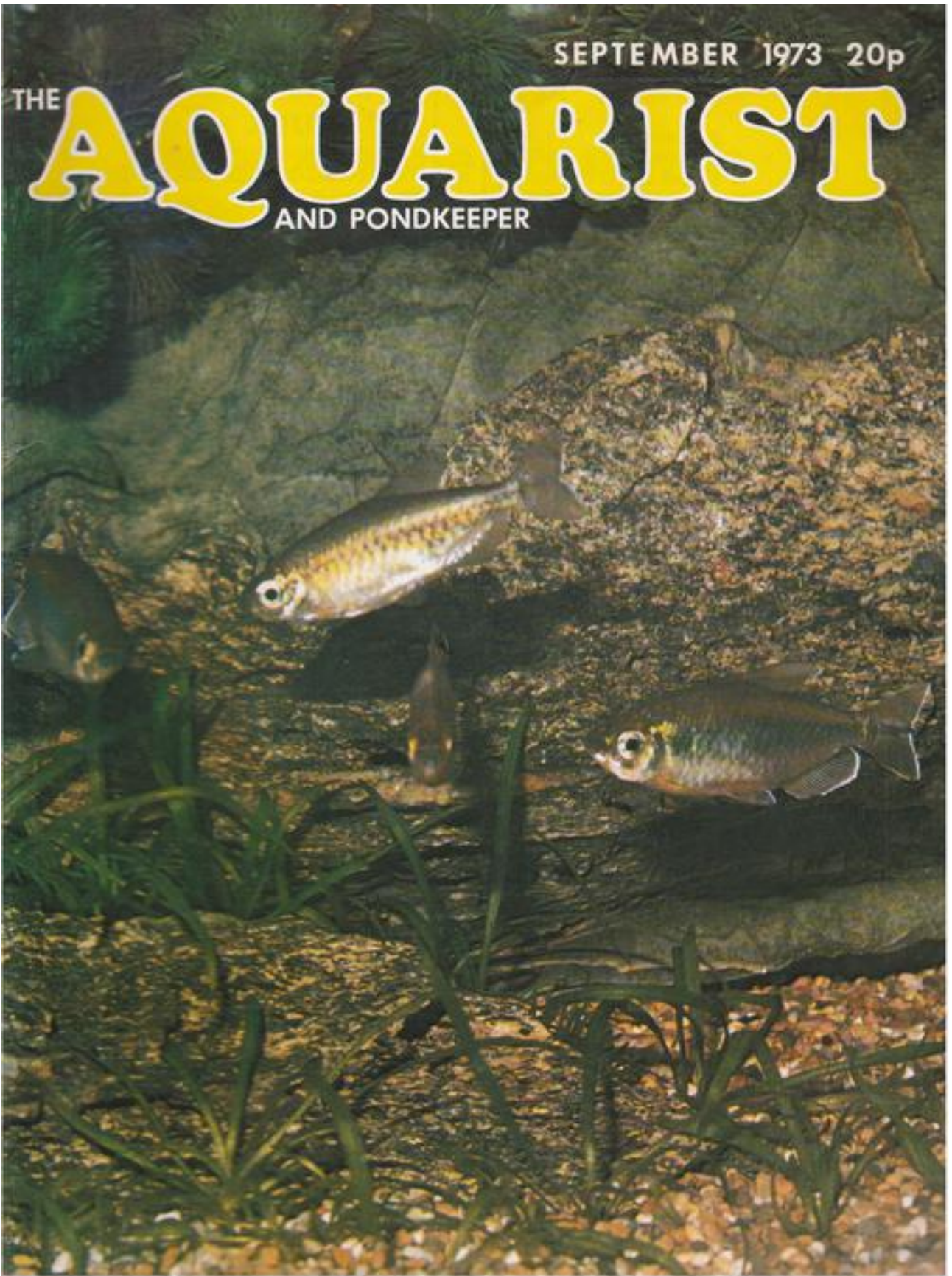


SEPTEMBER 1973 20p

THE **AQUARIST**  
AND PONDKEEPER





# THE AQUARIST

AND PONDKEEPER

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#### Our Cover

*Phenacogrammus interruptus*,  
the Congo Tetra.

September, 1973

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# THE AQUARIST

## FISHKEEPING EXHIBITION

*by Jack Hems*

THE FIFTH annual fishkeeping exhibition sponsored by *The Aquarist & Pondkeeper* and organised with the full co-operation of the Federation of British Aquatic Societies, was held in the Palm Court, Alexandra Palace, on 14th-15th July.

There were thirty-eight competitive classes and the

thousands of visitors (many from abroad) who attended the show on both days gazed with rapt attention and evident pleasure at the tremendous variety of fishes and exotic water plants gathered together under one roof. Clearly, the many furnished tanks, coldwater and tropical, were instructive and inspiring.



Besides the specialist societies' bright and information-loaded stands (The Fancy Guppy Association, The British Koi-Keepers' Society, The Goldfish Society of Great Britain, and the British Marine Aquarists Association were all represented), Mr. Peter Stott (accompanied by a splendid looking buzzard) introduced us to a number of reptiles and amphibians which he brought along as a non-competitive display. Other non-competitive displays included some amazing cacti and succulents in the best condition and, nearer to the heart of our exhibition, an attractively planted and waterfall-fed pool.

The trade was well to the fore. Moreover, officials

America attains a length of about 3ft. In its natural state, this big-mouthed species will gulp down any creature of swallowable size that comes its way.

In the competitive tropical classes there was a plethora of less commonly seen species as, for example, fishes of the genera *Distichodus* and *Ctenopoma*. Indeed, an air-breathing *Ctenopoma kingsleyae* took a top award (Labyrinth Class). The award for the best fish in the show went to Mrs. Sybil Hedges for her magnificent snakehead (*Ophicephalus obscurus*). No-one can give Mrs. Hedges any tips on how to care for and grow on snakeheads. Evidence of her expertise in this direction has been apparent at previous shows.



of the Pet Trade Association were on hand to explain the association's aims. One of the aims of the P.T.A. is to improve the service pet shops give to the public. Not that some pet shops do not provide a satisfactory service already, but not a few don't. But back to the aquarium trade. Some thirty dealers were present. Therefore it is hardly necessary to say that an abundance of fishes, books, aquarium tanks, apparatus, foods, medicines, corals, sea shells and decorative stones could be examined and purchased on the spot.

Some interesting fishes were to be seen on the dealers' stands. For instance, in one dealer's tank I spotted a large *Pseudoplatystoma* or shovelnosed catfish. This uncommon catfish—a pimelodid—from northern South

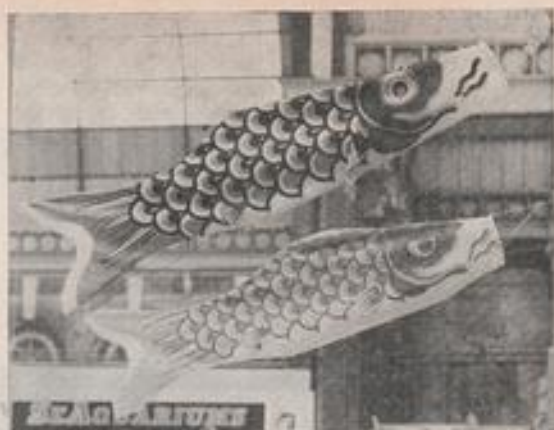
That the marine side of the fishkeeping hobby is increasing in popularity was plainly demonstrated by the crowds that gathered around the saltwater tanks. Marineland Oceanarium and Aquarium, The Tropical Marine Advisory Bureau, The British Marine Aquarists Society (mentioned above) and Water Life Research Industries Ltd., including SeAquariums Ltd. (presided over by Mr. Graham Cox, the author of one of the best and most inexpensive guides to establishing and maintaining a saltwater aquarium in the home) were never without visitors.

