower in shallow water with a very tall inflorescence bearing white flowers with three petals and six yellow stamens.

It likes a heavy substrate and a temperature of

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It likes a heavy substrate and a temperature of

around 75°F with, in addition, a lot of light. The seeds germinate easily in damp sand at a temperature of about 80°F. However, they take a long time to reach maturity. Lateral shoots will develop at the base of the plant but it is more common to plant out the adventitious plantlets that develop on submerge flowering stems. It is thought to be dwarfed by excessively acid water.

Echinodorus muricatus Grisebach. This is a large plant from the northern parts of South America. The first leaves are long and spear-shaped but as the plant matures broad heart-shaped leaves up to fifteen inches long and nine inches broad may develop in really good growing conditions. There are from two to five primary veins which are rather lighter in colour than the bright green of the leaves. The base and petiole insertion are covered with star-shaped hairs. It flowers once a year with an inflorescence about three feet long bearing the whorls of flowers.

Again it needs good light and feeding and for the best growth a temperature of between 78-85°F. An absence of these conditions tends to produce rather stunted growth, a point worth remembering if it is wished to grow it in a small aquarium.

Echinodorus quadricostatus Fassett is a small rare species from Northern Peru. *E. quadricostatus* var. *xinguensis* is usually found in this country and that originates from the Rio Xingu as its name implies. The leaves reach a length of little more than two inches and are sword shaped.

It is best grown in the foreground of the aquarium with moderate light and a temperature range between 72-78°F. Excessive light produces rather stunted forms. It propagates by rootstock offshoots and if left undisturbed will produce a small carpet of plants.

Echinodorus rubra was only discovered recently and is still known by its commercial name, a scientific name still not having been ascribed to it. It is sold under the popular names of the Red or Ruby Amazon Sword. It originates from Brazil and the leaves (especially the younger ones) have a distinctive reddish tinge and are strongly oval in shape with a blunt tip. They can reach a length of one foot by a width of three and a quarter inches and submerge leaves have a rather ruffled edge to them that may be missing in emerse leaves. There are five main veins of which the three middle ones are the most prominent. All of the primary veins start from the leaf base. It can reach a total height of about two feet, the petioles being about the same length or a little shorter than the leaf blade itself.

It grows well in the aquarium but it is still rare and expensive in this country and a lot is still not known about its habits. The substrate should be mature gravel with some clay or sand added to it.

Knowledge about its reactions to temperature and water conditions is still incomplete but it seems to thrive in water that is somewhat on the acid side and a temperature a little lower than usual about 70°F. It will grow perfectly well in the normal tropical tank and is a distinctive addition to any tank.

Echinodorus tenellus (Martius) Buchenau. The Pygmy Chain Sword plant comes from the tropical regions of North and South America. It is a popular plant for the foreground of the aquarium but is very variable in form dependent upon conditions. The leaves are strap-like in form usually no longer than four inches. They have from one to three primary veins. *E. tenellus* var. *microphylla* (incorrectly known as *Sagittaria microfolia*) seldom reaches over three inches and at first is similar to *E. tenellus* var. *latifolius* but the latter grows taller later on. None of them will flower except when grown in very shallow water but occasionally they will produce inflorescences that will, submerge, bear adventitious plantlets.

All grow well in the tropical aquarium sending out runners bearing daughter plants that will eventually form a carpet around the parent plant. It prefers water on the soft side and a well-lit position.

Echinodorus tunicatus Small. From Costa Rica and Panama comes the Amazon Heart plant whose popular name indicates the shape of the leaves. The leaves measure approximately eight inches long by five inches wide when mature with a prominent midrib and six primary veins. It is rather hard to identify unless flowers can be obtained and the characteristic yellow sepals seen. In fruit they are closely cupped about the fruiting head and about each other. The sepals have thirty ridges.

This species can be a strong grower if given a temperature above 75°F, good substrate and enough light and space to allow it to grow freely. Flowering appears to be rare and I have had no experience of it doing so as yet. Colin Roe mentions that it flowers during the summer producing fewer flowers than many members of the genus but producing seeds that germinate easily. More usual in my experience are several strong plantlets forming on the flowering stem when grown submerge. It is an attractive species that is not hard to grow.

Many of the species above can be found in non-specialist shops under the names *E. paniculatus* or *E. radicans* depending upon whether the leaves are generally sword-shaped or heart-shaped. Some species are hard to distinguish without flowering, the shape of the leaves so often being dependent upon age and the conditions under which they are grown. By careful sorting through dealers' tanks or through specialist dealers any of the species mentioned above should be able to be obtained.

WHAT IS YOUR OPINION?

continued from page 90

environment. We sometimes tend to forget this important fact!).

My thanks to the F.B.A.S. for sending me the latest copies of their Bulletin. Both publications contain a lot of useful information about various facets of the hobby.

It makes a pleasant change to receive a letter from a lady reader, Mrs. Sue Hollingworth, of 62 Beatty Road, Langney Point, Eastbourne, Sussex. She loves browsing around aquarium shops and, being a young mum, has the time to do so. She notes that in some shops there is what she calls "dead" stock that doesn't seem to sell. She writes: "In one particular shop there were two golden 'rams' (Photograph 3) which were my favourites. They had been there for some time at 90p and I decided to set off to buy them. On reaching the shop I was surprised to see that their price had gone up to £1.25 each; neons had gone from 25-30p, platies 25-30p, firemouths from 65-80p and large pearl gouramies from £1.50 to £2.00 per pair. Had I not been a regular browser I wouldn't have noticed the sharp increases. Needless to say I didn't buy! I regularly feed my fishes on TetraMin, *Tubifex* and brine shrimps. I only buy a small tin of TetraMin as I find that after a week's use it begins to smell and it crumbles into pieces so small that the bigger fishes refuse to eat them. I used to feed them Phillips Superfood but found that it tended to cause a population explosion of *algae*. Have any other readers found this?" (I now use Phillips Superfood as the main diet for my fishes. I find that it gives excellent results, is greedily eaten by all my fishes, and is reasonably good value for money—particularly when bought from a particular discount mail order firm. If one firm can cut its retail prices why can't some of the others? The hi-fi trade seems to flourish on cut price competition on a large scale. Could aquatic dealers not do the same? I suppose the fact that they are mostly dealing with live creatures, combined with the fact that single purchasers spend much less money in an aquarium shop when compared with the hi-fi addict, tends to keep prices consistent. What is your opinion?).

Mrs. Hollingworth continues: "A friend of mine told me that she had been trying to breed dwarf gouramies for several years, without success. Not to be outdone I decided to have a go. I purchased a pair and placed them in a 36 in. tank well planted with *Gabomba*, *Vallisneria* and Amazon Swords, and kept at a temperature of 80°F. They were extremely shy at first and refused to come out of the plants. Two

days later I came down in the morning to find that half of the plants had been dug up. They were in the corner of the tank and the male was blowing bubbles into them. His colour was magnificent. He continued to do this for several days but each morning the bubbles had dispersed, and he had to start again. Thinking that the aeration was too vigorous I slowed it down. This made him retreat into the plants. I increased the aeration again and nest building was resumed—but to no avail. My poor husband was getting tired of my rantings and ravings and he decided he had had enough; he disappeared for a while and returned with his latest bubble holding invention. It consisted of a 12 in. length of air tubing joined with a match stick cut in half. This he placed on the water surface and added a few plants. Hey presto, it worked! The male built a beautiful nest and his bubbles stayed put. By this time the female was very plump and kept butting the male on the side and darting round the tank. At 9.00 p.m. they spawned, the male wrapping himself around the female and thrusting her upwards into the nest. There seemed to be eggs everywhere; the male caught the odd ones and spat them into the nest. I removed the female and left the male tending the nest. The male made an excellent 'mum' and made sure that none of the fry strayed too far. Unfortunately his affection ceased quite quickly and he started gobbling the fry. I managed to save two that are now growing well on feeds of Liquifry and Biol. Already he is building another bubble nest so I'm hoping for a better batch this time. At least I have given my friend new hope. Many thanks for a marvellous magazine."

Those are all the letters for which I have space this month. For a future edition please send me your opinions on the following: (a) How would you treat pop-eye? (b) Please send me details of your experiences with the combtail, *Belontia*. (c) Under what conditions do you manage to grow Java fern and Java Moss? (d) How do you keep seagulls out of your pond? (e) Where can one obtain bitterlings? (f) Is ozone essential in the marine aquarium? (g) How do you kill fishes suffering from fatal diseases? (h) How do you produce good quality show guppies? Send me your opinions c/o *The Aquarist and Pond-keeper* and please PRINT your name and address, and sign letters. I cannot publish unsigned letters and I do not accept responsibility for the views expressed by contributors to this feature. I look forward to receiving your opinions for the August edition.



OUR EXPERTS' ANSWERS TO YOUR QUERIES

READERS' SERVICE

All queries **MUST** be accompanied by a stamped addressed envelope.

Letters should be addressed to Readers' Service, The Aquarist & Pondkeeper, The Butts, Brentford, Middlesex, TW8 8BN.

TROPICAL QUERIES

by Jack Hems

Could I keep pairs of *Haplochromis burtoni*, *Aequidens curviceps*, *A. maronii* and *Apistogramma ramirezi* in a 3 ft. tank furnished with tall-growing plants and rockwork?

You could try it, but when *H. burtoni*, in particular, becomes interested in raising a family, the male becomes a persistent and vicious bully not only of his own partner but other species also.

I have a 36 in. by 14 in. by 10 in. tank in which I keep forty freshwater tropicals including three largish angel fish. Would you say my tank is overcrowded?

It is overcrowded to the extent of about fifteen fish. A 3 ft. tank will accommodate only about two dozen 1½ to 2 in. fish in comfort.

I furnished my aquarium with rocks picked up on the seashore, pieces of coral and some beautifully marked sea shells and my angel fish, black widow fish, red-tailed black sharks and various *Corydoras* catfish all died within the space of about a fortnight. Can you offer any explanation for their demise?

Sea shells, rocks from the seaside, coral, and the like, are not suited to the freshwater aquarium housing the general run of fishes. They dissolve out excessive lime and alkalify the water; in all probability they were impregnated with salt and other undesirable substances. If you must have stonework in your aquarium limit your choice to granite, and other non-calcareous stone. In the meantime, siphon off all the water and make a fresh start.

Would the oily fumes from a paraffin stove placed in my fish house to supplement the heat given out by ordinary electric heaters, that is during cold weather, harm the fish?

Provided you remove the scum that will form on the

surface of the water no harm will come to the fish. You can remove the oily scum by drawing pieces of newspaper across the surface. In all probability you will have to do this every two or three days.

What is a pike minnow?

Pike minnow is a popular name sometimes used to describe *Belonesox belizanus*, an 8 in. livebearer from Central America. This livebearer is much too voracious a fish to introduce into a community tank and must be given a tank to itself. It requires smaller fishes to feed on besides the bulkier live foods and meat.

Can I place two African clawed frogs in my tropical community tank?

I do not advise introducing even a small *Xenopus* frog into your tank. This entertaining genuinely aquatic frog soon grows quite large, plays havoc with most submerged plants, and gulps down almost anything alive or dead (meat) which it can stuff into its wide mouth. African clawed frogs do very well in quite a small tank kept at ordinary room temperature. Just throw in a few stems of *Elodea densa* and leave them to float.

Could you please let me have some information on the fire eel?

The fire eel is native to south-east Asia and is known to science as *Mastacembelus erythrotaenia*. It is prettily marked when young with irregular streaks of beige and red on a brownish black ground. As it increases in size the red markings become more fiery and noticeable. However, it will not live to attain its full size of above 17 in. unless it is given plenty of white worms, well-washed tubifex, and red worms small enough for it to swallow. A temperature in the neighbourhood of 75°F (24°C) and a well-planted aquarium suits it best. In its smaller sizes it takes no notice of other fishes sharing its tank.

Kindly supply me with some advice on rearing dwarf gourami fry.

It is of supreme importance to maintain an even temperature in the upper seventies (°F). Next, the food given when the fry become free-swimming must be microscopical for the first nine days or so. Infusorians are recommended. Failing this, flour-fine dried food or a proprietary liquid food. Great cleanliness of the tank and water is essential. Hence overfeeding must be guarded against. Finally, the surface of the water must be kept clear of dust and scum and the passage of cool air, so keep the tank closely covered. Rather shallow water is an advantage. A bright light and plenty of plants too.

I am writing to ask your advice on the keeping of apple snails because I have just introduced two into my aquarium. Will they lay eggs in the typical snail pattern and will they breed at the regular tropical temperature?

The term apple snail is applied to a number of snails of the genus *Ampullaria*. All but one or two species will eat the plants in a tank. For apple snails are great lovers of greenstuff. The sensible thing to do is to keep apple snails in a small heated aquarium or plastic tank stood on top of a heated tank and feed them on lettuce and tender aquatic plant cuttings. Keep a glass cover on their container because they climb above water level and certainly do this when they lay their largish eggs. When the eggs hatch out the baby snails drop down into the water.

Could you give me some information on *Labeo frenatus*?

L. frenatus is a member of the family *Cyprinidae*, is native to northern Thailand, and is less of a scrapper (among its own kind) than the red-tailed black shark (*L. bicolor*). It usually stops growing at about 3½ to 4 in. but specimens may attain a larger size and probably do so in the natural state. It eats anything alive or dried and is fond of rasping away at algae growing on plants, stones, apparatus and the sides of the aquarium. I can trace no record of its spawning in the aquarium.

What are the visible signs of thread worms killing off fish?

The visible signs are the minute worms themselves hanging from the vent and the wasting away of victims. For a while fish attacked by thread worms

carry on normally, then they lose interest in food and death follows in a week or two.

What can I do to stop my *Rivulus hartii* breeding? My pair are in a community tank and the female appears to lay eggs every day. Both eggs and hatched fry are eaten by the other occupants of the tank.

Of course the eggs of your *R. hartii* are eaten by other fishes living in the tank. Or if not the eggs the fry. You cannot stop *R. hartii* or any other species of fish breeding in your tank if it feels that way inclined. If you wish to save fry, then you must give the pair a small tank to themselves and plant it very thickly with fine-stemmed or fine-foliaged plants such as nitella, *Vesicularia dubyana*, *Myriophyllum* spp., and the like, and maintain a temperature in the seventies (°F). A ripe female *R. hartii* will continue to lay eggs over a period of a few weeks to several weeks and as the fry will be of all sizes, you will be obliged to sort them into jars to stop bullying and food robbing.

Please give me some information on the cichlid known to science as *Eretmodus cyanostictus*.

This rare cichlid looks and acts very much like a goby. It takes its rest periods propped up on its pectoral and pelvic fins and has teeth adapted for extracting its living food (aquatic larvae and swallowable crustaceans) from indentations and cracks in rock faces and mats of algae. It is native to Lake Tanganyika and flourishes best in an aquarium filled with hard water giving a pH reaction of 8.0 or thereabouts.

I should like to know something about Breder's Betta.

This fighting fish is known to science as *Betta brederi*. It is said to hail from Java and Sumatra. It attains a length of about 3½ in. and is a mouth-brooder and not a bubble-nest maker or spawner. The fish embrace in the typical betta manner but as the couple break apart the female takes the eggs in her mouth and spits them out at the male. Some may miss the mark, but a great many end up in the male's mouth where they remain until they hatch out. Incubation is over in about two days but the fry remain in the male's mouth until they are capable of finding their own food: tiny aquatic larvae, *Daphnia*, and so on.

COLDWATER QUERIES

I have a quantity of blanket weed in my garden pond. Is there any species of fish which I could introduce which would eat this weed?

by Arthur Boarder

The soft type of filamentous *Algae* is often eaten by several species of fishes. Even goldfish will eat this if they are not artificially fed too much. I have

known anglers bait their hooks with this matter to catch Rudd and Roach. It may be a good idea to introduce a few Rudd into the pond to see if they help to reduce the trouble. Roach appear to be prone to fungus disease in a garden pond although I have known them to be kept in good order and so suspect that the trouble arises through much of the mucus being removed from the fish when they are caught. If young healthy Roach can be put in the pond I think that they will thrive all right.

I shall shortly be moving house and have a problem with my garden pond. I want to take plants and fishes with me but I shall not have time to make a new pond for some time. I have obtained an old fashioned bath, about 5 feet by 3 feet by 2 feet, and wonder if it will be a safe place in which to keep the fish until the pond is made?

I see no reason why the bath should not be used for keeping the fish *pro tem*. As the bath is an old one it will be safe as if a zinc one and fairly new it could be harmful to fishes. However you did not state the number of fishes you have nor their sizes. You must not over-stock the bath nor put too many plants in it. The bath should be placed in the shade to prevent the water from getting too warm and so losing oxygen. If you treat the container as just a large tank you should be able to keep the fishes healthy for some time, but on no account must you over-feed the fishes.

I have recently set up a small goldfish tank. Could you advise me on the types of plants and should I use peat in the tank and have some form of artificial light?

I am not sure what you mean by a small tank, as what might be considered small to some people may appear very different to others. To me, a small tank is one less than what aquarists describe as the average tank, that is 24 x 12 x 12 in. In such a tank it is necessary to go easy with water plants as with the right conditions they can soon grow and take over too much of the swimming space which is essential for the fish. I think that two or three types are sufficient for a small tank and suggest *Vallisneria spiralis* as a must and Hornwort, *Ceratophyllum demersum* and or *Lagarosiphon major* as well. The first named plant I have found ideal as it appears to last for ever and can increase steadily by runners. It does not grow tall in a small tank and its thin green leaves are very attractive. Either of the other named plants may have to be pruned occasionally to prevent them from taking over too much space.

There is no need to have any peat in the tank for the plants as this is only necessary when fishes are to be housed which require an acid type water. Goldfish

are not such fish. Neither do I suggest that you use any loam in a small tank. The ordinary aquarium compost is sufficient. A little loam is advisable in a large tank but in a small one the droppings from the fish will soon provide nutriment for the plants. As for the addition of overhead lighting, I consider that this is essential for any indoor tank, as without it the tank will not look anything near as attractive. Also the overhead light will assist the growth of the plants. A forty watt lamp should be sufficient for your tank and it can be switched on for eight hours or more a day according to the rate of growth of the plants.

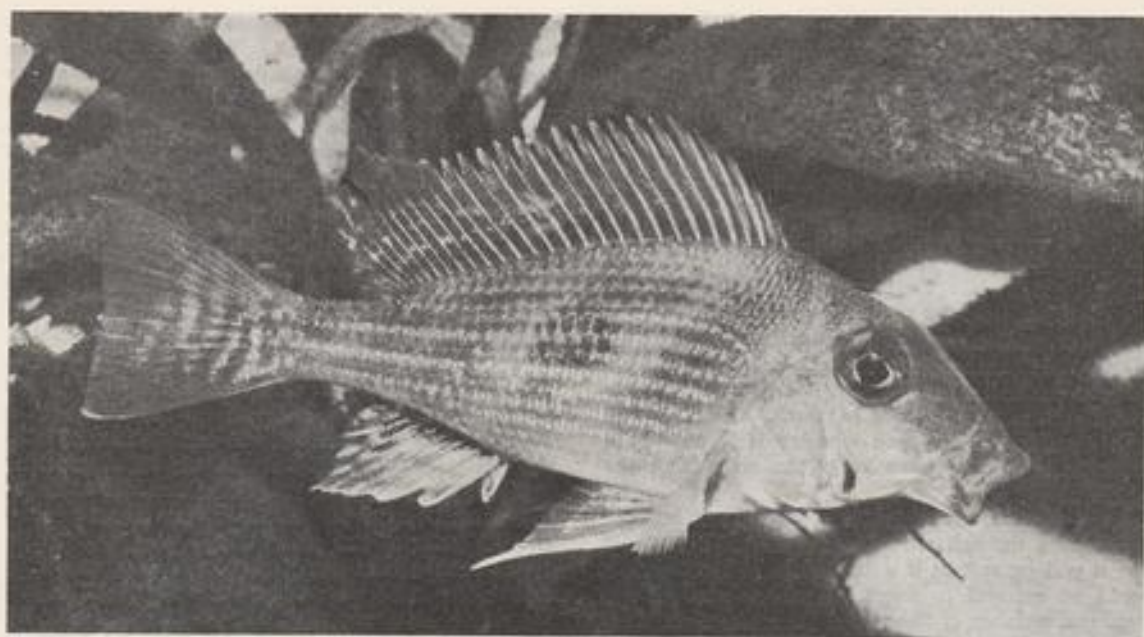
I would like some information on a garden pond. Which is best, a plastic formed one, a concrete one or a pond made with a liner? Also the best size to have in a medium sized garden? Which type of fish to keep and are Koi suitable as I would like to try these? What types of food should be used for pond fish?

My first answer is that you get a book on coldwater fishkeeping as all the points you raise in your letter are answered adequately in any good book on the subject. As for the size of the proposed pond; it depends on the size of the garden. The larger the pond, within reason, the easier will it be to maintain it, but obviously the pond should not take up most of the garden or its effect may not be that which is required. I do not think that a garden pool smaller than about 8 ft. x 4 ft. and 1½ ft. deep is of much use. I do not advise you to get Koi as these fish can grow very large and are not quite as easy to keep as goldfish. I think that without question, the best method of constructing a small garden pond is to use a strong liner, such as Butyl or Plastoline, or similar strong types. Most pond fishes will eat the usual foods as offered to goldfish and a look through the advertisements in *The Aquarist & Pondkeeper* will provide you with an astonishing range of foods suitable.

At our Borough's Civic Centre there exists a rectangular pool, approximately 16 ft x 12 ft. x 9 in. deep. This is kept at about office temperature and I would like to know which fishes would be most suitable to stock this pond to make an attractive feature?

The pond is of a good size and although the depth is not very much, I do not think that this will matter as being rather warm it is not likely to freeze over. Being shallow it will be better oxygenated throughout its depths than would a deeper pond. I suggest that the pond is stocked with common goldfish, (both gold and silver), fantails and shubunkins. These types will provide plenty of colour and action and not be difficult to keep in good health. If you are able to

Continued on page 104



Male fish showing downward-pointing mouth.

Geophagus *surinamensis*

Written & Illustrated by Jorgen & Pamela Hansen

A NUMBER of cichlids of completely varying sizes, colouring and disposition originate from South and Central America. Species described 100-150 years ago appear suddenly in fish wholesalers and are presented as new items for aquarists; moreover, genuinely new species of fish, including cichlids, are still being discovered in this part of the world.

For some time we had been on the lookout for cichlids of the genus *Geophagus*, which contains the only known mouthbrooding species of cichlid from the American continent. Finally we came across at a dealer's a newly imported consignment of fish, amongst them some cichlids resembling *Geophagus* species. We immediately bought 4 which, on arriving home, we placed in a 120-litre's tank. The dealer

had informed us that the fish were *G. suratensis* but we discovered that no species within the *Geophagus* genus bore that name; however, a species did exist with the similar name, *G. surinamensis*. Comparison of our fish with photos of *G. surinamensis* and comparison of fin ray counts as shown below confirmed that our fish did belong to this species.

	Theory	Our fish
Dorsal fin: spiny rays	XVII-XIX	XVIII
soft rays	11-13	12
Anal fin: spiny rays	III	III
soft rays	6-7	7
No. of scales along lateral line	33-36	36

The fish was described as early as 1791 by Bloch and

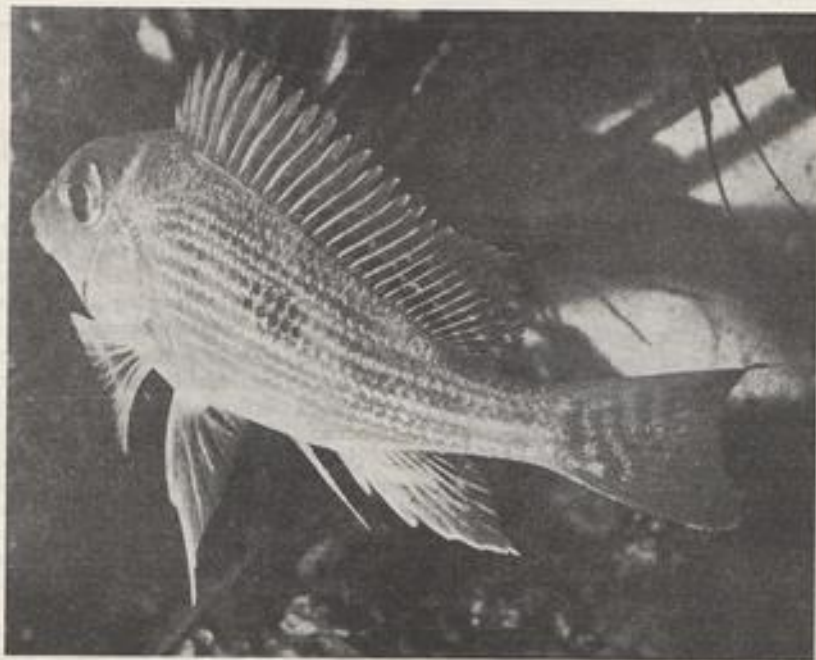
has its domicile in the north-eastern part of South America in an area which, on account of geological conditions (rocky ground with ion-exchanging material), has soft water. It is mainly to be found near hollows or hiding-places such as are formed by fallen trees. It is stated to attain a size of 24 cm. (about 9½ ins.) but probably does not grow to this size in the aquarium.

The male is to be distinguished from the female by its larger size, stronger colouring, and its more well-developed finnage.

The fish's appearance is very colourful and beautiful. Along the body run 10-11 rows of turquoise scales

leaving us with a pair of which the male measures 15 cm. (6 ins.) and the female 10 cm. (4 ins.). The pair are relatively peaceful although the female is regularly chased about. They do not dig more than a couple of centimetres down in the gravel, and have not as yet dug any plants up.

The name "Geophagus" comes from the Greek and means "earth-eater", and describes very well these cichlids' daily doings in the aquarium. *G. surinamensis* is a typical bottom-feeding fish and does not touch food floating on the surface. If very hungry it snatches food on the way down through the water; otherwise it waits until the food settles on



Male fish turning and displaying innumerable light-reflecting scales.

which gleam like emeralds whenever the fish makes a turn (photo 2). The basic colouring is a yellow-brown with 4 slightly darker bands which run obliquely down across the body. In the centre of the body is a black spot of the same size as the eye. All the finnage is coloured almost completely red with touches of turquoise here and there. The fin-rays in the dorsal and ventral fins are very long. The mouth opens downwards (see photo 1) and is clearly not designed for catching something in the water but for picking something up where the fish digging in the bottom forms an angle of 45° with the latter.

When we bought our specimens they measured from 4-6 cm., and grew thereafter very slowly. In the two years which have since passed, two have died,

the bottom before gulping it down. One gets the feeling that it is not at all keen on being presented with live *Daphnia* but much prefers a portion of dead (deep frozen) *Daphnia* which it can eat on the bottom.

When the fish digs in the gravel searching for food, the dug-up gravel is turned a few times in the mouth, eatable material is filtered away, and the gravel is then spat out again. Only the end of the snout is stuck into the gravel as opposed to certain African cichlids the *Haplochromis* genus with similar eating habits but where almost half of the head disappears down into the gravel.

With this incessant digging in the gravel it cannot be avoided that a whole lot of muck is whirled up into the water to settle as a suffocating layer upon the

plants with the result that they rapidly wither away to nothing. If, however, you attach an effective mechanical filter, the water will suddenly become crystal clear, the bottom will become scrupulously clean, and the plants will grow as never before. The reason is straightforward: not a single spot on the bottom avoids being turned over by the fish, and all the dirt whirled up will immediately be removed by the filter.

In our *G. surinamensis* tank, a number of hollows in which the fish instantly seek shelter at the slightest indication of danger, is built up along the back wall. A couple of minutes later one can then see them take up position in the cave opening and scrutinize the

scene with their large clearly moveable eyes, whereafter they quickly dash out and snatch a mouthful of gravel. This tank contains 80 litres and the water has a hardness of 14 DH and a pH of 7. The temperature is 25°C (77°F). We have not yet spawned the fish even though for some time they had the tank to themselves, but hope for results by lowering the DH and pH values by substituting soft water as we once did successfully with keyhole cichlids.

It is still uncertain if the fish is a mouthbrooder or not; we have not found anywhere a breeding description of this species. It should therefore probably be regarded as one of the more difficult species to breed.

PRODUCT REVIEW

THE INTERPET RB1201 AIR COMPRESSOR Description

A large rotary air compressor capable of providing large amounts of clean, dry air at a pressure suitable for use with multiple aquarium installations. The compressor is an industrial product, and so is of very rugged construction and is well-protected against deterioration and outside influences. The complete unit consists of a substantial fractional-horsepower electric motor, an impeller-type pump, and two chambers containing paper cartridges for input and output air filtration. Mounting brackets are welded onto the motor casing, and the air connectors and the mains voltage supply terminal box are located topside for easy access.

Functions

The heart of the machine, the impeller system, is a novel design by Lacy-Hulbert and Co. Ltd., who are well known pneumatic engineers. The impeller chamber is circular, but is mounted on the motor end cap so as to be off-centre with regard to the impeller itself which is mounted directly onto the motor shaft. The impeller has five machined slots, into which are fitted carbon blades sized to slide along these slots, so that at all points of rotation the action of centrifugal force will ensure that the area between the impeller and the inside of the impeller chamber is sealed across by the carbon blades. Due to the off-centre assembly this space varies in volume and thus the forced passage of the blades through it causes compression of the air at the narrowest point.

Input air is therefore taken in at one point in the cycle and then compressed and exhausted further around. The design has very definite advantages over the more conventional piston-type compressors. There are no complicated input and output valves

or valve gear, only simple ports located at appropriate places. The carbon blades can be replaced very easily should this be necessary, and can be treated individually. The blades wear slowly at their ends to ensure an air-tight fit with the impeller chamber walls throughout their life. This construction also encourages quiet running and a smooth steady airflow in the output line.

The compressor is designed to supply air to 25-70 outlets. One outlet is defined by Interpet as meaning a typical airstone, or a filter lift system without airstone diffusion.

One other important advantage, most essential to the aquarist, is that the air-producing components all run completely free of oil or any other lubricant. The carbon blades produce their own "lubricant" by the wear which takes place at their ends. Thus the output air is completely clean and dry.

Comments

On test in my own fish-house, which at the time had 33 outlets as defined above, the compressor ran the whole show very easily and with obvious power to spare. The noise level was very low and the unit was impossible to fault in any way regarding performance. I was unable to keep the unit for any length of time so a test over a long period was not possible, but every indication is that the compressor would be reliable and efficient in extended continuous use.

As is common with industrial products, the compressor is supplied without mains cable or any pneumatic auxiliaries such as pressure gauges or a relief valve. The average current consumption of the motor is about 2 amps, so appropriate cable (say 5 amp) would be needed. It is important that machines of this kind be effectively earthed at the terminal provided. The compressor can be safely

supplied with power from a domestic 13 amp circuit if required. The ambient air around the unit should not be hot, and damp conditions should also be avoided. Comprehensive electrical and mechanical instructions are supplied.

The RB 1201 has two "big brothers," the RB 1361 and the RB 1-61, for 70-200 and 100-300 outlets respectively. These were not tested but would appear to be of the same degree of reliability and construction.

Specification

Motor—Crompton Parkinson 0-125/0-166 b.h.p.

2800/3450 r.p.m. 220/240 volts.

2.0/1.7 amps. 1 phase. 50/60 Hz.

Rating—Constant.

Filters—Crossland 18489. Replacement elements 489.

Carbon blades—Part No. 904101-1 (5 included).

Complete unit—Weight 9.53 kg.

Dimensions—(H) 18.7 cms. (W) 21.6 cms. (L) 22.9 cms.

Air output at 1 metre head of water—45 litres/min. (1.6 cu. ft./min.)

Price and distribution

Price (at time of writing)—£87.80 plus V.A.T., replacement carbon blades £3.46 plus V.A.T. (set of 5). Supplied to the aquatic trade by Interpet, Curtis Road, Dorking, Surrey. Phone Dorking 3203. Leaflet on request.

A. JENNO.

UNO 250W. AND 300W. LONG HEATERS

ANOTHER new introduction from Uno, these high-powered heaters are supplied either as a separate unit or combined in the same protective tube with a submersible thermostat. In both cases the units should be mounted horizontally in the aquarium to give good heat dispersion, and if possible about a $\frac{1}{2}$ inch above the aquarium floor or gravel bed. In the automatic version, i.e., the combined heater-thermostat, the internal switching is intended for operation in this position. Apart from the extra length, construction and design are to Uno's usual standards. Good mains cable lengths are provided.

These units should satisfactorily extend the range of available heating equipment into an area where a definite need has developed in recent years. Since the introduction of silicone rubber sealant, and hence all-glass aquaria, and the resulting ease with which these can be built to special sizes and greater depths, the larger aquarium has become quite commonplace. Capacities up to 50 gallons are now quite usual, especially amongst marine aquarists.

The larger aquaria in turn need more powerful heaters, and unfortunately the well-known six-inch

length reaches a practical limit at about 200 watts. Therefore these new units should find a ready market and will save aquarists the complication of installing two small units to achieve a large wattage. My test sample, an automatic, was installed in a large aquarium and has performed perfectly since.

The separate unit is 11 inches (28 cms.) long, and the automatic version 16 $\frac{1}{2}$ inches (42 cms.).

Price (at time of writing): Separate £1.20 plus V.A.T.; Automatic £2.88 plus V.A.T. Spare tubes are available.

Distributed by Uno (Aquatic) Products, Arnold Street, Nantwich, Cheshire CW5 5RB. Phone: 0270 63674.

A. JENNO.



TROPICAL AQUARIUMS—THE NEW EXECUTIVE STATUS SYMBOL

LIGHT, colour and movement are provided for business and home interiors by the new range of Tropical Aquariums designed by Aqua Designs Ltd., 13 Park Street, London SE1. Telephone: 01-407 2178.

Each unit is completely self contained with filtration, aeration, temperature and lighting controls providing an exotic environment for tropical fish through the subtle use of lighting, translucent panels and refraction.

The range of standard units can be seen at leading West End and other stores, or at Aqua Design's Showroom, Queen Victoria Street, London, E.C.4.

Custom built units for architects and interior designers can also be built to specification. The Mirage Uniquarium shown above is in the offices of London Metal & Commodity Brokers, Rudolf Wolff & Co. Ltd.

From a Naturalist's Notebook

by Eric Hardy

AN endangered fish, the cui-ui, found only in Nevada's Pyramid Lake, recently received aid in the form of a fish-ladder which allows this sucker to travel up the Truckee River to its traditional spawning grounds. In Britain, attempts to reintroduce salmon to the Thames were inspired by the discovery of an 8½-lb. hen salmon brought up by the tide to West Thurrock Power Station last November. The same week brought the river's first records of four-bearded rockling and broad-nosed pipefish at the power station and of a mackerel at Barking Power Station. The seaward migration of salmon smolts was recently doubled on the River Axe in Devon by stocking it with young fish less than 1 year old.

Over 40 years ago I was associated in a small way with an attempt to restock the upper Thames with a salmon run, which I described in a special article in the *Sunday Observer* in May, 1934, and in the angling journals of the time. Salmon fry were previously introduced to the river at Teddington at the turn of the century. Most efforts to conserve Britain's freshwater fish have been for sport interest. County conservation groups could do more to conserve the habitats of other endangered species, like the burbot of eastern rivers.

Our efforts to conserve the last Cheshire breeding stock of natterjack toads, for which a part-time warden has at last been found, on the Dee estuary shore at West Kirby marsh, met with some frustration this spring when we found large numbers of disembowelled toads lying dead among these brackish, reed-girt pools. I've occasionally found such victims of fox, stoat or weasel at their Lancashire haunts, yet never so many as this. Watching the site, I concluded that the predators causing this loss at West Kirby were stray dogs, whose owners exercise them on the shore. They shake the toads, like a terrier worrying a rat (or grey seals shaking the skin off the lumpsucker fish they prey upon at The Farnes), then discard the acrid toads.

We saw only natterjacks disembowelled at West Kirby, probably because their brighter colours and more vocal proclamations attracted the dogs; but more common toads and frogs than usual returned to spawn. 120 natterjacks spawned there last spring, producing over 10,000 tadpoles. Mating was at its peak early in April, often two, sometimes three smaller, blue-throated male natterjacks mating with one larger female.

Some were attempting to mate with disembowelled

dead toads. Several natterjacks mated with common toads, an annual sight. Hybrid toads are not uncommon. They also occur with other toads—*Bufo fowleri*, *B. terrestris*, *B. woodhousei*, *Scaphiopus couchii* and *S. holbrooki* to give some American examples. In Germany, at Mainz University, Hemmer, Hekmut and Kadel described hybrids between natterjack and the green toad, *Bufo viridis*.

At the same time in April, a friend's mercury vapour lamp-tray set to catch moths in the middle of Delamere Forest found hundreds of common toads moving through the forest from 10 p.m.-1 a.m., to spawn at Hatchmere. West Kirby has not revealed the parasitic fly which lays its eggs on the toad's nostrils, when the maggots crawl into its head. A few dead, entire specimens, may have been the normal fate of older toads after mating. Natterjacks spawned well at the Cabin Hill (Range Lane) pools on Formby Dunes in old Lancashire.

Water-ferns get a good chapter in Roger Grounds' new 264-page illustrated book on *Ferns* (Pelham Books, £5.50), though not true ferns. Well known to aquarists and pond-makers, they include the tiny surface-spreading American and New Zealand *Azollas* which tint colourfully in autumn, and pillworts, as well as American water-shamrock, *Marsilea* whose creeping rootstock beds in the mud, so that it is a plant of shallow waters. Notes are given on cultivation, though they aren't frost hardy in severe winters, unless one covers their pond with planks for protection. *Azolla filiculoides* "escaped" to several British waters like Basingstoke Canal and some Cheshire ponds, where it becomes densely tufted with branches projecting above the surface. Its smaller, flatter, less-branched relative *carolinensis* has been introduced to some West Cheshire (Willaston) and Middlesex (Pindon) waters.

The world knows only six marginal or aquatic pillworts, one of which, the grass-like *globulifera*, known as "water-fern," is native to Britain, like Anglesey's Mynydd Badaf on marsh. It is dwindling to extinction in South Lancashire. It releases its spores into the water where fertilisation takes place. However, Roger Grounds' book doesn't include the two tropical water-ferns, *Ceratopteris*, known to aquarists as floating fern *pteridoides*, Indian water fern or water-sprite (*Samarra Fern*) *thalictroides*.