But now for a word of criticism. Although quite a few of us know a Gandak loach or a Schwannfeld's barb when we see one, hundreds of keen aquarists



and potential aquarists don't. In fact, I overheard one visitor mistakenly inform his charming lady companion that a half-grown *Clarius batrachus* catfish (the unpigmented form) was a white axolotl. So is it too much to ask to have a label giving the identity (popular, scientific or both) stuck to each show tank in the future?

But it is time to give special thanks to Mr. John E. Young, the Show Organiser, Mr. Derek Lambourne, the Show Secretary, Mr. D. King, Assistant Show Secretary, the Senior Stewards (Messrs. W. Nethersell, N. Martin and S. Mason) and their worthy band of willing helpers for all the hard work and long days they put in to make this show a great success. Finally, great credit must be given to the officials of the F.B.A.S. who throughout the show manned their stand and answered various questions pertaining to club activities and locations and were not backward in helping with all sorts of advice. Mr. F. C. Tomkins, the popular Chairman of the F.B.A.S., presented the awards.



The now familiar Koi Effigies which float above the B.K.K.S. Stand.

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## LYRETAIL AND HI-FIN SWORDTAILS

*By Jorgan and Pamela Hansen*

UNTIL the 1960's only colour variations of swordtails (green, golden, red, brick, red black, wagtail, albino, red albino) were available. Most of these were beautiful if the right breeding stock were used i.e. fish with genes both from the platy (*Xiphophorus maculatus*

and *X. variatus*) and from the swordtail (*X. hellerii*), as the different colour variations of swordtails could not be produced without crossing into platy species.

However, meanwhile in California a Mrs. Thelma Simpson discovered amongst her swordtails a single

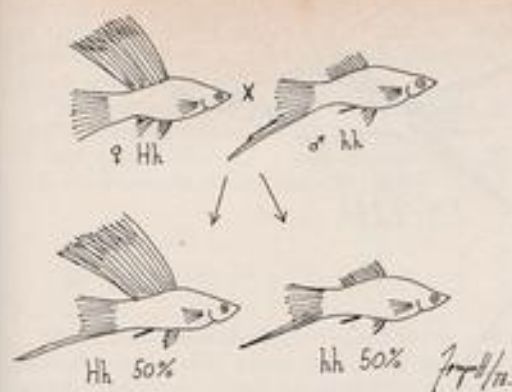


Fig. 1.

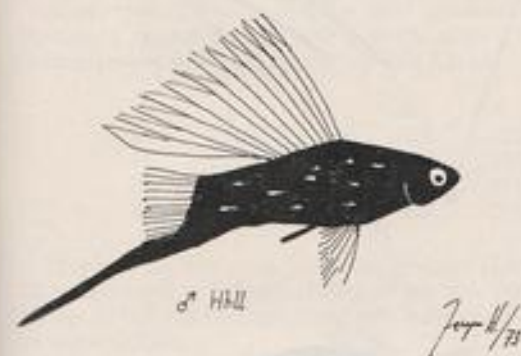


Fig. 2.

male with a large dorsal fin, and she succeeded in propagating more of this type. It appeared on the market at the beginning of the 60's and was named after its discoverer and is known both as the hi-fin or Simpson swordtail.

Research indicates that a single dominant gene (H) is responsible for the hi-fin. If one mates a hi-fin female (with genes Hh) and an ordinary male (hh), or alternatively a hi-fin male with an ordinary female, then 50 per cent will be hi-fin, and 50 per cent ordinary or low-fin, as can be seen from the following table and fig. 1.

	H	h
h	Hh	hh
h	Hh	hh

If one instead crosses a hi-fin male (Hh) with a hi-fin female (Hh) the following result (see also Fig 2) will occur:

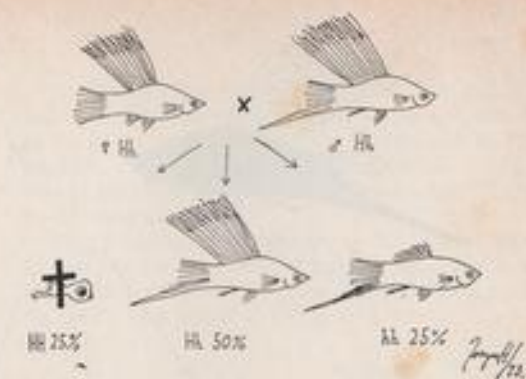


Fig. 3.

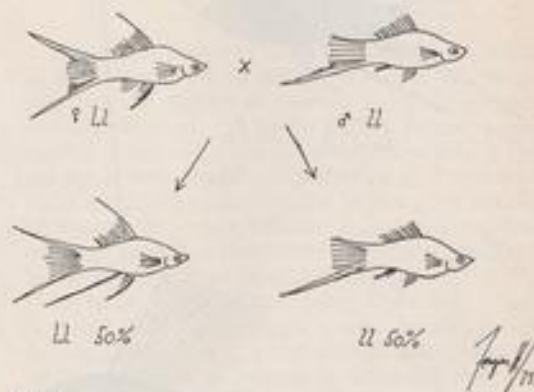


Fig. 4.

	H	H	h
H	HH	Hh	Hh
h	Hh	hh	hh

2a

The hi-fin gene proves, however, to be lethal when doubled; no hi-fins ever produce 100 per cent hi-fin offspring, thus indicating that they are heterozygous for this gene (Hh). A quarter of the brood thus obtain double hi-fin genes and die at birth; half of the brood (those which are Hh) are hi-fin; and the remainder quarter (hh) are ordinary or low-fin swordtails.

The hi-fin swordtail can be crossed with the black swordtail to produce an especially beautiful result. The black colour will be inherited by roughly  $\frac{2}{3}$  of the young, and half of these black swordtails will have the hi-fin characteristic (fig 3). The difficulty lies in getting the dorsal fin adequately coloured. One