At a recent Council for Nature regional representatives' committee I attended in London, Dr. Frank

Perring, of the Nature Conservancy's Biological Records Centre, asked us to encourage people to send their records of fauna and flora to the national or regional recording centres. This in principal is to be encouraged, excepting that there are so many recording bodies and centres that busy people just cannot find time for all the paper work involved. I mentioned the incompleteness of surveys, reports and regional "natural histories" through societies working only within their memberships, and there being too many overlapping societies. Dr. Perring rightly added that before a museum or body formed a local recording bank it should call a meeting and discuss the plan with local societies.

Representatives of the herpetological and freshwater biological societies seemed to dismiss aquarists clubs as merely a lot of fish-exhibitors, the former lamenting the frequent lack of thanks or assistance when lecturing to societies in the London area. I usually find fish-keeping societies very courteous and friendly, and could not go along with the criticism. The defects complained of are not peculiar to such societies. One must bear in mind that members of the more scientific societies are usually in for professional reasons and their activity generally ends with their retirement. A sign of economic change is the conclusion of Carnegie grants for future smaller field-projects up to five years, though grants are continued for local countryside projects and information centres, and the Nature Conservancy makes research grants to limited circles.

The imposing Burroughs Wellcome medical museum as one leaves London's Euston Station may be overlooked by many; but it is in the Wellcome Animal X-Ray Museum that an extensive collection of radiographs of fish, many taken at London Zoo aquarium, are kept.

Outbreaks of botulism in warm weather often decimate ornamental waterfowl collections, where the causative bacterium, *Clostridium botulinum*, thrives in the muddy shallows where duck feed. Researches at London Zoo found types B, C and E in the mud of ponds, canals and rivers in the London area. Clean water often checks mild outbreaks, and an antitoxin injection more severe symptoms like watery green droppings and eyelids sealed with yellow fluid, the birds dying in otherwise good condition. The infection does not enter the bird's tissues, though intestinal blood vessels become congested.

One of the Freshwater Biological Association's major contributions to amateur and professional study of water life is their numerous keys for the identification of many groups, from British fishes and leeches to mayflies and midges. Their latest 78-page *Key to British Dixidae* by the chief field-worker on these meniscus midges, Dr. R. H. L. Disney, warden of Malham Tarn field centre, is well illustrated and well

worth its modest £1 at present standards. It replaces Freeman's 1950 key and Brindle's 1963 key to their larvae.

These often abundant, yet seldom identified, aquatic flies are named from the larvae of one group, *Dixella*, bent like a U tube, head under water, favouring stones, leaves or anything else in the meniscus or surface of slow waters like reedy lakes, while those of the other group, *Dixa*, are likewise associated with streams. The latter's adult flies rest upside down beneath bridges, stone walls and the leaves of water-side plants, while *Dixella* rests head-up among the reeds and sedges. Guidance is given on collecting and mounting specimens, but a series of distribution maps of Britain's 14 species are only thinly marked and leave much scope for field workers.

Another new publication, received from the Ministry of Agriculture, is a 175-page illustrated Bulletin 97, *Pests of Ornamental Plants*, edited by Dr. P. Becker, formerly entomologist to the Royal Horticultural Society (H.M.S.O., £3.65). It includes caddis-flies, notably *Limnophilus* (misprinted *Lymnophilus*) *mar-moratus* and *Halesus radiatus*, as destructive pests of water-lilies and other garden pond aquatics. It recommends keeping sticklebacks, young trout or goldfish to control them. A commoner water-lily pest grub of the small dark brown leaf-beetle *Galerucella*, with up to three generations a year in heated pools, is dealt with by hosing the leaves to sweep the larvae into the water where carp, dace or sticklebacks can feed on them. Or the infected leaves may be weighted down under water for a few days, for the fish to dine off them, because insecticides like derris cannot be used where there are fish. Similar submergence is recommended for a water-lily aphid which attacks many plants, including arrowhead, water-plantain, so-called flowering rush, pickerel-weed and reed-mace (false bullrush). It winters on various *Prunus* trees, ornamental and fruiting. Northern Scotland seems to be the only area where water-lilies are exempt from damage by the brown China mark moth. Insecticides are not a very effective control and hand-picking and crushing the caterpillars is more effective.

Fish-keepers will be interested in the Ministry's Weymouth fish diseases laboratory research, such as the pathology of carp erythrodermatitis, and methods of determining carriers of furunculosis and producing a vaccine for injection against this fungus problem of fish ponds. A new method has been developed for rapid seriological (blood) identification of all strains of *Aeromonas salmonicida* and its identification from other fish-pathogenic bacteria. It has found an excellent treatment of bacterial diseases in a new potentiated sulphonamide drug. A connection has been found between sexual maturity and brown trout's susceptibility to lesions of UDN disease (ulcerative dermal

necrosis).

Torry research laboratories at Aberdeen found a varying, but generally low, incidence to botulism disease in British trout farms. The salmon and freshwater fisheries laboratory (London) is using a biochemical method to identify races of salmonid fish,

the genetic relationship between brown trout and sea trout and the phenomenon of salmon and sea trout hybridisation. Other work ranges from introducing Pacific oysters in Wales, etc., to rearing young turbot and soles at Port Erin laboratories where prawns are proving difficult to spawn in captivity.

COLDWATER QUERIES (continued from page 97)

obtain any of the variegated comet goldfish, they would be an added attraction. Do not stock with golden orfe as these fish prefer coldwater.

Could the free lime from a recently constructed pond cause sores on the bodies of goldfish?

The free lime can be very dangerous to fishes and besides causing sores could soon kill the fishes. I remember that some years ago I had floated over a old cistern with a cement wash and had left it to mature. A little rain water had got into it and a fully grown frog had fallen into the tank. When discovered, the frog was dead and its skin almost eaten away by the lime. Any pond constructed with concrete must be well washed out two or three times after having stood for a day or two filled with water.

I have a small pool in my hall containing about 20 gallons of water. I can illuminate it and the temperature range is about 65°F. What type of plants can I use and what sort of fish?

As your pool is small, it is less than the size of two average tanks of 24 in. x 12 in. x 12 in., you will not need many plants. As you appear to have plenty of light you can choose from any of the usual aquarium plants offered for sale. With the warmth and light most plants will make rapid growth and so you must not use too many plants nor too many kinds as you may find that one or two take over to the detriment of others. For fishes you can choose from goldfish, shubunkins, fantails and moors.

I am making a circular pond, using a liner. I would like to have a mixture of Koi, goldfish and orfe. Would this be a wise choice and shall I start with small fish?

As you are a beginner and have not kept any fish before, I suggest that you do not have any Koi at first but have goldfish, shubunkins and golden orfe. About half a dozen orfe will shoal well together and as they are mostly surface swimming fish, they will look very attractive. Koi are not quite as easy for a beginner and shubunkins can be as colourful in a pond the size of yours. Small fishes will be the best as they are more likely to thrive.

I have a pond, 4 ft. 2 in. x 3 ft. 2 in. and 18 in deep, with water lilies, marginal plants, plus oxygenating plants. I have a number of goldfish but keep losing one or two, yet I have a green tench which has lived for four years. Why should I lose goldfish?

Your pond is very small, and appears to be overstocked with all types of plants. It may seem strange, but it is possible to overdo the plant position and then leave little swimming space for the fishes. Also it is possible to create a dangerous condition in the water during the night time. You stated the size of the pond but not the sizes of the fish nor the number. Tench can survive in water too foul to suit goldfish. Check up on the number of fish and the stocking of plants. Clean out the pond and when you refill, go easy with the dried foods.



"I Won the Pools"

VIEWPOINT

by A. Jenno

THE LETTER from Mr. Delaney of Hemel Hempstead, which was printed in "What is your opinion?" in the April issue, raised some interesting matters which are worth further discussion. I completely agree with Mr. Whiteside in that correspondents are entitled to their opinions, and would in fact go so far as to say that anyone who takes the trouble to write in on any subject has my respect immediately. However, Mr. Delaney's complaints seem to be based on rather false assumptions, and so in company with other correspondents in the past he has come to some improbable conclusions.

While I personally know very little about the editorial side of compiling a magazine, it must be obvious that there is not a limitless supply of articles on all possible subjects just sitting somewhere waiting for someone to select whatever he feels like printing for a certain issue. The content of any periodical must be basically determined by the kind of material submitted by the writers. The editor can only assemble a selection from this available material, he cannot suddenly conjure up articles on "the care and breeding of fish," or any other subject, just because he wants to. He is surely limited by the written matter in hand at any given time. It is, of course, necessary to include at least one or two "fish" articles in every issue because that is perhaps the main point of the magazine for many readers, Mr. Delaney being a typical example, so if the editor used everything to hand on these subjects all at once for one issue, we might then lose out in subsequent months. I feel that we are getting a very good balance at the moment, and having been a regular reader now for about fifteen years, can honestly say that the magazine has never looked better in my opinion.

The other point, and one that I have commented on before, is the business of someone saying that one or other of the regular features is "a waste of a valuable page". It always seems to me that it is a page we wouldn't have in at all if the subject under fire were discontinued. I hardly ever read the society notices pages myself nowadays, although I used to years ago when I was a club secretary, but

can see no point in doing away with them for that reason. We would just have a thinner magazine. Each of the regular features must by the nature of things have its group of critics in the total readership, so if these columns were all taken out on those grounds we wouldn't be left with very much. This present article is the fifteenth consecutive "Viewpoint" column to be included and I'm sure that the fact that the editor sees fit to print my submissions does not mean that the readers have been deprived of anything else to make room.

Looking through the issues so far for 1975, the page counts are January, 37; February, 37; March, 38; April, 40; excluding advertising. If anyone can show me a better or more comprehensive magazine in English anywhere, I'll subscribe immediately.

★ ★ ★

My drawing of the Protein Skimmer in the April column unfortunately had the dimensions missing. For those interested, the column diameter was 2½ inches, the height from base to water level was 20 inches, and the height above the water level was 6 inches.

★ ★ ★

My further appeal for details of specialised societies (March) was a further flop. I think we may as well consider the subject abandoned. I had two replies to the last request, both from the British Cichlid Association. One came from Mr. Ian Sellick who is the editor of publications, and the other was from Mr. Robin Roper who is the secretary of the B.C.A. Cleveland group. Mr. Roper's address is 58 Brendon Crescent, Bilingham, Cleveland TS23 2QT, and the general membership secretary of the B.C.A. is Mr. Terry Green of 12 Greenwood Meadow, Chinnor, Oxford.

Here endeth my directory of specialised aquatic societies.

★ ★ ★

We look like having a funny start to the outdoor pool season this year. The mild winter and the

particularly warm period at the beginning of 1975 encouraged an early "spring," and now as I write this there is a violent snowstorm outside, in April. Easter was a great disappointment here in the Midlands and the weather continues bleak.

In my own pool, which is made of concrete, I have experienced troubles similar to those I wrote about last year when my large Tench died. This time it was some of the Koi which were affected. The pool came through its first winter with fish in very well, in fact only one small fish died, and that for no apparent reason, but then just after the start of this late cold period I found two Koi lying on their sides on the bottom of the shallow section. On examination they were found to be covered with the same layer of heavy body slime which the Tench developed before it died last year. Readers may remember that at that time I put the cause down to a reaction on the fish's part to lime in the water because the pool was relatively new, and I suggested that the Tench might be extra-sensitive to that condition. Since then, i.e., last April, I have seen no further signs. Now, suddenly, the same state of affairs arose again. One of the Koi was lost, presumably because the slime had encompassed the gills, eyes and mouth already when I found the fish, but the other was saved by transfer to fresh water and repeated changes over about a week. Half the water in the pool was changed immediately (approximately 1,000 gallons) and there has since been no sign on the remaining Koi, the Goldfish, Orfe or Shubunkins.

My only conclusion is that once again the water had become polluted by lime from the concrete, either as a total accumulation over the whole of the previous year, or as a sudden influx resulting from the severe weather changes lately, which may have caused movements in the concrete through expansion and contraction, etc. Whatever the reason it looks as though I may have to expect this trouble to appear again, at least until such time as the concrete finally becomes lime-free. If this is the case then obviously the best preventative will be periodic water changes.

This last exercise in itself creates other problems. To change half of the water in a pool of this size takes about a day, using an Otter pump to get the old water out and then afterwards filling-up direct from the tap through a hose. In the spring this much new water will inevitably mean a return to the familiar tapwater—pea soup syndrome (assuming we do get sunshine), where free-floating *algae* are encouraged by the light and the abundance of mineral salts in the new water. I had been hoping to avoid this condition by retaining all of the old water, which was clear and might have stayed so. However, the change did a lot of good, the fishes becoming much livelier immediately. The fountain has also

been re-installed, the pump having been removed for its own protection last autumn.

Other pool owners will, no doubt, have stored their pumps away last year and then forgotten them until now, as I did. Then, of course, when the pump has been put back and the fountain ornament or whatever has been fitted up, the pump naturally fails to work because it is jammed up with last year's deposits from all the water circulated through it.

The Otter pump is however easy to service. Disconnect completely from the mains supply and remove the external pieces, i.e., strainer, fountain parts and so on. Then remove the main impeller housing, which is the round, black part carrying the input and output connections. This is held onto the pump body by four brass screws, and its removal will expose the impeller. Next, unscrew the back bearing holder, which is a wedge-shaped piece at the other end of the pump. The back end of the rotor is then revealed, and a screwdriver slot will be found in the exposed end of the main shaft. A suitable screwdriver used here will stop the shaft rotating so that the plastic impeller can be unscrewed from the other end of the shaft. The rotor may then be removed from the pump body, perhaps with the application of a few sharp knocks on the impeller end of the shaft if it is jammed in. Care must be taken not to damage the threads which hold the impeller.

Deposits from the water usually take the form of a brown, rusty-looking accretion which should be thoroughly removed both from the rotor and the static parts. The inside of the large hole in the pump body, the rotor chamber, has a thin sheet-metal lining which is easily damaged by indiscriminate poking about so this must be treated carefully. I use fine emery paper and swill everything well afterwards. Make sure that the small hole which connects the rotor chamber to the impeller area is not blocked.

After cleaning, the pump can be reassembled in reverse order, rotor (with any spacing washers), impeller, back bearing holder, impeller housing and its sealing washer, and then the strainer and other externals. To test for satisfactory operation it is quite reasonable to switch the motor on while out of the water for a short time only, just enough to make sure it rotates properly, but it must not be run for long like this because of its need to be immersed for lubrication purposes. On re-installation in the pool it is a good idea to have the pump as high up in the water as possible to reduce the frequency with which the strainer will need cleaning.

The pump will benefit if this simple maintenance is carried out annually or more often, whether it reaches the jammed state or not and, of course, if it is done on removal from the pool in the autumn

it will be ready for a first-time start the following season. For more complicated troubles or replacement parts, Beresford and Son, Ace Works, Kitts Green, Birmingham 33, are the makers and have an efficient and reasonably priced repair service.

★ ★ ★

In conclusion, I would like to mention some more reading matter for aquatic bookworms. Tetramin issue a booklet entitled "The Successful Fish Hobbyist" which is intended as give-away advertising for their products. In spite of the expected commercial approach, the booklet caters for the beginner in aquarium-keeping superbly and is thoroughly interesting. It should be available free from dealers who sell Tetra products and is highly recommended for basic information.

For the Cichlid enthusiasts and the more advanced general aquarists, the new journal of the British Cichlid Association "Cichlidae" is a replacement for

the old "Cichlid Clarion." It is a remarkable improvement in that it appears to be professionally composed and printed, and concerns itself only with matters of aquatic interest. The Association's other internal business is detailed in a separate newsletter. The editor is Mr. Ian Sellick, 280 Northridge Way, Hemel Hempstead, Hertfordshire HP1 2AU.

Lastly, I recently subscribed to the "Marine Aquarist," via Tropical Marine Centre Ltd., 25 Hay Lane, Kingsbury, London, N.W.9, following their advertisements in this magazine. Apparently there have been changes in the editorial status so that publication will be monthly in future. The quality is really good and the information content very high. It is printed in the small American format, as for instance T.F.H., and contains many very exceptional photographs. Marine subjects only, of course, but so well produced that its topics should be interesting to everyone.

A. Jenno

HERPETOLOGICAL NOTES

by *Stephanie J. Peaker, M.Sc.*

THE TYPICAL TOADS (genus *Bufo*) usually settle well in the vivarium and a number of non-European species are suitable for housing indoors.

Although many people keep toads in aquarium tanks, unless modified they are not really sufficiently well ventilated and we have used wooden vivaria to good effect. If perforated zinc or hard plastic netting is used for the ventilation panels ensure that they are higher than the normal height of the nose of the toads in order to prevent the toads from rubbing their noses on the sharp surfaces. Most toads do not spend long periods in water and a dry area is thought essential. We have tried a number of cage-floor coverings from natural earth and peat to newspaper but find the methods used at Philadelphia Zoo (described by R. Conant in *International Zoo Yearbook*, volume 11, pp. 224-230, 1971) to be highly satisfactory. The floor is first lined with several sheets of newspaper and then a layer of smooth small pebbles (not chipped) is added. Into this can be sunk a pool which need not be large until breeding is attempted—an aspect I do urge everybody to try because this is the real test of our ability to keep amphibians and reptiles. Shelters of cork bark (soaked and boiled before use) are ideal and clumps of sphagnum moss can be placed over the

pebbles in places. Some of this moss can be kept damp. Growing plants can be added but only if good ventilation is achieved. If they are included in the set-up they are best planted in pots of potting compost and then changed from time to time. Many plants will grow at a prodigious rate in the heat of the vivarium.

To achieve a good circulation of air through the vivarium a fan-heater can be positioned to circulate warm air through a number of them. A carbon filament lamp controlled by a thermostat is an effective method of maintaining the required temperature. If the pond is very large a separate heater can be used for the water.

The vivarium, water and fittings must be kept clean but after a thorough cleansing, the furnishings should be put back in the same position; otherwise the toads virtually have to settle down all over again after each major clean-out. As will be appreciated with the ventilation, floor covering and furnishings, the aim is to prevent stagnation and the spread of possible infective agents in dank conditions. Nevertheless, some toads appreciate a soak in mud or burrowing in earth and separate containers can be let into the pebbles. Bacterial and fungal infections of the skin

are a danger to all amphibians and for toads a completely dry area should be available. Some herpetologists keep antibiotics in the water continuously but I never feel happy with this course of action. Certainly antibiotics can be added to the water for specific skin lesions or during the first few weeks as a prophylactic. Tetracycline powder can be obtained on veterinary prescription. It is clearly important to keep the water in the pond free from harmful bacteria. Regular



Bufo melanostictus, the Common Asian Toad

changing and even circulation through an ultra-violet sterilizer can be recommended.

Given a clean and airy vivarium at the right temperature there is no reason why toads should not thrive. In the past I have found that the first few weeks is the most difficult time. Minor lacerations can blow up into major skin infections and it is during this period that immersion in antibiotics, or even in severe cases, injection, can be valuable. For this reason quarantine all new arrivals for several weeks and do not purchase amphibians with damaged skins.

Toads can eat a great deal and a variety of food is appreciated. Depending upon size, all manner of food can be offered—earthworms, mealworms, flies, pink mice, locusts, spiders and, of course, hedgerow sweepings in the warmer parts of the year.