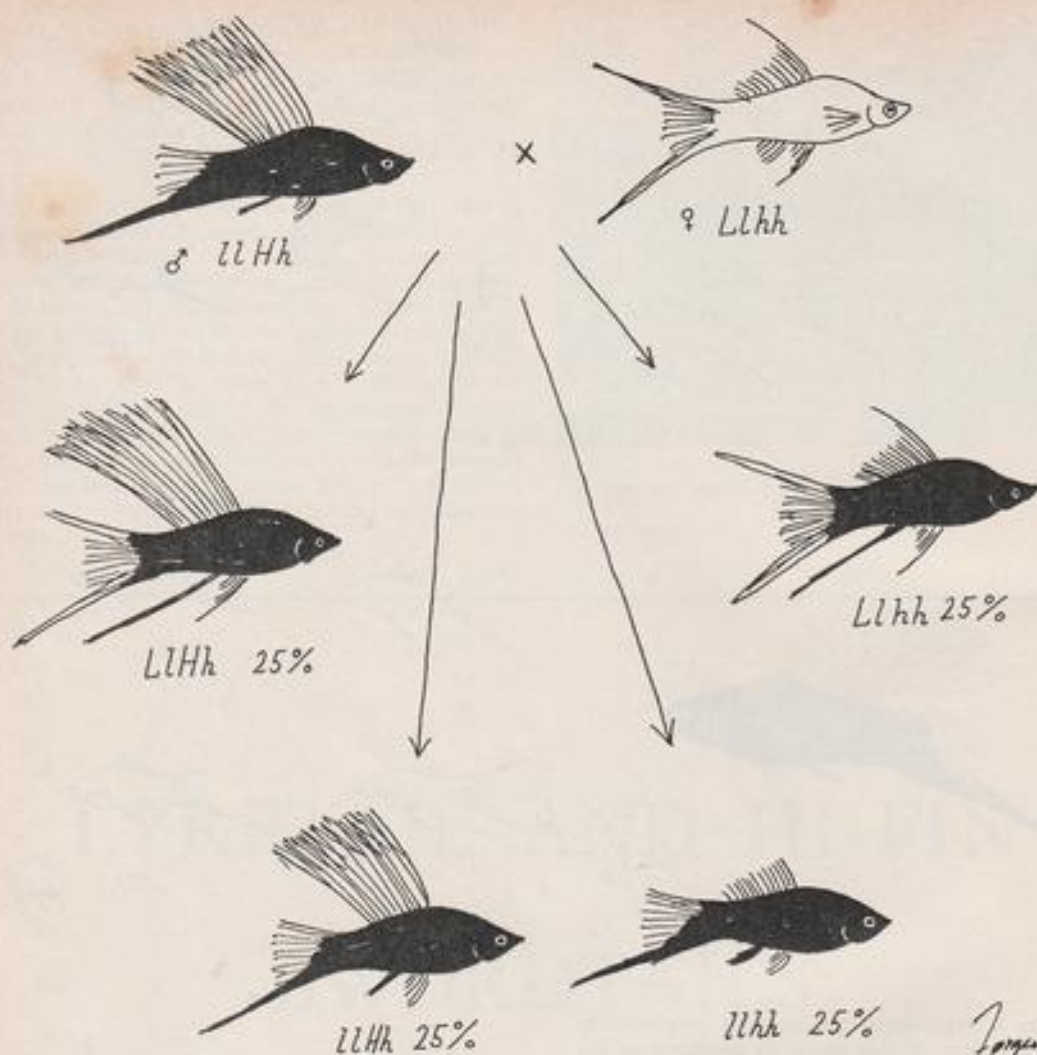


Fig. 5.

needs continually to select the fish with best coloured and formed dorsal fin for further breeding. We ourselves always use a black low-fin male (we have used the present fish for 2 years now) and mate it with the best red females. In this way we avoid back-crossing into the black swordtail, which would be the case if one continually selected the best black hi-fin female and bred it into a similar male, and which could eventually result in the occurrence of cancerous-like growths.

Later in the 60's an American breeder, Oren Adams, from Florida discovered some unusual swordtails amongst his stock, which distinguished themselves by the presence of sword-like extensions from both the

upper and lower fin rays of the tail. Moreover, dorsal and pectorial and anal fins were also enlarged, although the enlargement of the dorsal fin was not as pronounced as in the true hi-fin. Adams managed to establish the strain of "lyretails" as they were called, and they now exist in all possible swordtail colours. The lyretail characteristic occurs in both male and females. In the male the gonopodium is extremely prolonged (up to 2½ cm. or an inch long), with the result that the male seems to be unable to fertilise the female. It is apparently difficult for the male to bring the gonopodium into the proper position for mating, and as far as we can observe, although we have not observed the gono-



podium under a microscope, there is no typical hook at the end of the gonopodium as can be perceived with the naked eye at the end of the gonopodium of non-lyretail males.

The genetic factor, L, responsible for the lyretail characteristic is dominant, and a cross between a red lyretail female (LI) and a non-lyretail male (II) will give the following results (see also fig 4):

		L	l
	l	LI	Il
4a	l	LI	Il

50 per cent will thus be lyretail and 50 per cent non-lyretail. As lyretail males cannot be used, lyretails which breed true cannot be produced, although if a lyretail female were fertilised artificially with sperm from a lyretail male, 25 per cent of the offspring should theoretically be LL and when mated with another of the same should produce all LL offspring i.e. lyretails which will breed true.

Hi-fin lyretail swordtails were later produced by crossing a lyretail female with a hi-fin male. This cross gives the following results (see also fig. 5):

	Lh	Lh	lh	lh
	IH	LIHh	LIHh	IIHh
	lh	Llhh	Llhh	llhh
	IH	LIHh	LIHh	IIHh
5a	lh	Llhh	Llhh	llhh

25 per cent will thus be hi-fin lyretails (LIHh), 25 per cent will be lyretails (Llhh), 25 per cent will be hi-fins (IIHh), and the final 25 per cent will be ordinary swordtails (llhh).

If one mates a black hi-fin male with a red dorsal (IIHh), as shown in figure 3, with a red lyretail female, then roughly 17 per cent of the brood should be black hi-fin lyretails, as about  $\frac{2}{3}$  of the brood turns out black and  $\frac{1}{3}$  of 25 per cent (the expected ratio of hi-fin lyretails) is  $16\frac{2}{3}$  or 17 per cent. About half of these fish have a red hi-fin while the rest have clear fins. Many of our acquaintances at first refuse to believe that these fish are swordtails. 8 per cent will be red hi-fin lyretails. 17 per cent will be black lyretails with again half with reddish fins, while 8 per cent will be red lyretails. 17 per cent will be black hi-fins (half with red on the hi-fin), and 8 per cent red hi-fins. 17 per cent will be ordinary black, while 8 per cent will be ordinary red.

A cross between a hi-fin lyretail female (LIHh) and a hi-fin male (IIHh) will produce the following results (fig. 6):

	LH	Lh	IH	lh
	IH	LIHH	LIHh	IIHH
	IH	LIHH	LIHh	IIHH

	lh	LIHh	Llhh	IIHh	llhh
6a	lh	LIHh	Llhh	IIHh	llhh

25 per cent of the brood (those with LIHH and IIHH) will die at birth as a result of possessing a double dose of the hi-fin gene. 25 per cent (LIHh) will be hi-fin lyretails. 25 per cent (IIHh) will be hi-fin. 12½ per cent (Llhh) will be lyretails. 12½ per cent (llhh) will be ordinary swordtails.

The following table compares the results of the lyretail—hi-fin cross as illustrated in figs. 5 and 5a with the hi-fin lyretail—hi-fin cross illustrated in figs 6 and 6a, assuming a brood of 120 in each case.

	fig. 5 cross	fig. 6 cross
hi-fin lyretail (LIHh)	30	30
hi-fin (IIHh)	30	30
lyretail (Llhh)	30	15
ordinary (llhh)	30	15
dead (LIHH, IIHH)	0	30
	120	120

The same number of hi-fin lyretails is thus obtained in both crosses but in the hi-fin lyretail—hi-fin cross only half the number of lyretails and ordinary swordtails are obtained. However if one's prime interest is quality of the hi-fin and not numbers of fish obtained, the fig. 6 cross is perhaps preferable as if each parent has a good hi-fin the offspring have a good chance of obtaining the same; whereas if hi-fin is present in only one parent, it sometimes occurs that some of the hi-fin offspring have inferior dorsal fins.

In our experience if an ordinary black male swordtail is mated with a red wagtail lyretail female the result will be about  $\frac{1}{2}$  black,  $\frac{1}{2}$  red wagtail, and  $\frac{1}{2}$  red. Half of the black will be lyretail, and half will have transparent fins, while the other half will have reddish fins. Half of the wagtail and red will also be lyretails. Although we have bred over 1,000 fish from this cross, we have never obtained black swordtails with black fins due to the wagtail characteristic, although partly black finnage did occur in offspring where both parents were black; in this case the black colouring is due to the Nigra gene N.

As adult swordtails are quite large (10 cm./4 ins.) they require a large tank for daily use; ideally there should be 100 litres for 10 fish. Lyretails and hi-fin lyretails especially need plenty of space to prevent damage to their lyretail fins. When a dark triangle can be perceived in the female just in front of the anal fin (sometimes the eyes of the young can also be perceived) then it is time to move her to a breeding tank containing the same water as that in the other tank. If different water is used the female might give birth prematurely which would endanger both the mother and the young.