For tropical specimens a day temperature of 24-27°C (75-80°F) suits most species but some prefer somewhat lower temperatures, others somewhat higher. A fall in temperature at night is recommended and either a very dim light or no light at all should be employed at this time. To simulate rain, spraying tepid water in the vivarium several times per week can be suggested. In the wild toads are often active after rain, particularly in the evening.

As for inhabitants, a number of species can be obtained. For those preferring large toads then the so-called Marine Toad (*Bufo marinus*) from South America can be recommended. Smaller but very attractive are *Bufo regularis*, the Common African Toad; *Bufo carens*, an attractively marked red-backed species from East Africa; *Bufo melanostictus*, the Common Asian Toad with beautifully sculptured head features outlined in black or brown and, as the accompanying photograph shows, prominent black tubercles. A species that can still be obtained is Blomberg's Toad (*Bufo blombergi*) from Colombia, a large attractive species. This species was only discovered in 1951 and since then has been widely exported to zoos. However, there is some doubt as to its numbers in the wild and unless you have wide experience in breeding toads and feel you could in all probability breed this species too, then I recommend you do not buy specimens.

For the temperate vivarium the North American species of *Bufo* are ideal (e.g. *B. americanus*, *B. terrestris*, *B. woodhousei*, *B. valliceps*, *B. cognatus*), not forgetting of course *Bufo viridis*, the Green Toad of Europe.



Bufo blombergi

Finally I do strongly recommend the purchase of groups of the same species—they are more interesting when kept in groups or at least in pairs, and we shall never learn to breed amphibians if we only keep odd ones in communities of different species.

Chelonians

Chelonians need copper in trace amounts to incorporate in their shells and young specimens are prone to copper deficiency. For aquatic forms chopped bony fish fulfils the need but for tortoises sterile bone meal sprinkled along with vitamin supplements on the food is an ideal source of calcium and copper.

BREEDING TUBEWORMS IN THE AQUARIUM

by Ian C. Sellick

THE SERPULID fanworm, or tubeworm, *Pomatoceros triqueter* is the largest and commonest found on British coasts. It is well known to anyone who has ever turned pebbles on a beach, as its white calcareous tubes are quite distinctive, with their rough, ridged, ribbon like finish.

The worms may be collected intertidally and brought, still in their tubes on pebbles or shells, into the coldwater marine aquarium. The worms live well in the aquarium, needing no special attention, save preventing them getting too hot in the summer, feeding being a relatively simple matter of providing finely powdered dry foods such as Tetramin Baby Livebearer, nettle powder, or an algal food such as Microzell or Liquizell, sold for the culture of the brine shrimp, *Artemia*.

The worms can be kept with other native marine animals, except some fishes such as blennies which are inclined to nip the heads off the worms.

For anyone with access to a microscope of even low power, at school or at home, the following experiments are fascinating to perform, and extremely simple, although a little practice may be needed.

For both the experiments to be described the worms must be removed from their tubes; this is the most difficult part of the procedure as they are very soft and thus easily injured.

Feeding

The fan-like apparatus which sticks out of the end of the worm's tube is technically called the prostomium, extended into a branchial crown in two parts with the tube building apparatus in the middle. This fan has the function of moving water across the front of the worm from the edges to the centre where the mouth is. This has two functions: first, it provides the vascularised filaments with a supply of fresh, oxygenated water; secondly, it transports food particles to the mouth; these are caught by the filtering

action of these filaments and passed down by ciliary action in grooves to the mouth.

This process of filter-feeding can be seen by releasing a small drop of a particulate suspension such as indian ink or powdered carmine near the tentacles. The way the particles are moved by the currents can be easily seen by putting the worms, still attached to their stone, in a dish of sea-water under a binocular microscope. If only a monocular microscope is available with limited focusing distance, then the worms may be removed from their tubes by carefully and slowly cutting the tube away with strong but finely pointed scissors, keeping their points up so as not to damage the worm. The worm will retreat as far as it can in its tube, but you will eventually see it by cutting away enough of the tube. DO NOT now be tempted to pull the worm out, it will break. Continue to cut away the tube above the worm until it can be picked out with forceps and placed in a shallow dish of clean sea-water. If a narrow glass tube is prepared, open at both ends, about 2½ inches long and some ¼ inch or so in bore, then the worm will take this over as its new home, and it may then be easily observed under the ordinary microscope in a shallow dish.

In a glass tube like this it is also possible to observe the peristaltic creeping movements made by the worm in the tube as it moves up and down.

In order to irrigate its tube, the worm passes a current of water from its posterior to its anterior end, this being ejected along with the rejection stream of the crown. This current may be observed in a "glass tube" worm by placing carmine or indian ink at the rear of the tube where it should be carried up the tube to the front.

If you have a powerful binocular microscope available, the direction of ciliary beat on the crown of filaments may even be seen by watching the passage of particles of carmine.

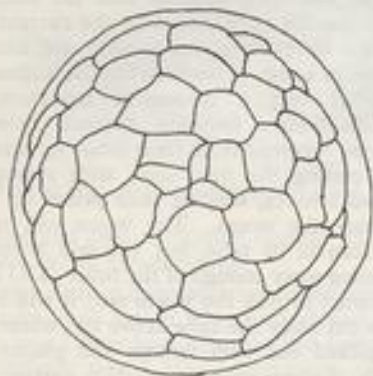
Breeding

On removal of the worms from their tubes to perform the feeding experiments, you may have noticed that some worms have reddish pink tails and some creamy white. The former are female and the latter male worms.

Normally, in the spring, on removal from their tubes these worms will have shed their gametes, eggs from the female and sperm from the male into the surrounding water. The eggs are pink and appear in masses alongside the worm, each egg can be seen distinctly, even with the naked eye. The sperm form a creamy suspension around the male worm.

These gametes should be separated from the worm using *separate* pipettes into separate containers of clean filtered sea-water for the eggs, empty for the sperm as they should remain as concentrated as possible. The water for the eggs must be of the same composition as that the worms are kept in.

EARLY BLASTULA - 12+ HOURS



It is just as well to quickly check the health of the eggs at this stage; place a few on a slide under the microscope in a drop of water and see that the eggs are uniform and spherical. If dented, or in any other way deformed, throw them away and start with a fresh worm.

Unless you have a very powerful microscope, with say a x100 oil immersion objective and x10 ocular (i.e., x1,000) then the sperm cannot be satisfactorily examined. However, under even a x40 they can be seen as minute motile threads.

The eggs should be washed by letting them settle twice through clean filtered sea-water, and any large pieces of debris should be removed with a pipette.

In a 250 ml. beaker, three drops of the sperm suspension from the male worm should be added to the eggs (no more—there are millions of sperm

per drop—enough to fertilize half the worms in Britain—too many extra sperm quickly die and pollute the water), then the water is vigorously stirred to increase the chance of a sperm meeting an egg and thus fertilising it.

The eggs are then left alone for twenty minutes, after which time it can be assumed that all those eggs likely to be fertilised would be.

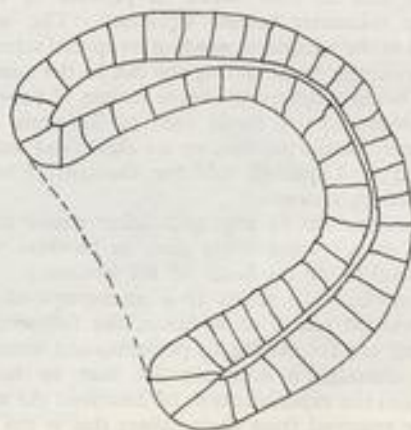
The supernatant fluid is then removed from the settled eggs and replaced with clean filtered sea-water, to prevent pollution by dead sperm. The eggs are now ready for further examination under the microscope, the first batch can be taken after about 2½ hours, and thence hourly.

Observation under the microscope

Put a small drop of sea-water containing a few eggs on a clean slide, and cover with a cover-slip supported at its four corners with tiny beads of

EARLY GASTRULA - 2nd DAY

seen here cut in half to show double layer of cells

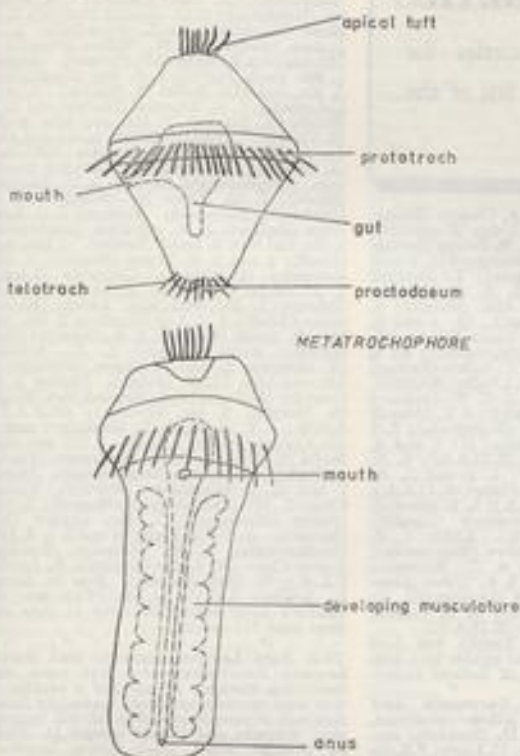


plasticene to prevent the eggs being squashed. Search for eggs first under the lowest power and only switch to a higher power objective if necessary after finding some.

After the first 6 hours or so have passed all the first cleavages will have occurred which successively divide the egg into 2, 4, 8, 16, 32, etc. cells and the individual cells become less distinguishable. After this, the eggs can be examined a couple of times a day because visible progress is slower although cell divisions still occur at the same pace.

After a ball of cells has been formed, hollow inside, called a blastula, it starts to invaginate to form a

TROCHOPHORE LARVA - 3rd DAY
sketch to show principal features.



gastrula. This process is rather like pushing your finger into a tennis ball; first a dimple appears, and then as you press harder, the ball eventually turns itself into a double layered, semi-circular cup-shape. The hole that is left becomes smaller and will eventually form the mouth.

Around the equator of the gastrula a row of cilia develop, called the prototroch, like minute oars, which will propel the larva, and an apical tuft of cilia also appears. This process is usually complete in three days and the larvae can actively move about their beaker. In the sea, these larvae would join the rest of the zoo-plankton at the surface of the sea, feeding on minute phytoplankton and nanoplankton (=smallest plankton). At this stage, the larvae have only mouths, the gut has not yet connected to a dimple at the rear end, the proctodaeum, that will form the anus.

Inside the animal, groups of cells are forming that will eventually grow into muscles as the animal elongates, after the gut is complete. This mesodermal tissue as it is called, becomes divided off into segments that represent the segments of the adult worm.

When the trunk has elongated to a certain stage, the larva may settle out, down to the seabed to be washed up on a beach to find a pebble on which to build a tube.

I must admit that I have never kept any of the larvae alive beyond the trochophore stage, probably due to difficulties of feeding and pollution in a small container. However, in a marine aquarium set aside for fanworms, I am sure that someone will be able to raise a family!

B.K.K.S.

WE ARE delighted to report the complete success of the recent tour of Thailand and Japan organized by the British Koi-Keepers' Society.

Thirty-one members and friends enjoyed a three-day visit to Bangkok before arriving in Tokyo where they were met and warmly received by members of the Tokyo branch of the All-Japan Koi-Keepers, Society.

Throughout their tour of Japan the B.K.K.S. party was welcomed and entertained in a most heartwarming manner. Private ponds and collections of Koi were shown and all questions patiently answered with the utmost goodwill. Dr. Takeo Kuroki, President of the All-Japan Koi-Keepers' Society (Zen Nippon Airin-Kai), travelled to Kyoto for the reception given there.

Many gifts of Koi were presented as tokens of friendship throughout Japan and their safe package and air-freight to Britain was arranged and paid for by Japanese members to whom we are deeply grateful for their overwhelming generosity and hospitality.

A.G.M.

The fifth Annual General Meeting of The British Koi-Keepers' Society will be held on Sunday, 22nd June 1975 at the Post House Hotel, Braunstone Lane East, Leicester, commencing at 2 p.m.

STILL EXCELLENT VALUE

Although an increase in the price of the magazine has been deferred for some months, it is with regret that we now have to announce such an increase. Most readers will have realised that such action would soon become inevitable and it is no doubt, appreciated that this magazine must be one of the few retail items which has resisted the results of inflation for such a long period as eighteen months. However, production costs continue to rise and in consequence the retail price of *The Aquarist & Pondkeeper* will be 25p commencing with the July issue.



from AQUARISTS' SOCIETIES

Monthly reports from Secretaries of aquarist societies for inclusion on this page should reach the Editor by 5th of the month preceding the month of publication.

EARLY in April **Riverside A.S.** Open Show was held and was a great success. Winner of the F.B.A.S. Championship trophy and Best Fish in Show was M. West of K.D.A.S. Winners of the trophy for Highest Pointed Society were Basingstoke A.S. Class winners were: Ak: 1, Sybil Hedges (B.G.A.S.); 2, Jean Lewis (Riv.); 3, J. Shepherd (Runnymede). Ag: 1 and 4, K. Lewis (Riv.); 2, T. Kuderovitch (B.G.A.S.); 3, R. Paine (Haslemere). Br: 1, T. Newbury (Gosport); 2, T. MacDonald (B.G.A.S.); 3, D. Reilly (Runnymede); 4, C. Kinsbury (Runnymede). Ba: 1, J. Hughes (Rochampton); 2, M. West (K.D.A.S.); 3, J. Jackson (Basingstoke); 4, A. Marshall (Basingstoke). Ca: 1 and 2, M. West (K.D.A.S.); 3, N. Savage (Basingstoke); 4, C. Turner (Cardiff). Ca: 1, T. Fraser (Basingstoke); 2, G. Lucas (Sudbury); 3, J. Jackson (Basingstoke); 4, A. Chaplin (Basingstoke). Ch: 1, G. Lucas (Sudbury); 2, E. Pantham (Sudbury); 3, N. Savage (Basingstoke); 4, L. Brazier (Sudbury). Dr: 1, C. and A. Worth (Dunstable); 2, J. Packham (Hendon); 3, C. Kinsbury (Runnymede); 4, J. Hughes (Rochampton). Da: 1, T. Jones (S.L.A.S.); 2, J. Jackson (Basingstoke); 3, R. Onslow (Basingstoke); 4, T. Newbury (Gosport). Db: 1, T. Newbury (Gosport); 2, J. Pollard (K.D.A.S.); 3, T. Fraser (Basingstoke); 4, Doris Winder (E. Duff). Dc: 1, K. Taylor (Havant); 2, P. Moya (Sudbury); 3, Fran Rogers (B.G.A.S.); 4, R. Narbrough (S.L.A.S.). Dz: 1 and 2, D. Warneant (Cardiff); 3, T. Taylor (Sudbury). Ea: 1, T. Taylor (Sudbury); 2, C. Breidkreutz (Suffolk); 3, T. Marshall (Basingstoke); 4, M. West (K.D.A.S.). Eb: 1, T. Taylor (Sudbury); 2, D. Reilly (Runnymede); 3, D. Taylor (Riv.); 4, T. Jones (S.L.A.S.). F: 1, J. Jackson (Basingstoke); 2, Gina Sandford (Reigate and Redhill); 3, J. Myrtle (Baling); 4, D. Reilly (Runnymede). G: 1, B. Pantham (Sudbury); 2, Mr. and Mrs. Murphy; 3, R. Newman (Riv.); 4, J. Dickinson (Havant). Ha: 1, P. Moya (Sudbury); 2, T. Fraser (Basingstoke); 3, B. West (K.D.A.S.); 4, J. Hughes (Rochampton). Hb: 1, K. Taylor (Havant); 2, V. Valley (Baling); 3, P. Moya (Sudbury); 4, D. Reilly (Runnymede). Hc: 1, E. Pantham (Sudbury); 2, T. Newbury (Gosport); 3, T. Fraser (Basingstoke); 4, T. Taylor (Sudbury). K: 1, T. Fraser (Basingstoke); 2, J. Jackson (Basingstoke); 3, T. Newbury (Gosport); 4, P. Moya (Sudbury). La: 1, K. Usher (Doncaster); 2, T. Taylor (Sudbury); 3, M. Sandford (Reigate and Redhill); 4, C. Kinsbury (Runnymede). Lb: 1, C. Turner (Cardiff); 2, M. West (K.D.A.S.); 3, J. Warner (S.L.A.S.); 4, D. Mackay (K.D.A.S.). M: 1, P. Brown (Southampton); 2, T. Burval (Basingstoke); 3, Mr. Canham (Roxford and Becontree); 4, P. Wilson (S.L.A.S.). Ma: 1, J. Packham (Hendon); 2, D. Warneant (Cardiff); 3, B. Pantham (Sudbury); 4, C. Turner (Cardiff). NBM: 1, C. Kinsbury (Runnymede); 2, J. Jackson (Basingstoke); 3,

N. Savage (Basingstoke); 4, A. Chaplin (Basingstoke). NOT: 1 and 2, K. Usher (Doncaster); 3, T. Newbury (Gosport); 4, N. Savage (Basingstoke). O: 1, T. Fraser (Basingstoke); 2 and 3, A. E. Noronha (Orpington); T. Marshall (Basingstoke). P: 1 and 2, A. E. Noronha (Orpington); 3, Mr. and Mrs. Murphy; 4, I. and A. Marshall (Gosport). Q: 1 and 2, K. Usher (Doncaster); 3, Doris Winder (E. Duff); 4, A. E. Noronha (Orpington). R: 1, R. Onslow (Basingstoke); 2, V. Valley (Baling); 3, D. Reilly (Runnymede); 4, L. Fuller (Rugely). S: 1, P. Moya (Sudbury); 2, C. W. Goddard (Sudbury); 3, J. Fuller (Rugely); 4, K. Dowell (Havant). T: 1, T. Fraser (Basingstoke); 2, 3 and 4, K. Usher (Doncaster). U: 1 and 4, F. Pinder; 2, D. Mackay (K.D.A.S.); 3, A. Marshall (Basingstoke). V: 1, 2 and 3, A. Marshall (Basingstoke); 4, J. Pollard (K.D.A.S.). W: 1, Sybil Hedges (B.G.A.S.); 2, T. Marshall (Basingstoke); 3, D. Warneant (Cardiff); 4, R. Narbrough (S.L.A.S.). XBM: 1, P. Moya (Sudbury); 2, R. Onslow (Basingstoke); 3, J. Dickinson (Havant); 4, D. Warneant (Cardiff). XOT: 1, 2 and 3, K. Usher (Doncaster); 4, A. E. Noronha (Orpington). Z: 1, Sybil Hedges (B.G.A.S.); 2, J. Jackson (Basingstoke); 3, E. Lough (K.D.A.S.).

Winner of the Junior Trophy was Neil Savage of Basingstoke. Best exhibit by a lady was won by Sybil Hedges of Bethnal Green.

OFFICERS for Great Yarmouth and District A.S. are now as follows—chairman, A. Kirby; vice chairman, H. Brundish; secretary, E. Weekley; treasurer, D. Lacey; P.R.O., P. Watson; show/judges secretary, Mrs. J. Rumsby. Meetings are held first Monday of each month at the Imperial Hotel, North Drive, and new members and guests are always welcome.

THERE was a very good attendance of members at the April meeting of the **Brighton and Southern A.S.**, including a number of new members and all enjoyed a Tape and Slide lecture on Barbs by P. Ginger. The Table Show was judged by Mr. R. Baker and the results were as follows: O & P Guppies: 1 and 2, D. Mann; 3, J. Smith; 4, P. Horsney. G. Carfish: 1, R. Shankland; 2, D. Goodchild; 3, G. Clarke; 4, R. Houghton.

RESULTS of Stanley & Consett A.S. Open Show were: Furnished Jars: 1, N. Lynch (Stanley); 2, Mrs. J. Surtees (Stanley); 3, Mrs. S. Tear (Stanley). A.V. Guppy: 1 and 2, G. Embleton (Stanley); 3, Mr. and Mrs. Lamb (Redcar). A.V. Platy: 1, R. T. Walton (Hartlepool); 2, B. Jackson (Redcar); 3, Mr. and Mrs. Lamb (Redcar). A.V. Molly: 1, S. Hay (Hartlepool); 2, Mr. and Mrs. Daly (N.G.A.S.); 3, J. Poettine (N.G.L.S.). A.V. Fishes: 1, P. Hope (Hartlepool); 2, B. Foster (Hartley); 3, Mr. Dudley (Hartlepool). A.V. E.L.T.C.: 1, Mr. Prytherch (Ashington); 2, Mr. Pattison (Priory); 3, F. K. Askew (S. Shields). Breeders Fair Egglayers: 1, Mr. Dryden (Mt. Pleasant); 2, Mr. and Mrs. Ruffell (S. Shields); 3, H. Garthwaite. Breeders, Fair Livebearers: 1, P. Wright (S. Shields); 2, P. Newton (Hartlepool); 3, Mr. Dudley (Hartlepool). Breeders, Class Egglayers (six fish): 1, K. Alder (Hartlepool); 2, C. A. Enright (S. Shields); 3, D. Couborough (Renfrewshire). Breeders, Class Livebearers (six fish): 1, M. Ruffell (S. Shields); 2, Mr. and Mrs. Sowerby (Mt. Pleasant); 3,

Mr. and Mrs. Daly (N.G.A.S.). Cichlids (Small): 1, Mr. and Mrs. Ruffell (S. Shields); 2, B. Jackson (Redcar); 3, N. Lynch (Stanley). Cichlids (Large): 1, Mr. and Mrs. Lamb (Redcar); 2, F. K. Askew (S. Shields); 3, T. Hope (Hartlepool). R. Valley Cichlids: 1, R. Atherton (Hartlepool); 2, D. Goodall (Redcar); 3, R. Hope (Hartlepool). A.C. Swordtails: 1, B. Jackson (Redcar); 2, W. Walton (Priory); 3, Mr. and Mrs. Sowerby (Mt. Pleasant). Angels: 1, Mr. Pirth (Priory); 2, S. Hay (Hartlepool); 3, Mr. and Mrs. Ruffell (S. Shields). 1, A.V. Labyrinth: 1, R. Atherton (Hartlepool); 2, P. Wright (S. Shields); 3, Mr. and Mrs. Ruffell (S. Shields). Tropical Cichlids: 1, Mr. and Mrs. Lamb (Redcar); 2, Mr. and Mrs. Ristbridge (S. Shields); 3, Mr. and Mrs. Saunders (Stockton). Corydoras and Brochis: 1, D. Turnbull (Bimbi); 2, M. Lister Jr (Stanley); 3, H. Garthwaite (Hartlepool). Rasbora: 1, D. Lawrence (Redcar); 2, R. Atherton (Hartlepool); 3, Mr. and Mrs. B. Smith (Redcar). Characins (Small): 1 and 3, F. Myers (Stanley); 2, Mr. Bottomley (Hartlepool). Characins (Large): 1, J. Taylor (Stockton); 2, Mr. Duncanson (Priory); 3, Mr. and Mrs. Liddle (Bimbi). Barbs (Small): 1, I. Lee (Stanley); 2, Mr. and Mrs. B. Smith (Redcar); 3, K. Greenley (Billingham). Barbs (Large): 1, L. Southall (S. Shields); 2, Mr. Robinson (Stanley); 3, Mr. and Mrs. Liddle (Bimbi). Sharks: 1, K. Greenley (Billingham); 2, Mr. and Mrs. Wright (S. Shields); 3, Mr. Greenacre (M.P.A.S.). A.O.V.: 1, L. Southall (S. Shields); 2 and 3, Mr. Costain (Priory). Loach: 1, Mr. and Mrs. Ruffell (S. Shields); 2, H. Garthwaite (Hartlepool); 3, D. Couborough (Renfrewshire). Marine: 1 and 2, J. Middlemast (Stanley). Female Class: 1, Mrs. Bottomley (Hartlepool); 2, Mr. Dudley (Hartlepool); 3, Mr. Dryden (Mt. Pleasant). A.V. Coldwater: 1 and 2, J. S. Hall (Alecborough); 3, W. Foreman (Stanley). Junior Class: M. Lister (Stanley); P. Laidler (R.L.A.); E. Hall (Stanley). Best in Show: L. Southall A.O.V. 80 pts. This was the Society's most successful show to date and there were 551 entries.

THE East London Aquatic and Pondkeepers Association have had some very interesting meetings of late and a number of very good speakers have been booked for future meetings, anyone interested in fish will be made most welcome and should contact D. Plack, 24 Wolsey Road, Rush Green, Romford, Essex.

DETAILS of the German Livebearer Association open show this year are as follows: The show will be held from the 3rd until 5th October, and all breeders and fanciers of livebearers are entitled to compete. All standards of the species Xiphophorus and Mollienisia are admitted; the show is for breeding pairs only. Foreign competitors do not pay any entry fee and all foreign entries are auctioned after the show.

Further details and application forms are available from—DGLZ, II. Intern. Leistungsschau, Herr Hans Kröger, Glöckstraße Weg 75 (Schule am Bahr), 2000 Hamburg 53, West Germany. Entries are accepted until 1 September, fish to arrive no later than 2 October.

Members of the Newcastle Guppy and Livebearer Society will be sending fish to this show and it is hoped that other Livebearer enthusiasts in the country will also support the venture.

FIRST annual general meeting details of the **Killingworth A.A.** are as follows: President, D. B. Hickman; Chairman, D. Renton; Secretary, Mrs. M. E. Hickman; Treasurer, J. Askell; Show Secretary, G. Penwick; P.R.O., J. Askell; Trophy Secretary, H. Sparham; Librarian, T. Wynn; T.T.A.A. P.B.A.S. Rep., D. Renton; Junior Rep., D. Tiley; Stock and Sales, Mrs. E. Armitage.

AT the recent annual general meeting of the **Southampton A.S.** the following were elected: Chairman, D. V. Jones; Vice-Chairman, G. Hallum; Hon. Secretary, D. Mills; Hon. Treasurer, D. Laver; Show Secretary, A. Weaire; Committee, D. Russo, M. Carter, R. Block and Mrs. A. Lines. The Society meets on the first Monday of each month for the formal evening. New members very

halamid A TABLET A DAY, SENDS WHITE SPOT AWAY
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welcome. Details from D. Mills, 30 Ferndene Way, Bitterne Park, Southampton.

OFFICERS of the Uxbridge A.S. are: Secretary, T. Isted, 87 Larch Crescent, Hayes, Middlesex. Chairman, B. Funnell; Show Secretary, R. Newman, 129 Wood End Green Road, Hayes, Middlesex; Treasurer, N. V. Lee. Meetings are held fortnightly on Wednesday evenings at 8 p.m. at Brookside Pavilion, Brookside Road, Hayes, Middlesex. New members are welcome. There will be no open show in 1975, but an exhibition of fish keeping will be held in conjunction with Hayes Carnival on Saturday 12 July in Hayes Park.

MAIN item of the evening meeting of the Bournemouth A.S. was a talk by B. Coombes on "Aquatic Plants." His talk was very informative especially to the newer members to the hobby, and was also a help to those more experienced.

At the last meeting of A.S.A.S. it was decided that all the monthly meetings would now be held at the Bournemouth A.S. Headquarters, at Kinson. R. Matley the society's own secretary is now also the secretary for A.S.A.S. and B. Coombes is the Show Secretary. Table Show Results: A.V. Characin: 1 and 3, Mr. Devlin; 2, Mr. Bebb. Tropical Pairs: 1, Mr. Cox; 2, Mr. Bebb; 3, Mr. Jeffrey. Shubunkins: 1, Mr. Travers.

RESULTS of the Medway A.S. Open Show: Class Ba: 1, J. Bellingham (Tonbridge); 2, C. Elliott (Medway); 3, G. Owen (B.K.A.); 4, R. King (Mid Kent). Class Bz: 1, T. Newbury (Gosport); 2, J. Bellingham (Tonbridge); 3, T. Cruickshank (Balling); 4, B. Fry (North Kent). Class Ca: 1, A. Feast (Tonbridge); 2 and 3, Mrs. P. Edwards (Thanet); 4, K. Saxby (North Kent). Class Cb: 1 and 3, G. Woodhams (Tonbridge); 2, L. Arnold (Medway); 4, G. Owen (B.K.A.). Class Cc: 1, C. Elliott (Medway); 2, Diane McDonald (Sittingbourne); 3, D. and B. Purchard (Tonbridge); 4, L. Arnold (Medway). Class Da: 1, E. and T. Tester (Mid Sussex); 2, A. Best (Strood); 3, G. Woodhams (Tonbridge); 4, N. Ayling (Tonbridge). Class Db: 1, T. Newbury (Gosport); 2, B. Nichols (Mid Kent); 3, C. Marsh (Medway); 4, E. and T. Tester (Mid Sussex). Class Dc: 1 and 4, G. Woodhams (Tonbridge); 2, A. Spicer (Medway); 3, D. and B. Purchard (Tonbridge). Class Dd: 1, F. Funnell (Tonbridge); 2, C. Marsh (Medway); 3, D. Clout (Mid Kent); 4, A. Spicer (Medway). Class Ea: 1 and 2, C. and J. Richard (Sudbury); 3, Mr. and Mrs. Woodward (North Kent); 4, T. King (Reigate & Redhill). Class Eb: 1, Mr. and Mrs. B. Newman (Sittingbourne); 2, B. Fry (North Kent); 3, R. Parker (North Kent); 4, D. Clout (Mid Kent). Class Ec: 1, E. Roberts (B.K.A.); 2, R. Duroe (Orpington); 3, T. and E. Tester (Mid Sussex); 4, G. Sandford (Reigate & Redhill). Class G: 1, Mr. and Mrs. Sharp (Sittingbourne); 2, B. Nichols (Mid Kent); 3 and 4, F. Funnell (Tonbridge). Class H: 1, Mr. and Mrs. Sharp (Sittingbourne); 2, K. Saxby (North Kent); 3, T. Cruickshank (Balling); 4, Elizabeth Nichols (Mid Kent). Class I: 1, A. Feast (Tonbridge); 2, T. Newbury (Gosport); 3, N. Ayling (Tonbridge); 4, B. Fry (North Kent). Class K: 1, T. Newbury (Gosport); 2, Isobel Bellingham (Tonbridge); 3 and 4, C. Elliott (Medway). Class L: 1, B. Nichols (Mid Kent); 2, Elizabeth Nichols (Mid Kent); 3, S. Mann (Strood); 4, A. Feast (Tonbridge). Class M: 1, Elizabeth Nichols (Mid Kent); 2, D. and B. Purchard (Tonbridge); 3, E. and T. Tester (Mid Sussex); 4, A. Feast (Tonbridge). Class N: 1, C. Elliott (Medway); 2, Sybil Hedges (Bethnal Green); 3, R. Parker (North Kent); 4, D. Casham (Romsford). Class N-m: 1, R. Roberts (B.K.A.); 2, Mrs. Sandford (Reigate & Redhill); 3, C. and J. Richards (Sudbury); 4, Mr. and Mrs. Sharp (Sittingbourne). Class No: 1, K. Saxby (North Kent); 2, D. McDonald (Sittingbourne); 3, B. Brett (North Kent); 4, C. Elliott (Medway). Class O: 1, B. Fry (North Kent); 2, E. and T. Tester (Mid Sussex); 3, B. Brett (North Kent); 4, C. and J. Richards (Sudbury). Class P: 1 and 4, A. Noretha (Orpington); 2, C. G. McKay (Sudbury); 3, C. Buck (Medway). Class Q: 1, Mr. and Mrs. Newman (Sitting-

bourne); 2, A. Noretha (Orpington); 3, T. Prior (Strood); 4, B. Nichols (Mid Kent). Class R: 1 and 2, C. Finnis (Strood); 3, C. Marsh (Medway); 4, A. Noretha (Orpington). Class S: 1, B. Nichols (Mid Kent); 2 and 4, T. Stacey (Reigate & Redhill); 3, C. Buck (Medway). Class T: 1, K. Saxby (North Kent); 2, D. and B. Purchard (Tonbridge); 3, B. Nichols (Mid Kent); 4, A. Noretha (Orpington). Class U: 1, B. Brett (North Kent); 2, A. Feast (Tonbridge); 3, B. Fry (North Kent); 4, Mr. Walswell (Romsford). Class V: 1, B. Fry (North Kent); 2, Mr. and Mrs. Funnell (Southern Ind.); 3, T. Hoskins (Medway). Class W: 1, Sybil Hedges (Bethnal Green); 2, B. Fry (North Kent); 3, J. Owen (B.K.A.); 4, B. Brett (North Kent). Class Xb-m: 1, D. Robson (B.K.A.); 2, R. Duroe (Orpington); 3, L. Arnold (Medway); 4, Mr. Waters (Mid Kent). Class Xc-t: 1, D. and B. Purchard (Tonbridge); 2, B. Fry (North Kent); 3 and 4, A. Noretha (Orpington). Class Z: 1, C. Elliott (Medway); 2 and 4, C. Marsh (Medway); 3, Sybil Hedges (Bethnal Green). Best in Show: R. Roberts (B.K.A.), *Reloia Monrovia*.

SPRING show results of the Killingworth A.S. were as follows: Guppies: 1, I. Hymers; 2, T. Wynn. Cold Water: 1, Mr. and Mrs. Sparham; 2 and 3, Mr. and Mrs. Hickman. A.O.V. Livebearer: 1, R. Kerr; 2, T. Wynn; 3, I. Hymers. Pairs: 1, Mr. and Mrs. Hickman; 2, R. Kerr; 3, T. Wynn. Breeders: 1 and 2, Mr. and Mrs. Renton; 3, Mr. and Mrs. Hickman. Rasbora: 1, Mr. and Mrs. Sparham; 2 and 3, D. Armitage. Danio: 1, D. Armitage. Furnished Jar: 1, Mr. and Mrs. Hickman. Catfish: 1, R. Kerr; 2, Mr. and Mrs. Hickman; 3, S. Laidler. Loach: 1 and 2, Mr. and Mrs. Hickman. B.L.T.G.: 1, T. Wynn; 2, Mr. and Mrs. Hickman; 3, Mr. and Mrs. Renton. A.O.V. Tropical: 1, Mr. and Mrs. Hickman; 2, D. Armitage; 3, I. Hymers. Corydoras: 1, Mr. and Mrs. Hickman; 2, S. Laidler; 3, Mr. and Mrs. Renton. Laboo: 1, Mr. and Mrs. Hickman; 2, T. Wynn. Characins: 1, Mr. and Mrs. Hickman; 3, D. Tilley; 3, Mr. and Mrs. Sparham. Cichlids: 1 and 3, Mr. and Mrs. Hickman; 2, W. Kidd. Labyrinth: 1, L. Gilbert; 2, D. Armitage; 3, Mr. and Mrs. Hickman.

The most points in the show trophy was awarded to Mr. and Mrs. Hickman and the novice competition was won jointly by T. Wynn and Master D. Armitage, both with 10 points. The table show "D. Renton Kill 10 trophy" was won by Mr. and Mrs. Hickman with 87 points and the novice trophy was won by T. Wynn, with 47 points. The Best Fish in Show award went to Mr. and Mrs. Hickman. The fish were judged by I. Danksin and Mr. Redhead of N.T.P.S. and J. M. Patterson.

At the March meeting of the Bristol Tropical Fish Club, the speaker was Dennis Noble of the Severnside A.S., who gave a talk aided by slides. The slide show took the form of a quiz, the first part of which gave details of colour, size, shape and breeding habits of various fishes, the second part of the quiz (to be given at a later meeting) will be questions on information given in the first talk.

At the April meeting of the Mid Cornwall A.S. members were given a lecture on "Filtration" by Roy and Gwen Skipper, which was much enjoyed by those members present. In March the society had its first table show. Result: 1, R. Lee; 2, J. Swanhill; 3, G. Hall. The show was judged by G. Jackson and while this was on the members had a tape and slide lecture on "Killifish." The society meets on the first Wednesday of each month. The secretary's address is, B. G. Lean, 5 Hillcrest, Shortlandstead, Truro 4092, and new members would be most welcome.

PRESENTATIONS were made at the Bethnal Green A.S. annual dinner and dance by Mr. Frank Tomkins, chairman of the F.B.A.S., for the previous year's club trophies. They were as follows: First Year Members Cup: 1, Fran Rogers; 2, K. Waller; 3, A. MacDonald; 4, A. Haley. Points Cup: 1, Fran Rogers; 2, J. Connolly; 3, S. Adams; 4, Sybil Hedges. Fish of the Month Cup: 1, Fran Rogers; 2,

S. Adams; 3, Sybil Hedges; 4, J. Connolly. The trophy for most points by a B.G.A.S. member at the open show was won jointly by Tony MacDonald and Fran Rogers. The Open Show Cup, for most points gained at all open shows was won by Sybil Hedges. Other highlights of the February calendar included a very interesting and detailed talk with slides on Loaches by P. Arnold. Also in February there was a visit to Hendon A.S. together with five other clubs, each bringing their six best fish. The inter-club Rosebowl was won by Bethnal Green and the Best Fish in Show by Sybil Hedges.

For the Points Cup of G and H held during March, the first four places were all won by members of the Carfish Association of G.B. When judging Corydoras, Mr. Cyril Brown spent some time discussing the results with members who were glad of the opportunity to gain increased knowledge regarding the identification of this complex family of fishes.

In March, club members were entertained by a lengthy and detailed slide talk on the fascinating subject of African cichlids by B. Mould and D. Allison of Hendon A.S.

In April the Loughborough and District A.S. held their annual trophy presentation and buffet dance. The trophies were presented by Mrs. L. Somerville and Mr. D. J. Morgan. Award winners were as follows:—M. Chaffer, Graham Brewer Shield Furnished Aquaria; G. Howe, Characins and D. Morgan Trophy, Cichlids and D. Slack Cup, Egg-layer Broods; D. Lindsey, Single-tail Goldfish, A.V. Pond or River Fish, A.V. Livebearer and K. Jones Shield, Sheila Lindsey, Corydoras and Fish of the Year Trophy. A. Onslow, Pairs and 1. Purdy Shield for Most Points Attained in Open Shows; Barbara Parry, Barbs, T. Parry, Loach, A.O.V. Tropical and T. Parry Shield, 1. Purdy, Danio, G. Taylor, Anabantids, Rasbora, A.O.V. Catfish and D. Wood Rosebowl Twin Tail Goldfish and Chapman Shield for Most Points in Table Show.