Proper feeding on the first two months is of the



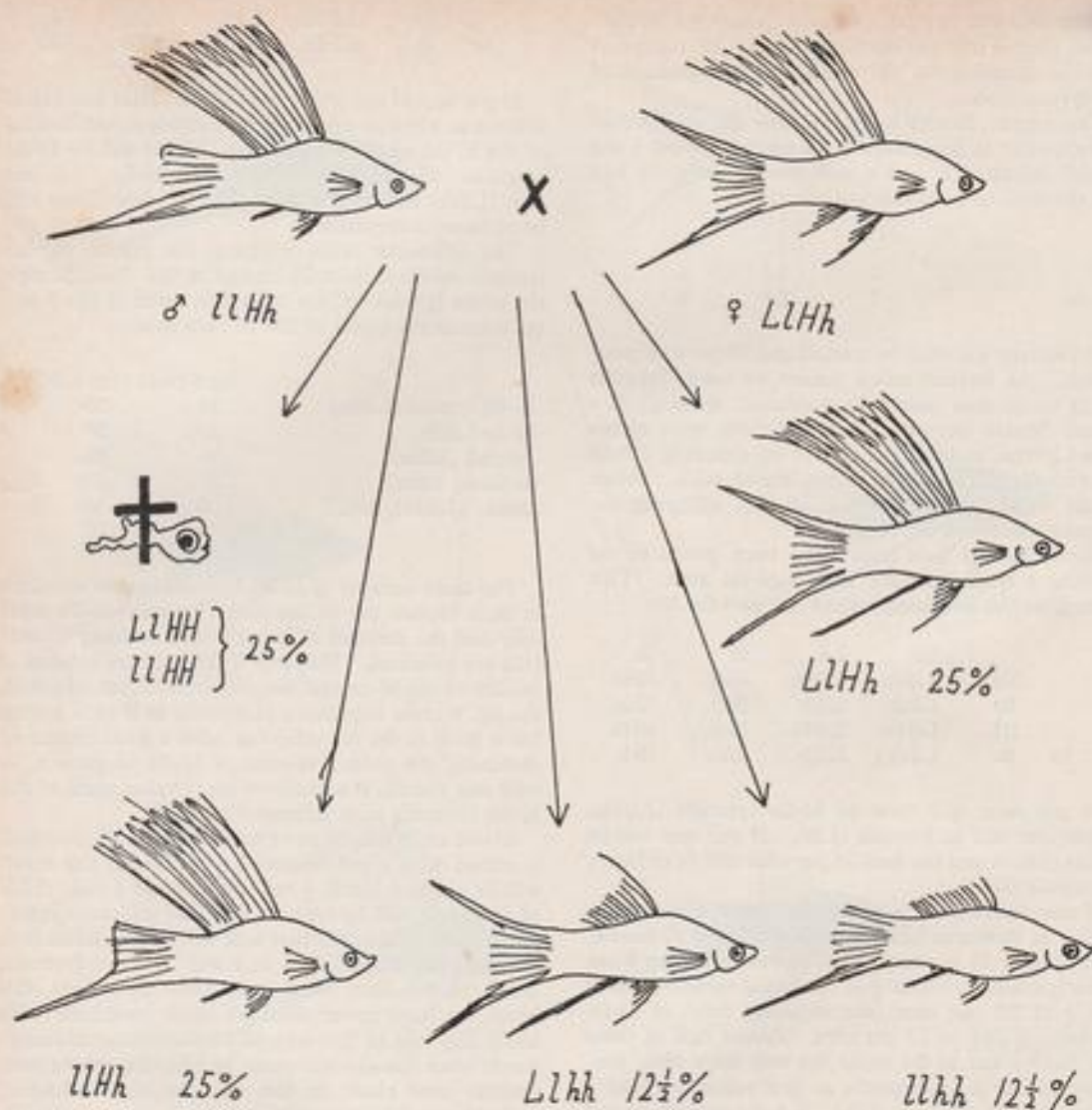


Fig. 6

greatest importance for the fish's development. A cross we made between a red lyretail female and a black swordtail with a low red dorsal fin produced a brood of 21 red lyretail, 24 black lyretail, 17 ordinary red and 28 ordinary black. They spent their first month in a 50-litre (12½ gallon) tank planted with *Sagittaria*, and were fed twice daily with brine shrimp. A month later they were moved to two 128 litre (32 gallon) tanks, which they inhabited together with young angel fish. When they changed tanks they measured 2½ cm. (1 in.) and the lyretails could be discerned. The fish were fed alternately with fresh and frozen *Daphnia*,

and at the age of 3½ months they measured 6-8 cm. (2½-3 ins.). The lyretail characteristic was by then clearly developed, and the gonopodia of the males were already several times the length in non-lyretails. The black swordtails had not developed swords as had their red brothers, but this did not surprise us, as our black swordtails had always been late in maturing.

An even more recent swordtail of interest is the veil swordtail which is due to the presence of the lyretail gene in addition to one or more modifying genes. It is to be hoped that more detailed information as to the genetics of veil swordtails will soon be available.



## 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.

## GOLDWATER QUERIES

**I have lost 12 large goldfish to a heron. I have made netting for my pond but this does not look very nice. Can you suggest anything else I can do?**

Once a heron finds a goldfish pond it is likely to return for another feed. As you have a netting for the pond I suggest that you keep this on every night and remove it when you are about in the garden or fairly near the pond. It is usually in the early mornings when herons strike. You may like to try running some black thread round the pond about eighteen inches from the ground, suspended on thin sticks. Herons usually alight on the ground, near the water and then walk into it. Just recently I found a pair of Mallards on my pond and although I had chased them away they returned several times. I then ran some strands of plastic covered thin wire across the pond. I thought this had done the trick until I found them walking across the lawn towards the pond. I am never sure if wild ducks eat goldfish, as I have had no definite information about this, but I do not like taking a chance.

**I have a plastic pond which holds about 14 to 15 gallons. I have planted it with a water lily, water hawthorn, water violet, and *Elodea crista*. I put in four fancy goldfish and after a time they hid near the plant baskets and have hardly ever been seen since. Why is this please?**

Goldfish often hide during the daytime and this is usually when they have not been in the pond for long. It may be that the water has not yet warmed up enough for them. If the water is cold the fish are much more sluggish than when it is warm. Once they get used to the pond they will come up for a bit of food when hungry. It appears that you may have over-planted your pool as it only holds about 14 gallons. This is no more than a fair sized tank and you may find that

by Arthur Boarder

before long there is little swimming space left for the fish.

**I have a goldfish which has a bunch of fungus on its side. It appears like grey cotton wool. I have tried the usual cures but nothing seems to help. Can you suggest any cure?**

If the patch of fungus is in one place as you state it may be cleared by wiping the place with some neat T.C.P. on cotton wool. Hold the fish in a wet cloth whilst trying this treatment. Then keep the fish in a salt bath for a few days. Use sea salt at the rate of a tablespoon to the gallon of water. If the fish shows no improvement, repeat the wiping and increase the strength of the solution.

**Is it practical to fit a filter into an established Koi pond, 11 ft. by 7ft. If so, what type and how to fit it?**

I see no reason why you should fit a filter into an outdoor pool. You have, I presume, some water plants in the pond and so if you use a filter you may be withholding much of the nutriment from the water which should have gone to the plants. If the pond is well run and the fishes are not over-fed there should be no necessity for a filter. I have sometimes suggested that a type of filter could be incorporated into a waterfall when a few small ponds are included in the return flow. However any well run pond should never require a filter.

**I have recently introduced a two inch comet to my pond and find it continually chasing my two small golden orfe and has even had a go at a 3½ inch goldfish. I always thought goldfish were peaceful fish, what is the cause?**

Your young shubunkin is a male fish and in breeding condition. It is chasing the other fish in an attempt to get them to spawn. Goldfish do not fight each other, at least I have never found any intimation that



they do so. You may see one take food almost out of the mouth of another but that one never has a go at it. If your larger goldfish is a female you may find some eggs one day.

**I have had a successful pond for four years and have now added a waterfall. I have used some copper piping under the concrete leading to the top of the fall but have plastic piping only submerged in the pond. Is this safe please?**

I think that you have made a big mistake by using copper piping to run the water to the top of the fall. This means that all the water which will flow back into the pond will have been in contact with the copper. This is more dangerous than if you had copper actually in the pond. I have seen a copper pipe of some length used to run water continually into a pond and no goldfish would live in the water for a couple of days. It is said that a fifth part of copper to a million parts of water is fatal to most fishes and I have had so many reports of fishes being killed through the use of copper in pond or tank that I have no hesitation in telling you to change the copper pipes for plastic.

**How many fantails or orandas can I keep in a 24 x 12 x 12 inch tank?**

I get so many enquiries respecting this point that I think that I must have had many replies published in this magazine on the subject. It does not matter whether the tank is fitted with a filter and aerator or not, the safest rule is to allow 24 square inches of surface area to each inch of fish. Just take the length and breadth of the surface of the water and divide by 24. This gives you the answer as to how many body inches of fish is permissible. As an instance take a 36 x 12 x 12 in. tank. This gives you:— 36 x 12 in. divided by 24 in. equals 18 inches.

**I have a pond 9 x 4 feet and in it I have two young Koi, two nymphs, two large and two small goldfish. I would like to know if I added plenty of plants to the pond would the goldfish spawn?**

If the two sexes are present in the pond there is no reason why the goldfish should nor spawn whether

you have more plants or not. The fact that there are plenty of water plants in the pond will mean that any eggs laid will have more chance of not being eaten than if there were few plants. If goldfish are in form they will have the tendency to spawn as long as the water in the pond is in good condition and is well charged with oxygen.

**I have purchased some coloured concrete paving stones which I have broken up to make crazy paving round my garden pond. Should this substance be treated in any way to make it safe?**

You can scrub the slabs thoroughly once or twice and then there should be no danger of free lime getting into the water.

**I have three fantails and a shubunkin in my tank and would like them to breed. Do I have to put in a breeding trap or leave well alone and wait?**

You do not need a breeding trap. The fish spread their eggs over water plants and then if you wish to save them the best way is to remove the parents and any other fish from the tank. Otherwise the eggs could be eaten.

**I installed a garden pond last year and now the water has gone an orangy-brown. Why is this please?**

I suspect that the water is filled with a type of infusoria or minute bacteria. This may have been encouraged by decaying fallen leaves in the water. Clean out most of the water and refill. It may then keep clear especially if you can drag out most of the fallen leaves.

**I am losing a number of golden orfe from my pond. I find them floating on the surface in the mornings with no signs of injury or disease. Why is this?**

The water must be lacking in oxygen or to put it another way, too full of foul gases. Your pond may not be large enough for very large orfe. Reduce in numbers and keep the water pure, plenty of hosing in hot weather will help.

## TROPICAL QUERIES

**I should appreciate some information about the stripetailed catfish.**

The stripetailed catfish or *Dianema urostriata* attains a length of about 6 in. and is reputed to be quite peaceful. It is found in the natural state in the middle

by Jack Hems

and lower reaches of the Amazon and was first made known to science in 1912. Like most catfishes, it eats almost anything.

**I have just bought two *Tilapia mariae* and would**



like to know something about this fish's attitude towards other species sharing its tank and whether it is easy to breed and grows to any great size.

*T. mariae* reaches a length of about 8 in. In its larger sizes it is a bully and should be kept on its own or in a large aquarium with fishes that are neither timid nor small. Given soft water inclining to acid and a temperature in the upper seventies (°F.) it will spawn quite freely and the fry are easy to raise. It eats most things, aquarium plants included.

**What is the highest temperature tropical fishes can stand?**

I cannot answer this one but *Barbus callensis*, which is found in North Africa, is said to withstand a temperature up to 180°F. It is well known, too, that certain species of fish native to the American south-west can stand a very high temperature.

**I broke up an old washhand stand and pounded the brown marble top into coarse chippings. After a soaking, I scattered them around the plants and rockwork in my aquarium. At the time of writing, my fish are gasping at the surface or moping on the bottom and the water has assumed a greyish haze. Please can you tell me whether the introduction of the marble chippings is the cause of the trouble in my tank?**

You certainly did the wrong thing when you introduced marble chippings into your aquarium. Marble chippings in any quantity will soon make aquarium water unreasonably hard for the well-being of most freshwater fish. You will have to remove every scrap of marble from your tank and replace the water in it with fresh.

**Is it all right to fill an aquarium with water drawn from a copper pipe?**

Water from new copper piping is more toxic than water from a pipe that is old, for the insides of most old copper pipes have a protective coating laid down by the passage of time. Even so, it is best to let the water run from the tap for several minutes before using it to fill a fish tank. In short, never use water that has stood for any length of time (overnight) in a copper pipe or copper storage tank. Copper-tainted water kills most, if not all, living things.

**My aquarium is 30 in. by 15 in. by 12 in. and is illuminated for upwards of ten hours a day by a 20 watt Gro-Lux lamp. Yet for all these hours of light my plants refuse to grow. They either stay stunted or die. Please can you inform me how to overcome this problem?**

Firstly I recommend a 30 watt fluorescent lamp in place of your 20 watt one. Secondly, see that the

plants you introduce into your aquarium are true underwater plants of a kind that do not demand a very bright light. If you go in for plants of the genera *Cryptocoryne*, *Hygrophila* and *Microsorium* you can hardly go wrong.

**What can you tell me about *Herotilapia multi-spinosa*?**

Not much—not much at all. It is said that this species is the only representative of its genus and, in the aquarium, attains a length of about 4 in. I have read somewhere, too, that it is an easy breeder and that bringing up the fry poses no special problems.

**Could you tell me the best water conditions in which to keep and breed the cardinal tetra?**

Read up all you can in the reliable aquarium books about the neon tetra, for the cardinal tetra flourishes best in similar conditions. In other words, it does best in soft neutral to acid water.

**Is there such a fish as a black arowana?**

There certainly is and it is found in the Rio Negro river system. Young specimens are characterised by greenish to golden horizontal stripes on the sides, but as this species matures the stripes fade and the body assumes a blue-black to blackish hue. In its native waters, the black arowana or *Osteoglosson ferreirai* reaches more than a foot in length and preys on smaller fishes.

**I would like to know how to sex the pearl or mosaic gourami.**

It is not easy to sex the pearl gourami until it reaches a fair size and then the male but not the female develops a longer and more pointed dorsal fin and a suspicion or more of orange red in his throat and underparts. When courtship and nest-building is in progress, the underparts of his body assume a fiery glow.

**I am quite new to the aquarium keeping hobby and I have become very disappointed of late because the water in my tank has become cloudy and gives off a bad smell. Not only that, but most of my fish have died. Where have I gone wrong?**

I suspect you have done a lot of the wrong things such as introduced too much dried food, overcrowded the tank with livestock, used any old piece of stone picked up outdoors as extra decoration and so on and so forth. I suggest that you buy or borrow an inexpensive handbook on aquarium management such as *Tropical Freshwater Aquaria* by G. Cust and P. Bird which, if not in your public library, you will find among the paperbacks in any well-stocked bookshop or book department of the larger chain stores.



## OUR READERS WRITE

### Omniverous Terrapins

May I warn Mr. Cottam and other readers of mixing terrapins with fish. I have a pair of 2 in. red-eared turtles which I introduced to my large community tank. All went well for six months until one of my tiger barbs fell ill; the terrapins made quick work in killing and eating this fish.

That seemed to start them off on an acquired taste for fish.

The following day, although they had a good feed in the morning, they cleared the tank of all the small fish, a pair of tiger barbs, two large silver dollars and a pair of fully grown marble gouramies and then proceeded to chase after the zebra danios.

As you can gather I have had to move them to a tank of their own.

I would like to mention that I do feed live earthworms to my terrapins, but another food that they adore is Minced Morsels (dog food) which has added calcium. I do not feed this in the tank but in a small plastic one filled with warm water as bits tend to break off and contaminate the water very quickly.