TABLE Show results for March from Coventry Pool and A.S. were: Anabantid: 1 and 3, R. Cleaver; 2, B. and F. Hirst; 4, P. and C. Hinde. A.V. Loach: 1 and 3, E. Keeble; 2, T. Emma; 4, R. Cleaver. Junior A.V. Tropical: 1, D. Tew; 2, P. Watts; 3 and 4, S. Watts. A.V. Barbs: 1 and 3, B. and F. Hirst; 2, A. Simmons; 4, B. Bradley.

THE Southampton A.S. Open Show was supported by 613 entries in the various classes despite the bad weather that came on Easter Monday. The Best Fish in the Show winning the Aquarist Gold Pin and eligible for the Champion of Champions contest was a Platano Barb entered by Mrs. P. Newbury (Gosport). Furnished Aquaria Class: 1, Mrs. P. Newbury (Gosport); 2, R. J. Hard (Halemore); 3, Mrs. P. Jupp (Gosport). Barbs: 1 and 4, Mrs. P. Newbury (Gosport); 2, Mrs. D. Cruickshank (Balling); 3, T. Burvill (Basingstoke). Barbs: 1, K. C. Smith (Runnymede); 2, K. A. Hillier (Newbury); 3, R. F. Adams (Salisbury); 4, A. Marshall (Basingstoke). Characins: 1, C. Turner (Cardiff); 2, T. Fraser (Basingstoke); 3, K. A. Hillier (Newbury); 4, W. A. Cosburn (Basingstoke). Hypheosobrycon Hemigrammus Cheirodon: 1, C. Turner (Cardiff); 2, T. Burvill (Basingstoke); 3, M. Strange (Basingstoke); 4, P. Dearing (Crawley). Angels: 1, I. R. Onslow (Kingsclere); 2, Mrs. P. Newbury (Gosport); 3, T. Taylor and family (Basingstoke); 4, Mrs. M. Weaire (Southampton). Dwarf Cichlids: 1 and 2, T. Fraser (Basingstoke); 3, P. Brown (Southampton); 4, G. Hilliam (Southampton). Haplochromis: 1,

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A. Tracey (Gosport); 2, J. Juge (Gosport); 3, J. Bailey (Gosport); 4, W. Knight (Gosport). A.O.V. Cichlids: 1, R. F. Adams (Salisbury); 2, W. Knight (Gosport); 3, May Nethersell (Catfish Soc.); 4, D. Turner (Gosport). Labryrinths: 1, T. Taylor (Basingstoke); 2 and 4, D. Warneant (Cardiff); 3, R. J. Canning (Newbury). Killies: 1, J. Juge (Gosport); 2, A. Weaire (Southampton); 3, S. Crabtree (Havant); 4, J. Jackson (Basingstoke). A.O.S. Catfishes: 1, T. A. Cruickshank (Basing); 2, R. J. Ganning (Newbury); 3, A. Weaire (Southampton); 4, K. J. Harris (Un.). Corydoras/Brochis: 1, 2 and 3, K. Taylor (Havant); 4, T. Watson (Haslemere). Rasboras: 1, E. Mousley (Kingsclere); 2, Mrs. P. Newbury (Gosport); 3, A. Chaplin (Basingstoke); 4, P. Dearing (Crawley). Danios and W.C.M.M.: 1, Mrs. P. Newbury (Gosport); 2, M. Strange (Basingstoke); 3, T. Taylor (Basingstoke); 4, R. Onslow (Kingsclere). Loaches: 1 and 2, S. Crabtree (Havant); 3, Mrs. V. J. Lloyds (Unnatt); 4, A. Tull (Salisbury). A.O.S. Bglayers: 1, P. Brown (Southampton); 2, I. Clarke (Gosport); 3, D. R. Page (Kingsclere); 4, Mrs. V. J. Lloyds (Unnatt.). Matched Pairs: 1, Mrs. A. Holmes (Crawley); 2, T. Moulton (Godalming); 3, R. J. Canning (Newbury); 4, Mrs. B. Hallum (Southampton). Male Guppies: 1, D. Turner (Gosport); 2, A. E. Noronha (Orpington); 3, F. Allen (Newbury); 4, E. and T. Tester (Mid-Sussex). Female Guppies: 1, A. Chaplin (Basingstoke); 2, I. L. Marshall (Unnatt.); 3, F. Allen (Newbury); 4, A. E. Noronha (Orpington). Swordtails: 1, M. Strange (Basingstoke); 2, T. Fraser (Basingstoke); 3, R. J. Canning (Newbury); 4, W. A. Knight (Gosport). Platies: 1 and 3, R. Onslow (Kingsclere); 2, F. Perry (Gosport); 4, T. Marshall Jr (Basingstoke). Mollies: 1, Mr. and Mrs. Bebb (Bournemouth); 2, W. Croxford (Petersfield); 3, V. Valley (Basing); 4, R. Cripps (Newbury). A.O.S. Livebearers: 1, Mrs. A. Holmes (Crawley); 2, T. Burvill (Basingstoke); 3, T. Fraser; 4, A. Weaire (Southampton). Goldfish/Shubunkins: 1, A. Marshall (Basingstoke); 2 and 3, E. Binstead (Portsmouth); 4, W. Croxford (Petersfield). Twintailed Goldfish: 1, 2 and 3, A. Marshall (Basingstoke); 4, D. Warneant (Cardiff). A.O.S. Coldwater: 1, J. S. Randall (Haslemere); 2, T. Cruickshank (Basing); 3, W. T. Ryder; 4, D. Warneant (Cardiff). Breeders (Egg-layers): 1, Mr. and Mrs. Bebb (Bournemouth); 2, R. Onslow (Kingsclere); 3, D. Warneant (Cardiff); 4, M. Hollands (Basingstoke). Breeders (Livebearers): 1, Mrs. A. Holmes (Crawley); 2, R. Onslow (Kingsclere); 3, A. Chaplin (Basingstoke); 4, C. Turner (Cardiff). Plants: 1, D. V. Jones (Southampton); 2, J. Jackson (Basingstoke); 3, A. Weaire (Southampton); 4, W. T. Ryder (Portsmouth).

IN March the Scunthorpe and District A.S. held an Exhibition of members' fish for the benefit of the public. The selection of fish on show was extremely wide, there being over 100 different species of tropical fish. Colours, shapes and sizes of fish on show varied greatly, from the tiny Mosquito fish at about 1 in. to the *Perronichthys perroni* at 15 in. A survey was taken where members of the public were asked to write down which fish on show they would most like to keep. The results were collated and some very interesting facts were realised. The most popular fish was a siamese fighter, second being an Oscar. Third was a *Perronichthys perroni* and fourth an Albino Claris catfish. In all, the Exhibition was very successful and several new members were gained by the Society. The Society meets on the second and fourth Monday of every month. St. Pauls at Church Hill, Ashby High Street,

Scunthorpe at 7.30 p.m. New members are always made welcome.

RESULTS of the Nelson A.S. Open Show were as follows:—Guppies: 1, N. Blenkin (Bridlington); 2, K. Smith (Middleton); 3, P. Wright (South Shields). Swordtails: 1, 2 and 3, N. Blenkin (Bridlington). Mollies: 1, N. Blenkin; 2, R. Kenyon (Independent); 3, I. Holt (Nelson). Platies: 1, Mr. and Mrs. Povey (Sheaf Valley); 2, Mr. and Mrs. Holmes (Castleford); 3, P. Stott (Nelson). A.O.V. Livebearer: Section Winner, 1, D. Johnson (Blackburn); 2, Mr. and Mrs. Povey; 3, Mr. and Mrs. Richardson (Scarborough). Small Characins: 1 and 2, Mr. and Mrs. Richardson; 3, K. Smith. Large Characins: Section Winner, 1, L. Gateney (Bradford); 2, R. and A. Johnson (Hyde); 3, A. Frisby (Hull). Angelfish: 1 and 2, N. Blenkin; 3, Mr. Bland (Independent). Dwarf Cichlids: Section Winner, 1, Mr. and Mrs. Walker (Castleford); 2, P. Walsh (Blackburn); 3, N. Blenkin. A.O.V. Cichlids: 1 and 2, S. Wolstenholme (Herwood); 3, A. Frisby. Corydoras: 1, Mr. and Mrs. Holmes; 2, Mr. and Mrs. Newton (Blackburn); 3, N. Blenkin. Catfish: 1, Mr. and Mrs. Holmes; 2, W. Heys (Loyne); 3, D. Chapman (Nelson). Loaches: 1, S. Wolstenholme; 2, M. Cornfirth (Bradford); 3, L. Burrows (Independent). Sharks and Foxes: Section Winner, 1, Mr. Kennedy (Keighley); 2, D. Sugden (Bradford); 3, Mr. Greenwood (Independent). Rasboras: Section Winner, 1, A. Baldwin (Nelson); 2, D. Chapman; 3, Mr. and Mrs. Richardson. Danios and Minnows: 1, W. Heys; 2, Mr. and Mrs. Povey; 3, Mr. and Mrs. Richardson. Toothcarps: 1 and 2, Mr. and Mrs. Richardson; 3, B. Tate (Nelson). Small Barbs: 1, B. Tate; 2, P. Wolstenholme; 3, Mr. and Mrs. Holmes. Large Barbs: Section winner, 1, Mr. and Mrs. Holmes; 2, D. Sugden; 3, P. Walsh. Fighters: 1, Master D. Frisby (Hull); 2, M. Bullock (Nelson); 3, P. Wright. Small Anabantids: Section Winner, 1, J. A. Whiteley (Aireborough); 2, Mr. and Mrs. Newton; 3, W. Heys. Large Anabantids: 1, P. Wolstenholme; 2, Miss A. Gregory (East Lancs); 3, I. Roberts (Nelson). A.O.V. Tropical: Section Winner and Best in Show, 1, Mr. and Mrs. Craven (Castleford); 2, Mr. and Mrs. Ham (Lytham); 3, Mr. Kennedy. Livebearers Pairs: Section Winner, 1, Mr. and Mrs. Holmes; 2, T. Marshall (Fancy Guppy Ass.); 3, Mr. and Mrs. Povey. Egg-layers (Pairs): 1, Mr. and Mrs. Walker; 2, E. Hartley (Nelson); 3, P. Gudgeon (Hyde). Breeders Livebearers: Section Winner, 1, Mr. and Mrs. Povey; 2, J. Ridley (Heywood); 3, Mr. and Mrs. Richardson. Breeders Egg-layers: 1, B. Tate; 2, J. Ridley; 3, P. Ridley (Heywood). Common Goldfish: 1, Mrs. G. Frisby (Hull); 2, Mr. and Mrs. North (Hull); 3, A. Frisby. Single Tail Fancy Goldfish: 1, R. McKenna (Nelson); 2, Miss Melissa Wolstenholme (Blackburn). Twin Tail Fancy Goldfish: Section Winner, 1 and 3, A. Philippon (East Lancs); 2, S. Walsh (Accrington). A.O.V. Coldwater: 1, S. Walsh; 2, K. Smith; 3, A. Frisby. Juniors (Livebearers): 1, Master Nichols (Lytham); 2, P. Stott (Nelson); 3, Miss Melissa Wolstenholme. Juniors (Egg-layers): Section Winner, 1, Master Nichols; 2, Master T. Holmes (Castleford); 3, Miss H. Johnson (Hyde). Ladies: Section Winner, 1, Mrs. A. Johnson (Hyde); 2, Mrs. G. Frisby (Hull); 3, Mrs. S. Newton (Blackburn). The number of entries was 308 and the young members of the club deserve a special mention for their efforts in helping to make the show run well and smoothly. The Best Fish in Show was a Butterfly fish entered by Mr. and Mrs. Craven of Castleford.

THE Hyde A.S. Annual Open Show was a great success with entries nearly up to last year's record. The Best Tropical Fish and the Best Fish in Show was a *Barbus orphoides* with 90 points exhibited by B. Black who is a member of Fleetwood A.S. The Best Cold Water Fish was a *Koi-Carp* exhibited by E. Leadbetter who is also a member of Fleetwood A.S., and he also won the award for the Competitor with the Most Marks. Other results:—Guppies: 1, Mr. and Mrs. Burton (Blackburn); 2, Mr. and Mrs. Greenhalgh (Bury); 3, Miss M. Burton (Blackburn). Platies: 1, Mr. and Mrs.

Bond (Sandgrounders) (Section Winner); 2, D. A. Wilkinson (Fleetwood); 3, W. Bamber (Sandgrounders). Swordtails: 1, H. Chadwick (Oldham); 2, E. Lees (Wythenshawe); 3, I. Burt (Wythenshawe). Mollies: 1, Mrs. F. Carroll (Dunlop); 2, E. Leadbetter (Fleetwood); 3, D. A. Wilkinson (Fleetwood). A.O.V.: 1, Mr. and Mrs. G. Bond (Sandgrounders); 2, Mr. and Mrs. Newton (Blackburn); 3, W. D. Haddow (Hyde). Barbs (Small): 1, Mr. and Mrs. Stock (Farnworth); 2, Mr. and Mrs. K. Crowley (Middleton); 3, T. Hampton (Dunlop). Barbs (Large): 1, B. Black (Fleetwood) (Section Winner, Best Tropical Fish, Best Fish of the Show and F.N.A.S. Diploma Winner); 2, Mr. and Mrs. G. Bond (Sandgrounders); 3, T. Hampton (Dunlop). Characins (Small): 1, Mr. and Mrs. Muckle (Sandgrounders); 2, P. and H. Bachelor (Loyne); 3, Mr. and Mrs. R. Houghton (Independent). Characins (Large): 1, Mrs. B. Booker (Morecambe Bay) (Section Winner); 2 and 3, E. Leadbetter (Fleetwood). Anabantids, Fighters: 1, J. Bate (Sandgrounders); 2, B. and G. Holroyd (Morecambe Bay); 3, M. Morgan (Castleford). A.O.V.: 1, R. I. Payne (Merseyside) (Section Winner); 2, E. Seymour (Merseyside); 3, Master G. Wilkinson (Hyde). Cichlids (Small): 1, Ms. Gullane (Buxton); 2, L. Mynard (Ostram); 3, K. Wright (Sandgrounders). Cichlids (Large): 1, P. and H. Bachelor (Loyne) (Section Winner); 2, S. Hooton (Sandgrounders); 3, D. Gregson (Blackburn). Angelfish: 1, A. Axon (Ashton); 2, D. Gregson (Blackburn); 3, K. Sey (Dunlop). Catfish, Corydoras: 1, Mr. and Mrs. G. Bond (Sandgrounders); 2, P. Armstrong (Heywood); 3, E. Leadbetter (Fleetwood). Loaches: 1, T. Hampton (Dunlop) (Section Winner); 2, Mrs. B. Booker (Morecambe Bay); 3, E. Leadbetter (Fleetwood). A.O.V.: 1, Mr. and Mrs. Headshaw (Sheaf Valley); 2, P. and H. Bachelor (Loyne); 3, C. H. Witney (Accrington). Carps and Minnows, Sharks and Plying Foxes: 1 and 3, T. Hampton (Dunlop) (Section Winner); 2, Mrs. S. Seymour (Merseyside). Rasboras, Danios and Minnows: 1, W. Bamber (Sandgrounders); 2, T. Hampton (Dunlop); 3, J. Bate (Sandgrounders). Killifish: 1, E. Lees (Wythenshawe) (Section Winner); 2, P. Squirrell (Wythenshawe); 3, P. Armstrong (Heywood). Pairs (Egg-layers): 1, Miss A. Gregory (East Lancs) (Section Winner); 2, Mr. and Mrs. Muckle (Sandgrounders); 3, R. A. Johnson (Hyde). Livebearers: 1 and 2, Mr. and Mrs. Marshall (Blackburn); 3, E. Seymour (Merseyside). Breeders Egg-layers (Easy): 1, E. Leadbetter (Fleetwood); 2, Mr. and Mrs. Davies (Dunlop). Egg-layers (Hard): 1, M. E. Garvey (Blakeborough) (Section Winner); 2, S. Hooton (Sandgrounders); 3, R. I. Payne (Merseyside). Livebearers: 1, Mr. and Mrs. G. Bond (Sandgrounders); 2, R. Cooper (Hyde); 3, T. Brown (Warrington). Salt Water, A.V. Marine Fish: 1, A. Walker (Independent) (Section Winner); 2, D. Buckley (Independent); 3, P. Armstrong (Heywood). Tropical Fish, A.O.V.: 1, T. Hampton (Dunlop) (Section Winner); 2, E. Leadbetter (Fleetwood); 3, P. Smith (Blackburn). Mini Jars: 1, Mr. and Mrs. Cobb (Belle Vue) (Section Winner); 2, Mrs. B. Sey (Dunlop); 3, Mrs. Ham (Lytham). Juniors, Any Exhibit: 1, T. Brown (Warrington) (Section Winner); 2, E. Lees (Wythenshawe); 3, Miss J. Guiver (Heywood). Coldwater: 1 and 2, M. and D. Valentine (Northwich); 3, Mr. and Mrs. Cobb (Bury). Goldfish (Fancy): 1 and 3, S. Foote (Accrington); 2, E. Leadbetter (Fleetwood). A.O.V.: 1, E. Leadbetter (Fleetwood) (Section Winner and Best Coldwater Fish); 2, G. Harvey (Sandgrounders); 3, Mr. and Mrs. Cobb (Belle Vue).

THE main item at the April meeting of the Bournemouth A.S. was a talk on "Preparing your fishes for the show" by a new speaker to the society, M. Haskins, who is also a member. His talk was most interesting to both new and old exhibitors and at the end he answered many questions from his listeners, who raised some very good points. Table Show results:—Mollies: 1 and 2, Mr. Bebb. Coldwater Breeders: 1, Mrs. Bebb. A.V. Plants: 1, 2 and 3, Mr. Chaffield.

AT the April meeting of the Mid-Sussex A.S. it was announced that the treasurer would like

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members to contact him to inform him of monies collected for the recent sponsored swim. Mr. Corbin was the judge for the evening and thought highly of the standard of fish shown. Only 4 pts. separated the winners. The classes were Labyrinths, Rasboras, Danios and W.G.M.M.

During the evening a young lady, "Miss Cindy", from Singapore, answered questions on fish farms in her own country. This was accompanied by a slide show. Further information may be obtained from the secretary, Mr. Slade, Haywards Heath 53747.

THE April table show results of the Weymouth A.S. were:—Loaches and Bettas: 1, J. Fancy; 2, J. Fitzgerald; 3, R. Reader; 4, Master K. Hodder. Barbs: 1, 2 and 4, D. Tucker; 3, J. Fancy. A very informative and well presented slide show on aquatic plants was enjoyed by those present. A club show is being held by the society on 31st August (Sunday) at the Hotel Prince Regent, The Esplanade, Weymouth, with a supporting exhibition.

TEN Societies visited Salisbury early in April to take part in Inter-Club 75, sponsored by Salisbury and District A.S. There were 130 fish benched in fourteen classes and during the judging the visitors were entertained by two lectures. Mr. Rodgers, of the N.S.P.B., gave a very interesting and informative talk, assisted by some fine colour-slides, on "British Birds." After a break for refreshments, Mr. Chubb, F.R.A.S. and B.K.A., gave an excellent lecture, again with colour-slides, on "Killifish."