They also like melon, cucumber chopped to mouth size, bits of apple or anything you care to offer them as well as turtle food and the odd pinch of flaked fish food and the plant *Limnophila sessiliflora* which will disappear in seconds.

L. M. KEY (Mrs.),  
199 Hylton Road,  
Worcester.

### Conservation Concern

Following the interesting article on "The Conservation of Fishes" by R. T. Chambers in the July *Aquarist*, this article adds strength to the fact that there is growing concern for the preservation of many endangered species of animal in this world; in the light of which I would like to suggest a column in your magazine giving information concerning fishes/coral/plant life/habitats that are in danger of becoming extinct or are in any way badly affected by the hobbyist in pursuit of his interests.

As a magazine with, obviously, the largest readership in this field, the *Aquarist* must therefore bear substantial influence on the aquatic scene, and I am sure that any information by way of an occasional list of rare species offered for sale, for example, and the odd article on any preservation work that is in progress

in this field, e.g., by Jacques Yves Cousteau, etc., would not pass unnoticed and would therefore serve the hobby well.

It follows that it is up to us to guard against our enthusiasm for the hobby creating a demand too great to be fulfilled by any species, thus causing its extinction, or depletion to a level which upsets the ecological balance.

R. F. JUSKUS,  
13 The Paddocks,  
Bamfurlong Lane,  
Staverton,  
Glos.

### Missing Trophy

I wonder through your "Readers Write" column you could publish a plea for the return of a Trophy which was awarded at our open show in 1971, and was not returned for our 1972 open show. Through some misunderstanding when I took over as secretary in 1972, the winner of this trophy was not recorded. It is called the Whitbread Tankard Trophy, and I believe it was awarded for Catfish and Loach class.

Thanking you in this matter, and hoping you can help in this.

D. DAY,  
Secretary,  
Hetton County A.S.,  
32 The Meadows,  
West Rainton,  
Houghton Le Spring,  
Co. Durham,  
DH4 6NP.

### Anti-Corrosive

I have bought two stainless-steel tanks and lids which look very smart, but unfortunately I have had problems with the spot welding of the lids corroding and giving way. One lid was re-welded by the makers and lasted only a few weeks before it happened again.

Happily I have struck on a solution to this problem which is to use a rubber coring material as an adhesive. One joint has lasted several months and shows no signs of wear. I thought others might benefit from this experience.

D. J. ROBERTS,  
71 Spencerbeck House,  
Ellerbeck Way,  
Ormesby,  
Middlesbrough,  
Teesside.

### Discus Record?

In reply to Mr. J. Dornie's letter concerning the spawnings of his 3 pairs of Discus. First of all I would like to establish as to whether he is referring to



the number of spawnings in 26 hours or the number of Discus.

I also have three breeding pairs of Discus, and in February of this year I had the following spawnings:—  
1st February—1st pair—spawned 150  
5th February—2nd pair—spawned 63  
8th February—3rd pair—spawned 337  
(out of which there were only 2 belly-sliders which in itself for such a large brood I feel must be a record, as with a pair that breed regularly about 150 there is usually more than 6).

When I had this large spawning I contacted *The Aquarist* and London Zoo to see if it was a world record but I was not very successful in obtaining such information as I would very much like to know if 337 in one brood is a record.

I would point out that I obtained these figures when removing the young from the parent fish into a tank of their own.

G. J. MIDDLETON,  
31 Maltby Road,  
Chessington,  
Surrey.

#### Natural Selection and Artificial Standards

A fact which is seldom clearly stated in aquatic journals, if it is accepted at all, is that the origin of species is a product of natural selection. A creature does not *choose* to be of a given specification, it is so created.

To deny a species the truth of its origin and its ability to live and procreate in its natural environment by setting up artificial standards of form in creatures taken from the wild as B.M.A.S. intend to do is surely a spurious activity. If the creatures concerned possessed other than the degree of perfection necessary to their continuance in their environment they would cease to be.

The presence or absence of true deformity and general condition is the only basis upon which anyone can judge creatures known to science in nature. Anything else is worthy of a name and place in history. Their being answers all other points of conjecture as to perfection as species or a continuous part thereof. Perfection in nature being the ability to continue, to develop and to thrive in a part of the ecology.

B.M.A.S. should think carefully, whatever the pressure of their commercial interests, about joining the G.S.G.B. as figures of fun. The G.S.G.B. it seems, for all its voice of would-be authority, cannot convince the public of whether its goldfish strains are Border canaries or mice.

W. F. CLARK,  
56 Braeside Road,  
Greenock,  
Renfrewshire,  
PA16 0RJ

#### Dudley Open Show

To all fellow aquarists who patronised our open show on the 24th June, many thanks, and to the following clubs: Sudbury, Smethwick, Bishops Cleeve, Gornal Select, Pelsall, G. K. N., Flyford, Banbury, Evesham, B.M.A.A., Independent A.S., Basingstoke, S.P.A.D.G., Ealing, Rubery, Kidderminster, Wednesbury, Hinkley, Coventry, M.T.A., Bedworth, S.S.A.S., Stourbridge, 5 Towns, Abbey Road Schools, Lower Gornal, L.A.P.S., Lucas, Warley, M.A.P.S., Wombourne and Dudley.

I would like to apologise to all clubs for running 1½ hours late, this was due to not booking enough judges. The reason for this was that we only expected about 500 entries for our first show instead we had 747, this was a great response. Now that we have experienced our first open show we hope that we shall be able to keep to schedule with our next show and we shall be prepared for 1,000 plus entries.

Last but not least, our many thanks to our F.B.A.S. and B.M.A.A. judges for working through the long afternoon. Once more I apologise to exhibitors for running late.

BILL HICKMAN,  
Show Secretary,  
29 Ladbroke Grove,  
Lower Gornal,  
Dudley, DY3 2UP  
Worcestershire.

#### B.K.K.S. for Esoteric Knowledge

I have never before been stimulated sufficiently to level criticism at *The Aquarist*. At last I feel the need to request some assistance from you as Editor.

I and many other Koi-keepers who are members of the B.K.K.S., are sick and fed up with reading so much unadulterated rubbish on the subject of Koi-keeping, as is published by you on behalf of Arthur Boarder.

It is quite clear to anyone with a reasonable knowledge of Koi, that Arthur Boarder hasn't a clue what he is talking about most of the time. I feel here that I should make it clear that I do not in any way refer to his articles on Goldfish or Pondkeeping in general. I leave that part of it to others such as the Goldfish Society to comment on. If you take the trouble to go through back copies of *The Aquarist* over the last six or seven years and read both Coldwater queries and other articles by Arthur Boarder, you will see right away that he cannot even agree with himself!

My concern in this matter is very deep as I feel that many prospective Koi keepers are being put off and are losing heart before getting really started. This is because of bad advice resulting in expensive losses, and very likely killing all enthusiasm to ever try to keep Koi again.

I fully realise that Arthur Boarder is not the only



offender with bad advice, but novices tend to take all articles published in *The Aquarist* as being gospel truth and consequently take more notice of his doctrine than that of say their local dealer.

May I suggest that in future all queries regarding Koi, should be answered by you only after prior consultation with the B.K.K.S. It is fairly obvious that the best authorities on the subject can only be within our ranks, where all knowledge on the subject is pooled and circulated for the benefit of all Koi keepers.

Perhaps it would be advisable if you could make some reference to this subject in your next available issue as certain individuals are already suggesting that criticism such as this, appears to be getting suppressed.

B. CULLEY,  
7 Rusland Crescent,  
Ulverston,  
Lancs.

#### Background of Experience

In your June issue, Mr. Boarder says that the British Koi-Keepers' Society has not yet been in existence long enough to have learned all there is to know about breeding Koi. I feel sure that members of this Society would be the first to admit this, but surely any experience is better than none! I suggest Mr. Boarder reads the book "Koi," by Colin Roe and Anthony Evans, which gives "about 12 inches" as the breeding size for Koi. This book was written against a background of some years' experience in keeping and breeding Koi.