The full results of the show were:—Barbs: 1, Salisbury; 2, Runnymede; 3, Chard; 4, Yeovil. Characins: 1, Runnymede; 2, Basingstoke; 3, Newport; 4, Petersfield. Cichlids: 1, Basingstoke; 2, Salisbury; 3, Chard; 4, Fitches. Labyrinths: 1, Southampton; 2, Basingstoke; 3, Yeovil; 4, Petersfield. Killies: 1, Southampton; 2, Newport; 3, Runnymede; 4, Petersfield. Catfish: 1, Chard; 2, Basingstoke; 3, Portsmouth; 4, New Forest. Rasboras and Danios: 1, Basingstoke; 2, Southampton; 3, Newport; 4, Salisbury. A.O.V. Tropical Egg-layers: 1, Southampton; 2, Basingstoke; 3, Chard; 4, Runnymede. Guppies: 1, Basingstoke; 2, Chard; 3, Runnymede; 4, Newport. Swords and Platies: 1, Basingstoke; 2, Chard; 3, Runnymede; 4, Southampton. A.O.V. Livebearer: 1, Southampton; 2, Basingstoke; 3, Yeovil; 4, Chard. Single-tail Goldfish: 1, Basingstoke; 2, Salisbury; 3, Runnymede; 4, Yeovil. Twintail Goldfish: 1, Basingstoke; 2, Yeovil; 3, Salisbury. A.O.S. Goldwaver: 1, Yeovil; 2, Chard; 3, Portsmouth; 4, Basingstoke. The trophy for "Highest Pointed Club" went to Basingstoke with a total of 40 pts., Chard being the runners-up with 20 pts.

RESULTS of the Table Show held in April by Llantwit Major A.S. were as follows:—Class GH: 1, S. Nelson; 2, M. Guthrie; 3 and 5, Master John Edwards; 4, L. Dyson. Class KO: 1, G. Lewis; 2, Master John Edwards; 3, S. Nelson; 4, R. Higgins.

The main item of the evening was a quiz organized by M. Guthrie. Four teams were formed and a total of thirty questions asked. At the end there was only a difference of three points between the sides. The quiz was found both informative and amusing.

AT the March meeting the Dorchester & District A.S. welcomed a return visit by Mr. Jones from Southampton, and the club enjoyed a talk on general fishkeeping and breeding.

The fish entered for the table show were Characins, Rasboras, Siamese Fighters, Characins: Section 1: 1, R. Taylor; 2, R. Christopher; 3 and 4, D. Newman. Section 2: 1, N. Derrick; 2, S. Payne; 3, R. Senior; 4, Mrs. M. Angel. Section 3: 1, Miss D. Payne; 2 and 4, Fox Children; 3, Master C. Hunt. Rasboras: Section 1: 1, G. Fox; 2 and 3, R. Christopher; 4, Mrs. M. Fox. Section 2: 1, Mrs. M. Angel. Section 3: 1, Fox Children. Siamese Fighters: Section 1: 1, R. Taylor.

For the April meeting the club saw the slides of the annual Home Furnished Aquaria competition. The result was: 1, N. Derrick; 2, P. Jeffrey; 3, R. Christopher; 4, Mrs. P. Carter.

Juniors: 1, Master C. Hunt; 2, Master R. Thompson. The fish for the April show were Female Guppies and Cichlids and the result was:—Female Guppies: Section 1: 1, Mrs. M. Fox; 2, 3 and 4, R. Christopher. Section 2: 1, Mrs. M. Angel. Section 3: 1, Master R. Thompson; 2, Master R. Christopher; 3, Master R. Cook. Cichlids: Section 1: 1, R. Taylor; 2 and 3, G. Fox. Section 2: 1, N. Derrick; 2, T. Light.

FOR their March meeting, Barry A.S. met Llantwit Major A.S. in the semi-final of the Cymru National Aquarist Association K.O. competition, Barry A.S. winning by 27 pts. to 15 pts. Results:—A.O.V. Egg-layer: 1, H. Chick (L.M.); 2, C. Webber (B); 3, J. Thompson (L.M.); 4, S. Nelson (B). A.O.V. Livebearers: 1 and 2, A. Wallace (B); 3, M. C. Guthrie (B); 4, A. Ibbertson (L.M.). Barry A.S. then qualified for the final to be held at Aberdare, by the host club Aberdare A.S. In a well fought contest Barry finished runners-up, much improved from last years position. Card winners for Barry, A. Wallace, M. C. Guthrie and C. Webber.

THE annual general meeting of the Harsfoeth & District A.S. was held in April when the new committee was elected as follows:—Chairman, J. Wood; joint-chairman, J. Dunn; treasurer, M. Barker; joint secretaries, Mrs. B. and Miss J. Helm, 29 Wellington Road, New Witley, Leeds 12., tel: 451025; show secretary, C. Corns; social secretary, Mrs. P. Wood; catering, Mrs. J. Corns; committee, P. Smith, Mrs. J. Dickinson, Miss D. Midgley and S. Newstone.

In April the finals of the G.N.A.A. Inter-club were held at Abercrombi and more than one hundred people were present. The teams in the final were: Cardiff, Barry and Port Talbot and the results were as follows: Egg-layers: 1, 3, 4 and 5, Cardiff; 2, Barry; 6 Port Talbot. Livebearers: 1, Cardiff; 2 and 4, Barry; 3 and 6, Port Talbot. Winners: Cardiff, 23 pts.; Second: Barry 13 pts.; Third: Port Talbot, 6 pts. During the evening a presentation was made to Mr. B. Gorwill, Class A Judge F.R.A.S. as an appreciation of all clubs for his services over the years. A presentation was also made to his wife.

THE committee elected at the annual general meeting of the Hastings & St. Leonards A.S. was: Chairman, G. Punnell; Vice Chairman, C. Waddell; Treasurer, Mrs. Q. Pollard; Secretary, P. Martin, 20 Silverlands Road, St. Leonards; Assistant Secretary, Mrs. M. Greig; Show Secretary, Mrs. S. Dyer; Publicity Officer, Mrs. E. Reed; Show Manager, M. Penfold; Committee Members, J. Greig, T. Elliot, D. Hunt. At the following meeting members enjoyed a slide and lecture by Mr. David Barratt who substituted for Mr. Richard Lankey of the Tropical Marine Centre. The subject was "Collecting Marines." Mr. Barratt gave a first class account of his personal experiences in collecting these fishes from the coral reefs.

The following awards were received by the following members: Member of the Year: P. Martin; Home Aquaria Cup: A. McCormick; Christine Reed Cup: G. Brooks, Singapore Row; M. Greig, A.O.V.; J. Pennell, Chinnell Challenge Cup; A. Adams, Greig Corydoras Cup; A. Adams, Greig Junior Cup; C. Christeau.

MEMBERS of the Gloucester Fishkeeping and Social Club enjoyed a most entertaining and interesting talk by Mr. S. Lloyd from Bristol at the April meeting. His talk was on the keeping and breeding of coldwater fish and he brought fish in various stages of development to illustrate his talk, and also showed colour slides to the audience who were all most appreciative.

Club business discussed at this meeting was a proposal for an outing to the fish show at Belle Vue, Manchester in October, the next six-a-side competition in September and the club's Home Aquaria competition, which it hopes to hold in late September. Table show winners for the evening for A.V. Egg-layer

(pairs) were: 1 and 2, T. Diamond; 3, J. Bardett; 4, Mrs. J. Burke.

In April the Bristol Tropical Fish Club held their annual open show. Entries were judged by members of the Severnside Aquarists Association's panel of judges. The results were as follows: Best Exhibit in Show, Aquarist Gold Pin and Highest Individual Points all by R. G. Lawrence (Bristol T.F.C.). Highest Pointed Society: Bristol Tropical Fish Club with 88 points; Bath A.S. 57 pts.; Newbury A.S. 30 pts.; Kingsclere A.S. 21 pts.

Class Results:—Fighters: 1 and 3, R. Toose; 2, P. Rowell; 4, A. Press. Labyrinths: 1, Mr. and Mrs. R. Dodson; 2, T. Taylor; 3, R. Canning; 4, J. Ferguson. Barbs: 1, R. Canning; 2 and 4, L. Phippen; 3, R. Lawrence. Hemm and Hyph: 1 and 2, R. Towler; 3, K. Taylor; 4, F. Timmins. A.O.C. Characins: 1, Mr. and Mrs. Dodson; 2 and 3, I. Dibley; 4, R. Onslow. Angels: 1, C. Cowles; 2, Mrs. M. Graham; 3, T. Taylor; 4, R. Toose. Dwarf Cichlids: 1, Mr. and Mrs. Dodson; 2, R. Jarvis; 3 and 4, R. Chappell. Rift Valley Cichlids: 1 and 4, R. Canning; 2 and 3, F. Cripps. A.O.V. Cichlids: 1, R. Lawrence; 2, J. Grey; 3, R. Poots; 4, R. Towler. Corydoras and Brochias: 1, T. Taylor; 2 and 4, Mrs. K. Press; 3, L. Littleton. A.O.V. Catfish: 1, 3 and 4, R. Lawrence; 2, K. Owen. Danios, Rasboras, Minnows: 1 and 2, F. Timmins; 3, D and R. Clark; 4, E. Mouldley. Bodys, Loaches, Sharks, Eels: 1, R. Lawrence; 2 and 3, F. Timmins; 4, P. Moreman. Mollies: 1, R. Cripps; 2, T. Taylor; 3, R. Towler; 4, J. Cole. Swordtails: 1, R. Lawrence; 2, R. Onslow; 3, R. Canning; 4, R. Thomas. Platies: 1, R. Onslow; 2 and 3, L. Littleton; 4, R. Canning. Guppies (male): 1 and 2, J. Ferguson; 3, D. and R. Clark; 4, Mrs. K. Press. Guppies (female): 1, D. and R. Clark; 2 and 4, B. Webb; 3, Mrs. K. Press. Killifish: 1 and 4, R. Chapman; 2, R. Toose; 3, R. Poots. A.O.V. Tropical: 1, R. Onslow; 2, M. Shore; 3, Mrs. S. Sargent; 4, R. Lawrence. Breeders Egg-layers: 1, R. Toose; 2, R. Chapman; 3, R. Onslow. Breeders Livebearers: 1 and 2, R. Poots; 3, Mrs. K. Martin. Sexed Pairs: 1, K. Owen; 2, Mrs. M. Gesham; 3, F. Cripps; 4, Mrs. S. Onslow. A.V. Egg-layer (Jnr): 1 and 2, S. Owen; 3, Sargent Children; 4, L. Phippen. A.V. Livebearer (Jnr): 1 and 2, S. Owen; 3, Sargent Children. Twintail: 1, J. Phillips; 2, D. Head. Goldfish and Shubunkins: 1, P. Moxham; 2, D. Sullivan; 3, J. Sutton; 4, J. Phillip. A.V. Pond and River: 1, 2, 3 and 4, R. Lawrence.

THERE were over 500 entries for the Blackborough A.S. Fourth Annual Open Show held in April. D. Sugden received the award for Best Fish in the Show with his shark and the Best Exhibit went to M. Wild with his furnished mini-iar. Results:—Guppies: 1, L. Smith (Castleford); 2, D. and M. Laycock (Sheaf Valley); 3, Mr. and Mrs. Mason (Scunthorpe Museum). Swordtails: 1, W. F. Holmes (Independent); 2, N. Blenkein (Bridlington); 3, D. and P. Birdsall (Aireborough). Platies: 1, Mr. and Mrs. Povey (Sheaf Valley); 2, Mr. and Mrs. Holmes (Castleford); 3, D. and M. Laycock (Sheaf Valley). Mollies: 1, N. Blenkein (Bridlington); 2, D. Stead (Swillington); 3, Mr. and Mrs. Himmerson (Castleford). A.O.V. Livebearers: 1, D. Stead (Swillington); 2, M. Walker (Swillington); 3, D. Huslop (Swillington). Small Characins: 1, D. and M. Laycock (Sheaf Valley); 2, McArdle and Kirk (Castleford); 3, Mr. and Mrs. Fletcher (Doncaster). Large Characins: 1, L. Gatenby (Bradford); 2, Mr. and Mrs. Roberts (Doncaster); 3, A. Chadwick (Oldham). Small Barbs: 1, Mr. and Mrs. Stock (Farmworth); 2, Mr. and Mrs. Green (Castleford); 3, McArdle and Kirk (Castleford). Large Barbs: 1, Mr. and Mrs. Copley (Doncaster); 2, Mr. Jenkinson (Huddersfield); 3, Mr. and Mrs. Roberts (Doncaster). Small Cichlids: 1, P. Walsh (Blackburn); 2, Mr. Rindell (Doncaster); 3, McArdle and Kirk (Castleford). Large Cichlids: 1 and 3, S. Wolstenholme (Heywood); 2, P. Smith (Horsforth). Angels: 1, D. Gregson (Blackburn); 2, Mr. Carrick (Scarborough); 3, N. Blenkein (Bridlington). Colias: 1, G. Gillespie (Castleford); 2, McArdle and Kirk (Castleford); 3, Mr. and Mrs. Searpay (S.Humbersted).

A.O.V. Anabantids: 1, Mr. and Mrs. Green (Castleford); 2, K. Lancashire (Doncaster); 3, Mr. and Mrs. Rawlins (Castleford). Fighters: 1, Mr. and Mrs. Peasey (Doncaster); 2, L. Smith (Castleford); 3, Stensill and Ramsay (Castleford). Danios: 1, Mr. and Mrs. Copley (Doncaster); 2, Mr. and Mrs. Norton (S. Humberdale); 3, Stanhill and Ramsay (Castleford). Minnows: 1, 2 and 3, Mr. and Mrs. Roberts (Doncaster). Rasboras: 1, Mr. and Mrs. Copley (Doncaster); 2, Amy Hislop (Swillington); 3, Mr. and Mrs. Peasey (Doncaster). Sharks: 1 and 2, D. Sugden (Bradford); 3, D. Gregson (Blackburn). Flying Fox: 1, Mrs. P. Hislop (Swillington); 2, M. Wild (Accrington); 3, Mr. Karrick (Scarborough). Killies: 1, M. Walker (Swillington); 2, Mr. and Mrs. Best (Redford & Dis.); 3, D. Stead (Swillington). Corydoras: 1, Mr. and Mrs. Fletcher (Doncaster); 2, K. Lancashire (Doncaster); 3, Mr. and Mrs. Dams (Doncaster). A.O.V. Catfish: 1, Mr. and Mrs. Holmes (Castleford); 2, B. Wressell (Scunthorpe); 3, Mr. Blundell (Doncaster). Loach and Boria: 1, Mr. and Mrs. Binn (Scunthorpe Museum); 2, Mr. and Mrs. Burton (Blackburn); 3, Mr. Blundell (Doncaster). Pairs (Livebearers): 1, D. Stead (Swillington); 2, Mr. and Mrs. Povey (Sheaf Valley); 3, McArdle and Kirk (Castleford). Pairs (Egglayers): 1, Mr. and Mrs. King (Doncaster); 2, Mr. and Mrs. Fletcher (Doncaster); 3, D. and M. Laycock (Sheaf Valley). Breeders (Livebearers 1-10): 1, Mr. and Mrs. Newton (Blackburn); 2, M. Walker (Swillington). Breeders (Livebearers 11-20): 1, Mr. and Mrs. Povey (Sheaf Valley); 2, Mr. and Mrs. Scott (Sheaf Valley); 3, D. Stead (Swillington). Breeders Egglayers (1-10): 1, Mr. and Mrs. Scott (Sheaf Valley); 2, Mr. and Mrs. Fletcher (Doncaster); 3, J. Riddley (Heywood). Breeders Egglayers (11-20): 1 and 2, Mr. and Mrs. Fletcher (Doncaster); 3, M. Garvey (Blackborough). Common Goldfish: 1, Mr. and Mrs. Wolstenholme (Blackburn); 2, Mrs. Frisby (Hull); 3, Mr. and Mrs. Worth (Hull). Fancy Goldfish: 1, M. Wild (Northern Goldfish); 2, Mr. and Mrs. Wolstenholme (Blackburn); 3, Miss Burton (Blackburn). A.O.V. Coldwater: 1, L. Smith (Castleford); 2, A. Frisby (Hull). A.O.V. Tropical: 1, D. Stead (Swillington); 2, Mr. and Mrs. Binn (Scunthorpe Museum); 3, McArdle and Kirk (Castleford). Mini jars: 1, M. Wild (Accrington); 2, N. Holden (Accrington); 3, Mr. and Mrs. Chester (Redford & Dis.).

THE speaker at the April meeting of the Stroud A.S. was Mrs. Heryl Ryan of Panday Aquaria of Redditch. She brought with her slides entitled "From stream to tank" and these were very informative and at times amusing. The pictures were taken mainly in Singapore by herself and her family, of streams and breeding stations from which tropical fish were exported and showed the long and complicated journey taken by the fish to reach home aquariums. The months challenge was for Tetras and winners were: 1, I. Willey; 2, T. Owens; 3, G. Tindell.

THE April meeting of the Suffolk Aquarist and Pondkeepers Association took place in new surroundings, the meeting having been transferred to a larger part of the "Sporting Farmer." The main item of the evening's entertainment was a lecture by the club president, the topic being imparting fish, and this proved interesting. This item was preceded by what turned out to be a record auction for fish, plants and fish food.

THE Accrington and District A.S. held their monthly meeting early in April when a lecture on "How to present fish for showing" was given by Mr. Cooper from Bury. He also judged the table show, the results of which are as follows:—Best in Show: J. Boothman. A.V. Livebearers: 1, I. Howarth; 2, J. Matthews; 3, C. Whitely. A.V. Egglayers: 1 and 2, J. Boothman; 3, I. Howarth. Pairs: 1 and 2, B. Howarth. Juniors A.V.: 1, D. Hargreaves; 2, J. Matthews.

APRIL was quite a successful month for the Blaenau Gwent Fish Club. There was a slide show which was given in the form of a

quiz and also a talk and slides on Killifish by M. Addicott of Caerphilly. At the end of the month there was a "bring and buy," which helped to swell club funds and the auctioneer B. Purdy of Ebbw Vale, also gave a slide show on the Belle Vue Festival, Manchester. Meeting dates in June are—19th and 24th. The secretary's address is B. Phillips, 28 Woodland Drive, Triunant Crumlin, Gwent.

NEW SOCIETIES

A new Society formed in Horsham has been called the Horsham and District A.S. Meetings are held second Monday of each month at the Guide Hall, Denne Road, Horsham. Officers elected are: Chairman, C. Reddy; Treasurer, L. Rossi; Show Secretary, J. Tedman; Secretary, K. Groves, 11 Bishopric Court, Horsham, Sussex. Horsham 64737. Committee Members: E. Jones, F. Jones, M. Redford, H. Geal, M. Zdralek.

A new society has been formed in Partington called the Partington A.S. which meets every fourth Wednesday of the month at 8.00 p.m. at the Community Centre, Partington. The first meeting was held on 23rd April. The society would be very pleased to hear from anybody wishing to become a member and they should contact the secretary, Mrs. J. Freer, 2 Russell Road, Partington, Urmston, Manchester. Tel: 775-5957.

OBITUARY

We regret to announce the death of Mr. Stan Nelson, the Hon. Secretary of the Llanrwit Major A.S. Mr. Nelson was an enthusiastic and hard-working secretary, and was unstinting in his efforts on behalf of the hobby and his Society. He was for a number of years a member of the Harlech A.S., and for the past twelve months was technical adviser to the Barry A.S. He will be sadly missed by his many friends in the fishkeeping fraternity.