Come now, Mr. Boarder from where did you get the information that Koi would breed at six inches? I suggest it is sheer speculation on your part, or haven't you the grace to admit it?

My wearing apparel has so far refused to tangle!

M. G. WAUMSLEY,  
165 Woodside Road,  
Amersham,  
Bucks., HP6 6NR.

#### Disgusting Sarcasm

May I express my disgust at the unnecessary and uncalled for sarcasm in the opening lines of a reply by your "coldwater expert" (?) Mr. Boarder in a reply to a letter from the secretary of the B.K.K.S. (Our Readers Write—June 1973).

Mr. Boarder has a fund of good advice on keeping and breeding goldfish, everyone knows this as he constantly repeats it in your magazine. Cannot some of your magazine space be used to better purpose than reprinting Mr. Boarder's good but highly repetitive advice on goldfish?

When a reader asks for advice on the size at which Koi can breed I think it is reasonable to expect an answer giving the size at which they have been known to breed, not the opinion of someone who has never

kept Koi or the size at which future strains can be expected to breed. Of what use is that information to the enquirer who wishes to breed Koi now?

The criticism made by the B.K.K.S. would appear to be perfectly valid and the comments made on it by Mr. Boarder highly unjustified.

We earlier witnessed a similar example of Mr. Boarder's technique of answering valid criticism with a substance reputed to have the property of baffling brains when Mr. Vinden rightly took him to task over the classification of the coldwater catfish commonly on sale (Our Readers Write—January 1971 and subsequent issues). It must be nice to always have the last word so that when hard pressed and unable to produce any evidence you can say "On that note I have no more to say and now consider the correspondence closed."

It goes without saying that from a coldwater expert enquirers expect facts. It seems that on subjects other than goldfish we can expect only opinion based on no practical experience.

Incidentally your correspondent Mr. Vinden may be interested in the following—Sterba in his book "Freshwater Fishes of the World" states—"Even in their native North American the Bullheads have been confused. Specimens introduced into European aquaria and waters have been called *A. nebulosus*, but all those examined in the British Museum have proved to be *A. melas*. The two species hybridise in forced association (where shallow water precludes segregation with depth) and the possibility of wild hybrids must be taken into account."

Let it be thought that I am all complaints may I take this opportunity to thank your other regular contributors—Mr. Hems, whose opinions and information I have found invaluable, Mr. Whiteside, whose "What is Your Opinion" always provides food for thought, and Mr. Hardy, whose "From a Naturalist's Notebook" provides so much fascinating information.

R. S. TELFORD,  
13, Silver Dale Close,  
Retford,  
Notts. DN22 7XPP.

#### Mr. Boarder replies:

So much fuss has been made just because I told an enquirer that a Koi might breed at six inches in length. Now perhaps I may be allowed to give my reason for this statement. I have had so many letters, from aquarists who are keen to keep and try to breed Koi, but are quite unable to pay the exorbitant prices asked for them. Several have said that prices of £20 to £40 have been asked for Koi twelve to eighteen inches long. I would not think of paying such a price for a fish; in fact I have never paid more than 5s. (25p) in my life for one.

When keeping fish as a teenager I worked for five years until August, 1914, for seventy-eight hours a



week and the most I ever received was 18s. (90p), and have now been living on a pension for the past twenty-seven years.

I told enquirers to try to get some smaller Koi at a reasonable price and then grow and try to breed. I have yet to be proved wrong in my prediction. As to prices of Koi, I have in my garden pond, red-scaled fantail goldfish, more rare in this country than thousands of Koi, and yet I would never dare to ask such ridiculous prices as are asked for large Koi.

Mr. Culley writes that I may have killed the enthusiasm of beginners, but let me tell him that this has been killed, in so many cases by high prices, and as for my not being able to agree with myself, if I am proved wrong, I am always willing to admit it, and after all bigger men than I have done so, for instance Sir Winston Churchill.

Mr. Telford writes that I repeat my advice in my articles. Of course I do. I do not write solely for those who know it all, but for the many hundreds who are beginners and are anxious to learn the rudiments of fishkeeping. After all, if the writer has ever taken a gardening periodical for a few years he will know that the main articles are repeated every three years at the most. He really has scraped the bottom of the barrel for some dirt to throw at me and I can just see the gloating look on his face when he ended his tirade. I try to write mainly from my own experiences and do not take all my material from books nor just collate bundles of readers' letters.

Perhaps Mr. Telford could write well over three hundred articles on coldwater fishkeeping without repeating himself and if so I suggest he sends them in to the Editor who, I feel sure, will be pleased to publish them.

A. BOARDER.

P.S. Witold Zaczenik, in his article in the July issue, thinks that Nishiki Koi are just Carp and that these are bred from at four or five years of age.

#### Discus Pioneers' Comment

We would like to comment on two letters published in July *Aquarist*; both dealt with Discus fishes.

Mr. and Mrs. Dornie (Discus Record?) have every right to feel jubilant with their achievement in having three almost simultaneous Discus broods netting an approximate 300, but as to establishing a British record, we think not. Sixteen years ago, in our fish house in Edgware, Middx., we "ran" three pairs of what was then known as *S. discus* but which are now known as *S. aquifasciata axelrodi* (improvement?). These were raised from young wild stock and each pair regularly produced broods in excess of 100. We cannot recall whether there was ever simultaneous spawnings by all three pairs, but in the light of subsequent experience we would not expect too much difficulty in arranging this. Claiming records of fish breeding achievements

cannot be effective as there is no recording body, besides which not every fish breeder reads the fishy magazines and there have been many creditable breeding accomplishments that have not been reported because either the breeders are not adept at reporting or they just can't find the time to write—we know at least a dozen Discus breeders who would fit into these categories.

Troster and Beckett (Discus Data Desired) require information of *S. discus*—the Heckel discus, although we can't help thinking that they are, in fact, seeking information on Discus fishes generally. If our assumption is correct, we would disagree with their claim that "solid well-documented information" is lacking and would suggest that no *genera* has been written about more and in greater detail. From the very first report that we published in 1956 to the more recent accounts by Brown and Cooke, a veritable wealth of information is imparted.

In 1955 we had only Ladiges "*Fisch in der Landschaft*" to give us a clue as to where to start in the quest to propagate species of the genera *Symphysodon*. We would suggest that if the available British reports are not detailed enough, then reference to Geisler's treatise that was published over several months in the "*Deutsch Aquarien und Terrarien Zeitschrift*" should satisfy them.

Reference to the possibility of analysing the substance that the brood parents exude interests us, but Dr. William Hildermann claimed that this would be an impossible task because of the quantity of brood parents that would be required actually producing food to enable sufficient quantity to be gathered for accurate analysis. They were conducting some experiments to this end at Leeds University during the 1960's and Professor Dodd solicited our help in this matter; could be that they have some useful information to impart. Hildermann, who anaesthetised our brood fishes and proved the existence of special hormonally stimulated food-producing cells within the epidermis of the species, might well have more to offer now; write to him; the editor has his address. A copy of his treatise, "A cichlid fish, *Symphysodon discus*, With Unique Nurture Habits," produced in "*The American Naturalist*," Jan.-Feb. 1959, should be on every serious Discus-fancier's bookshelf.

ROY & GWEN SKIPPER,  
Hendon A.S.,  
35 Bridgewater Gardens,  
Edgware, Middx.

#### "Can it be, or was I Dreaming?"

I seem to see an aquarium about 24 x 12 x 12in. with plants and fish, but no heater nor aerator, in a room of house temperature.