SECRETARY CHANGES

Horsforth Aquarium Society: Mrs. B. Helm and Miss J. Helm (joint), 29 Wellington Road, New Wortley, Leeds 12. Tel. 451025. Snaith and District A.S.: R. R. Ducker, Field View, Deax Hales, Selby, N. Yorks. Tel. Camblesforth 574.

Fancy Guppy Association (North West Section/Ovcreary): G. W. Blades, 30 Meadoway, Church, Accrington, Lancs.

Thorne A.S.: New Show Secretary, E. Breakwell, 12 Churchill Avenue, Hatfield, Doncaster, S. Yorks. Tel. Doncaster 840546.

AQUARIST CALENDAR

1st June: Annual Open Show of Rotherham & District A.S. Schedules are now available from T. South, 16 Howard Road, Bramley, Rotherham, S. Yorks.

1st June: Havant and District A.S. Open Show to be held at the Merchiston Hall, Hornsea, Hants. Schedules, Mr. K. Taylor, 3 Hollybank Close, Cowplain, Hants. Phone Romanway 4140.

1st June: Newcastle Tropical P.S. Open Show will be held in St. John's Church Hall, Westgate Road and Grange Street junction, Newcastle upon Tyne. Schedules will be available shortly from L. R. Lawson, 84 Grosvenor Road, Jesmond, Newcastle upon Tyne 2.

1st June: Northwich and District A.S. Seventh Open Show at the Hartford Secondary Boys School, Chester Road, Hartford, Northwich. Judging to F.N.A.S. standards. Details from Show Secretary N. R. Thomson, 54 Grassmere Road, Frodsham, via Warrington, Lancs. WAA 7LQ. Tel: Frodsham 32745.

1st June: Loughborough and District A.S. Open Show. Venue this year will be the Bursleigh Community Centre, Thorpe Hill, Loughborough, Leics. Schedules from: Mr. I. Purdy, 10 Cleveland Rd. Loughborough LE12. Phone: 61715.

1st June: Cotswold A.S. First Open Show at Roxborough House Youth Centre, Nelson Street, Stroud, Glos. Show schedules available from the show secretary, K. Hodges, 31 Horns Road, Stroud, Glos.

1st June: Accrington and District A.S. Open Show at Antley Methodist Church Hall,

Blackburn Road, Accrington. Note: New larger premises. Enquiries: S. Walsh, assistant show secretary, 133 Lammack Road, Blackburn, Lancs.

1st June: Arbroath A.S. Open Show, Community Centre, Arbroath. Details: T. Clarke, 3 Wardlykes Road, Arbroath. Tel.: Arbroath 3355.

7th June: The C.N.A.A. Assembly will be held at the Royal Naval Club, Swansea at 7.45 p.m.

7th June: Federation of British Aquatic Societies General Assembly, Conway Hall, Red Lion Square, Holborn, London, W.C.1. 2.30 p.m.

8th June: Sherwood A.S. Open Show to be held at Thoresby Miners Welfare Hall, Edwinstowe, Ollerton, Nr. Mansfield, Notts. Schedules from show secretary, Mr. J. Igoe, 25 Marples Avenue, Mansfield, Woodhouse, Notts. Tel: Mansfield 32240.

8th June: Sudbury A.S. Open Show to be held at St. Andrew's Church, Church Gardens, Sudbury.

8th June: British Cichlid Association annual convention, Birmingham. Tickets £2.00 including lunch, from T. Green, 12 Greenwood Meadow, Chinnor, Oxford.

14th June: Dunmow & District A.S. Open Show, Postes Hall, Stoufford Road, Dunmow. Show secretary, 31 Duggers Lane, Braintree Essex.

14th June: Kingston & District A.S. Open Show at Sutton, Adult School, Benhill Avenue, Sutton, Surrey. Details from Show secretary, Mr. D. J. Mackay, 12 Victoria Road, Twickenham, Middx. Tel: 01-572 0632, daytime till 6 p.m.

14th June: Llanrwit Major A.S. (C.N.A.A./F.B.A.S.) Open Show to be held at the Town Hall, Llanrwit Major. Quality plaques awarded to all classes. Show schedules available March onwards. Details etc., J. J. Edwards, 'Glanafon,' Mill Park, Llanbethan Cowbridge, South Glamorgan CF7 7BG.

14th June: Whiteway and District Fishkeepers Society Third Open Show, Whiteway Community Centre, Kelston View, Whiteway, Bath, Avon. Schedules available from show secretary, Mrs. B. Daniels, 21 Haycombe Drive, Whiteway, Bath, BA2 1PG, Avon.

15th June: Gosport & District A.S. Annual Open Show. Details from I. Clarke, 37 Rowner Close, Rowner, Gosport. Tel: Fareham 85106.

15th June: Salisbury & District A.S. eleventh Annual Open Show at the City Hall, Fisherton Street, Salisbury. Further details and schedules may be obtained from the secretary, Mr. R. F. Adams, 26 Empire Road, Salisbury, Wilt, SP2 9DP or ring 0723-27453.

15th June: Swillington A.S. Open Show, John Smeaton School, Barwick Road (off York Road), Leeds 15. Further details from Mr. and Mrs. R. Hislop, 1 Tree Gardens, Mootown, Leeds LS17 7BQ.

15th June: Taunton & District A.S. Open Show is to be held at the Corfield Hall. It is hoped to make the show schedules available in early April and these together with further details will be available from the Show Secretary S. Peasey, Hillhead Cottage, Pylford, Taunton. 15th June: North West Section of the F.G.A. Open Show. Schedules can be obtained from D. Ormerod, 55 Barnes Avenue, Rawtenstall, Rossendale, Lancs.

22nd June: Hinckley and District A.S. 4th Open Show will be held at Westfield Community Centre, Rosemary Way, Hinckley. Schedules from: W. Fielding, 15 Council Road, Hinckley, Leics.

22nd June: Alfreton and District A.S. Annual Open Show to be held at the Adult Education Centre Alfreton Hall, Alfreton. Details from the show secretary, B. Hickling, "Parkview", 13 Coppice Drive, Eastwood, MG16 3PL. Tel: 077 57 5104.

22nd June: South Shields A.S. Annual Open Show, Bollingbroke Hall, South Shields.

29th June: Runnymede A.S. Open Show at St. Annes Middle School, Clare Road, Stanwell, Staines, Mx. Show secretary, D. Riley, 129 Kingshill Avenue, Northolt, Mx. UB5 6NY. Tel: 01-845 4169.

28th June: Nailsea and District A.S. Annual Open Show which coincides with the final day

of Nulisea Festival Week. Further details and schedules may be obtained from the show secretary, D. Kenwood, 90 Slade Road, Portishead, Bristol. Tel: Portishead 848947.

20th June: Dunlop Aquarist Keepers Society First Open Show in Works Canteen, Speke, Liverpool, 24. Further details later.

20th June: Lincoln & District A.S. Annual Open Show will take place at The Drill Hall, Broadgate, Lincoln. Show secretary, G. S. Hill, c/o 36 Richmond Road, Lincoln LN1 1LQ.

20th June: West Cumberland Aquarists Club Open Show at the Civic Hall, Whitehaven, Cumbria.

6th July: Cardiff A.S. Open Show at St. Margaret's Church Hall, Roath, Cardiff. Details from B. Guy, 30 Letterston Road, Rumney, Cardiff.

6th July: Hillingham A.S. Annual Open Show in the Community Centre, Hillingham.

8th July: Grantham and District A.S. Open Show at Aveling-Barfords Social Hall, Arnoldfield, Gomerby Road, Grantham. Show secretary, W. E. Neville, 32 Sharpe Road, Grantham, Lincs., NG31 9BW.

6th July: Lytham A.S. Annual Open Show to be held at Ansell Institute, Woodlands Road, Ansell, Lytham-St-Annes, Lancs. Show schedules from show secretary, Mr. Peter Ham, 1 Wyndene Grove, Preckleton, Preston, Lanc. Tel: Preckleton 635162.

6th July: Bristol A.S. Tropical Show. Schedules from show secretary, E. N. Bowden, 12 Stoneleigh Walk, Knowle, Bristol BS4 2RL. Tel: 775355 or from C. Summers, 6 Heath Gardens, Colport Heath, Bristol BS17 2TQ. Tel: Winterbourne 773833.

6th July: Leamington and District A.S. Open Show at Trinity Hall, Trinity Street, Leamington Spa (Benching 11.30 a.m.-1.30 p.m.).

6th July: Thorne A.S. Open Show, The Grammar School, St. Nicholas Road, Thorne.

20th July: Aireborough and District A.S. Open Show will be held at Menston Community Centre, Main Street, Menston. Schedules from show secretary, Mr. J. S. Hall, 34 Salisbury St., Calverley, Pudsey LS28 5PY. Tel: Pudsey 74609.

20th July: Sandgrounders A.S. Annual Open Show at Meols Cop Secondary Schools, Meols Cop Road, Southport. Show Secretary: G. A. Waterhouse, 23 Moss Lane, Southport, Merseyside PR9 9QR.

20th July: Brighton and Southern A.S. Open Show, St. Barnabas Church Halls, Sackville Road, Hove, Sussex. Further details from B. Sayers, 11 Seaview Terrace, Southwick BN4 4AS, Sussex. Tel: Brighton 593871.

20th July: Goldfish Society of Great Britain, Conway Hall, Red Lion Square, Holborn, London W.C.1.

27th July: Runcorn A.S. Annual Open Show at the Grangeway Youth Centre, Grangeway, Runcorn. Show secretary: J. V. G. Drake, 50 Cunliffe Close, Palacefields, Runcorn, WA7 2QP.

27th July: Ely and District A.S. Tropical Fish Exhibition, at Bedford House, St. Mary's Street, Ely. Open from 11 a.m.-6 p.m. 15p Adults, 5p Children. Details from Mr. S. Cowell, 125 Queenway, Soham, Cambs.

1-2 August: Hull A.S. (Hull Show "Aquarist Section"), East Park, Holderness Road, Hull.

3rd August: Tonbridge & District A.S. Open Show. Show secretary, S. Peart, 19 Bardley Road, Sevenoaks, Kent TN13 1XX. Sevenoaks 54996.

3rd August: Blackpool and Fylde A.S. 25th Annual Open Show (judging starts 2 p.m.) at the Blackpool Boys Club, Laycock Gate, off Devonshire Road, Blackpool.

4th-9th August: Portsmouth A.S. Open Show and Exhibition will be held at the Wesley Central Hall, Fretton Road, Portsmouth. Benchng on Saturday, 2nd August. Judging on Sunday, 3rd August. Schedules from J. Sillwell, 34 Salcombe Avenue, Copnor, Portsmouth, Hants PO3 6LD.

9th August: Newport A.S. Open Show at St. Johns Hall, Victoria Avenue, Maidstone, Newport, Gwent. Further details and show schedules available from P. Jordan, 16 Rosslyn Road, Newport, Gwent. Tel: 75436.

10th August: Grimsby and Cleethorpes A.S. Open Show Memorial Hall, Cleethorpes.

Schedules from: Show Secretary—T. P. Walker, 51 Cheshire Walk, Grimsby, South Humberside.

17th August: Oldham & District A.S. Annual Open Show, Werneth Park, Oldham. Details from A. E. Chadwick, 341 Broadway, Chadderton, Oldham.

17th August: Newcastle Guppy and Livebearer Society, Second All Livebearer Open Show. Details to be announced later.

17th August: Stroud and District A.S. at Stroud Subscription Rooms as last year. Details from Mrs. Cole, "Avignon", The Hill, Randwick, Stroud, Glos. Tel: Stroud 4504.

17th August: Huddersfield T.F.S. Open Show, Dieghon Civic Youth Club, Dieghon Road, Dieghon, Huddersfield. Details from D. Hough, Flat 5, Sycamore Court, Sycamore Avenue, Golcar, Huddersfield. Tel: Huddersfield 57147.

24th August: Coxy and District A.S. at the Coxy Leisure Activities Exhibitions, Civic Centre, Coxy, a "Mini-Show" (10 classes) for members of the Northamptonshire Societies only.

24-25th August: Great Yarmouth and District A.S. Third Annual Tropical and Coldwater Fish Exhibition to be held at Hopton Village Hall (on A.12 between Gr. Yarmouth and Lowestoft). Plenty of parking space this year.

30th August: Hounslow and District Open Show will be held at Hounslow Youth Centre, Cecil Road, Hounslow. Show schedules and all relevant information can be obtained from E. Shepherd at 9 Moulton Avenue, Hounslow, Middlesex. Tel: 01-570 6127.

31st August: The Castleford A.S. Second Annual Open Show at the Castleford Civic Centre, Ferrybridge Road, Castleford, Yorkshire.

31st August: Morecambe Bay A.S. Open Show at the St. John's Parochial Hall, Norton Road, Morecambe. Show secretary, Mrs. B. Booker, 18 Gringley Road, Westgate, Morecambe.

31st August: Streiford & District A.S. Annual Open Show, Salford Grammar School, Bulle Park, Salford.

September: Bishop Auckland A.S. annual Open Show. Details later. Show secretary, B. Minto, 111 Cradock Street, Spennymoor, Co. Durham.

6th September: Federation of British Aquatic Societies General Assembly, Conway Hall, Red Lion Square, Holborn, London, W.C.1. 2.30 p.m.

7th September: Bethnal Green A.S. Open Show to be held at the Bethnal Green Institute, 229 Bethnal Green Road, E.2. Schedules and further details available from the Show Secretary, Sybil Hedges, "Koi Korum," 150 Ashburn Ave, Seven Kings, Ilford, Essex, IG3 9EL. Tel: 01-590 3239.

7th September: Killingworth Aquarist Association First Open Show at 'Communicare', Killingworth, Newcastle. Schedules from D. B. Hickman, 14 Crumstone Court, Longmeadows, Killingworth, Newcastle NE12 6SZ.

7th September: Wellingborough and District A.S. Open Show Weavers Sport Centre, Weavers Road, Wellingborough. Schedules from D. Blochener, 1A, George St., Wellingborough.

7th September: Buxton and District A.S. Open Show, Pavilion Gardens, Buxton. Judges F.N.A.S., and points gained will be awarded to the League.

7th September: Nuneston A.S. Open Show, Friary Youth Centre, Abbey Street, Nuneston, Warks. Schedules from show secretary, M. Short, 8 Greenhill Road, Soke Golding, Nuneston, Warks. CV13 6HJ.

13th September: Malvern & District A.S. Second Open Show to be held at Barnards Green Cricket Club, North End Lane, Malvern. Schedules available later.

13th September: Bristol A.S. Coldwater Show. Schedules from show secretary, E. N. Bowden, 12 Stoneleigh Walk, Knowle, Bristol BS4 2RL. Tel: 775355.

14th September: Torbay A.S. will be holding its Seventh Annual Open Show at the Torquay Town Hall. Show schedules will be available from Mr. J. R. Davis, 43 Haddon Road, Torquay, Devon.

14th September: Three Counties Group 21st Annual Open Show run by the Basingstoke, Bracknell, Didcot, High Wycombe and Reading A.S.'s at the Reading University, with 50 classes which will include a 'specialist' Killie Show.

Schedules from, R. Leslie, 29 Meadow Walk, Tyers Green, High Wycombe, Bucks, HP10 8DG, or M. Strange, 10 Loddon Court, Neville Close, Basingstoke, Hants.

14th September: Cleveland A.S. annual Open Show at the Guisborough Parish Church Hall, Whitchy Road, Guisborough (same venue as last year). Schedules will be available later, from the show secretary, R. W. Begg, 35 Tyreman Street, Lingdale, Saltburn, Cleveland TS12 3ES.

20th September: Hounslow and District A.S. Annual Open Show at the Hounslow Community Centre, Cecil Road, Hounslow, Middx.

21st September: Hastings and St. Leonards A.S. Third Open Show at Ore Community Centre. Show schedules and further details obtainable from, M. Penfold, 44 St. Marys Road, Hastings.

21st September: Hucknall & Bulwell A.S. Annual Open Show. Details to follow. N89 6UJ. Phone Low Pdl 677156.

21st September: Lymington A.S. Open Show, St. Pauls Hall, Scotforth, Lancaster. Show secretary, Mrs. B. Hammond, 30 Wharfedale Road, Lancaster, LA1 5ND.

27th September: Goldfish Society of Great Britain Open Show to be held at Sutton Adult School, Benhill Avenue, Sutton, Surrey.

27th September: North Gwent A.S. First Annual Open Show at the Leisure Centre, Ebbw Vale.

28th September: Newbury and District A.S. Third Open Show at the Plaza, Market Place, Newbury, Berks. Details and schedules from S. Canning, 6 South End, Thatcham, Newbury, Berks.

28th September: Northampton and District A.S. Open Show at the Drill Hall, Clare Street, Northampton. Show schedules will be available from Mrs. S. Taylor, 25 Rowley Crescent, New Dism, Northampton, NN5 6PU shortly.

October: Chelmsford A.S. Date and venue to be decided.

3-5th October: German Livebearer Association Open Show, Breeding Pairs only. Further details and application forms from DGLZ, 11 Intern, Leistungschau, Herr Hans Kroger Glückstrader Weg. (Schule am Berle) 2000, Hamburg 53, West Germany.

4th October: East London Aquatic and Pondkeepers Association Annual Open Show.

4th October: Haslemere and District A.S. first Open Show, at the Haslemere Town Hall, Bridge Road, Haslemere, Surrey. Schedules and further details from show secretary, R. J. Hard, 6 Lower Hanger, Woodmer Hill, Haslemere, Surrey. Tel: Haslemere 51812.

5th October: The Ealing and District A.S. Open Show. Details to follow.

5th October: Ilfracombe Aquarists Open Show to be held at Nunthorpe Grammar School Hall. Enquiries to show secretary, Mr. A. S. Allison, 14 Bewley Street, Bishopthorpe Road, York.

5th October: Second Open Show of the Scunthorpe and District A.S. at the North Lindsey College of Technology Annex, Cole Street, Scunthorpe. Schedules are now available from L. Burr, 6 Saxby Road, Scunthorpe, South Humberside.

12th October: Ilfracombe and District A.S. Open Show at the Ilfracombe Junior School, Princess Avenue as last year. Details from Mrs. S. Lipscomb, 8 Foxbeare Road, Ilfracombe, N. Devon.

20th October: Doncaster A.S. Open Show, Broadworth Mines Welfare Hall, Welfare Road, Woodlands, Nr. Doncaster. Benchng 12-2.15.

2nd November: Blackburn Aquarist Waterlife Society Open Show, Windsor Hall, Blackburn. Details to T. Burton, 21, Henry Street, Rishton nr. Blackburn BB1 4JJ.

9th November: Halifax A.S. Open Show, Forest Cottage Community Centre, Cousin Lane, Ilrington, Halifax. Schedules from D. Shields, "Cobblestones", Gainest, King Cross, Halifax. Phone: Halifax 60116.

22nd November: Fur, Feather & Aquaria Show, King's Hall, 39 Lower Clapton Road, E.5. Schedules and further details from Show Secretary, Sybil Hedges, "Koi Korum" 150 Ashburnton Avenue, Seven Kings, Ilford, Essex, IG3 9EL. Telephone 01-590 3239.