The fish were yellow gold, and some had—what looked like—little whitish blisters on their sides. Actually these, I believe, were eggs, which duly

Continued on page 231



# WHAT IS YOUR OPINION?

by B. Whiteside

Photographs by the Author



THE FIRST time Brad Gulliford wrote to this feature, from his home in America, he was twelve years old. I am pleased to begin this month's W.Y.O.? with Brad's third letter—in which he points out that he is now fourteen years old. His home is at 4002 Circle Avenue, Reading, Pa. 19606, U.S.A., and I always find it interesting to note the different spellings of words in U.S.A. "English" and U.K. English. I'm sure that Brad won't mind if I change appropriate American spellings into their U.K. equivalent. Brad writes: "American hobbyists, at least in this part of the country, are soon to feel the weight of a legal manoeuvre that few of them know about yet. There is a ban on the importation of tropical fishes from abroad. This includes even Mexico and Canada. I do not know whether this is permanent or not, but an unofficial, albeit 'in-the-know' source I questioned (namely my dealer and neighbour), says the source of official ire was an unspecified number of bacterially contaminated shipments of fishes. We have loads of fishes and breeders in the country, of course, but some fishes (e.g. salt water species and loaches) must be caught in the wild as they do not breed. Depending on how long the embargo lasts, we might have to pay British prices (Malawi cichlids at £5 a pair), which, to us, seem phenomenally high. My June issue of *The Aquarist* has not yet arrived, but I notice that in the May issue there are quite a few letters on cichlids. I recently acquired a pair of jewelfish (*Hemichromis bimaculatus*), which were put in to a tank with three *Pelmatochromis pulcher* (*P. kribensis* as they are still better known in the U.K.), and, as one might guess, had the place in an uproar within an hour.

"One night I came home very late from a concert I was just going to turn off the fish lights and fall into bed—but no such luck! As I looked into the tank, I saw a sight which I hope never to see again. The male jewel, named Simon Legree after the villain in Stowe's 'Uncle Tom's Cabin', had two days previously completely hollowed out my best female pulcher, and was now disposing of the other two in a curious manner. He chased them into the flowerpot, and forced his wife, Maleficient, to guard the hole on top of the inverted pot. He plugged up the lower opening with gravel. He had almost finished when I intervened. The two poor little creatures wobbled out, badly

battered. They did not survive the night! Simon went to the prison tank (a necessity among cichlid keepers, I think), and Maleficient went to the hospital tank to receive antibiotic treatment for her chewed tail. Only she lives to tell the tale. Simon got a life sentence for attempted murder, and he died soon after his transfer. My dealer, with close in twenty years of fishkeeping experience, has never heard of anything like it! I would be interested to know what methods other readers use to mercifully kill fishes which are beyond hope. I do not have the confidence to dash a fish on the pavement, for if it didn't work the first time, it would cause undue pain to the fish. I freeze the ones that suffer. I have heard that it is not painful but if anyone has evidence to the contrary, please let me know before I commit any more cruelty on my missions of mercy. I just put the fish with some of its tank water, into the freezer. When it is frozen solid, I chip the excess ice away, put the specimen into a plastic bag, and save it, frozen, for autopsy. In my opinion freezing is better than formaldehyde as a preservative. I have also heard of putting sick fish into a small container and dropping in two tablets of (and here Brad names a popular brand of fizzy tablets normally used to help upset tummies and sore heads! I've certainly never heard of this particular use for them before!!!).

"Two things about the magazine: (1) Would it be possible to have a column, written by a competent ichthyologist, giving the most recent changes in scientific nomenclature of fishes? I am sure that a great number of hobbyists don't care too much about scientific names, but to those of us who do, it would be interesting. (2) I, for one, could not afford *The Aquarist* if it were produced every fortnight. The subscription price would be about \$15 for me, and that is rather high. The only answer to any of your questions in the May issue that I have is that, to be comfortable, common goldfish need more room, and grow to a larger size, than fancy varieties." (Brad has made some very interesting points in his letter. If you would like to take any of them up, please send me your opinions. How about: "The ice lolly with the fish centre ???").

My comments in the April edition, about having bred a species of killifish, brought a number of letters



on the subject in the June and August editions. In answer to one query, the killi which I bred was *Aplocheilichthys lineatus*. Photograph 1 shows my home bred male fish—but it's a pity it's not in colour! I hope to include a photograph of a young female in next month's edition. I'd be pleased to hear of your experiences with this species.

Before continuing, I would like to repeat that I do not necessarily agree with the views expressed by contributors to this feature; and I accept no responsibility for views expressed by contributors. I also reserve the right to shorten letters where appropriate.



Having made the above points clear once again, I'll move on to a letter which reached me from Mrs. J. Donovan, of 419A Wimbourne Road, Winton, Bournemouth, Hants. I was pleased to note that Mrs. Donovan obviously took my advice, and kept her letter brief! She begins: "Still reading your pages avidly; they are most interesting; and many thanks for the hard work it must be." (Thank you, Mrs. Donovan. A word of thanks is always appreciated). Mrs. Donovan continues: "I keep ordinary tropical fish but am still a fancy goldfish fan. I wish more people took fancy goldfish seriously. I wonder if any reader has the same problem as myself—with trying to keep up a constant supply of live food for the peacock sun eye bass? Have they ever managed to train this fish to eat other than live food? I have five large sun bass fish, of about four years old, and to date have been quite unsuccessful with feeding anything but live food, they look brilliant under Gro-Lux lighting, amongst the bright green plants, and surely they are the cleanest and most trouble-free fish in the world. My father photographed some moors with a very expensive camera but the result (as with all our efforts) was—oh dear! It's obviously a job for an expert!" (I can confirm that good fish and aquarium photographs are not easy

to take!)

I have just received a second letter from Mr. G. Jay, who lives at 19 Robinson Road, Mapperley, Notts., NG3 6BA. In the April edition Mr. Jay made some comments on plastic tanks, and these brought a reply from Mr. A. Forrester, of North West Plastics Ltd., in the June edition. The beginning of Mr. Jay's second letter is also about plastic tanks, and he writes: "I should like to assure Mr. A. Forrester, who wrote in reply to my letter in W.Y.O.?, that I now have no doubt about plastic tanks. But I recently bought a new one . . . and I have one conclusion to make. 'The

dangerous oils' the dealer told me about are present in *new* plastic tanks only. Before use I would always wash the tank out very well. You can see the oils in the water as a rainbow effect, but after washing through for a while the oils are washed away and the tank is quite safe for fish. My mistake was to not wash the new tank thoroughly enough." Mr. Jay goes on to say that for tank backgrounds he has used aluminium foil, crumpled foil spray painted, and commercial backgrounds of grass and rock; but the best in his opinion is plain black or blue, or *algae* on the sides. At his local pet shop, V.A.T. seems to have been added on to everything, which results in things being very much more expensive, he says; but he has found that other pet shops are much fairer and have not seemed to add on V.A.T. to "all of the things." Mr. Jay says that he does not use airstones as they tend to 'stir' up the tank, sending pieces of plants, etc. floating about however, he says that he uses undergravel filters as these give good water circulation.

Mr. M. Gill is 16 years old, and lives at 4 Fitzgilbert Road, Colchester, Essex. "I would like to thank you for your 'product reviews' which I think give fair judgement to all products. In this feature, when you review Rena pumps, you are always praising them. I



consider your comments on the Rena Super quite justified as I also consider this a marvellous pump and would recommend it to anyone who wishes to run several tanks from one pump." Master Gill continues—by replying to my question about people's experiences of 'aquatic' or 'bog' type plants growing above water level. He has had such experience with giant *Hygrophila*. When he bought his plant it was quite large, but its top did not quite reach the water surface. After a week or two, Master Gill removed the canopy from the tank to feed his fishes as usual, and he noticed that the giant *Hygrophila* had grown out of the water; and after reaching the evaporation cover it had bent over and was beginning to grow downwards. Eventually he nipped the top out and planted it in the same tank; it grew "rather well." He has tried growing floating water lettuce, but he has never had any success with it. He would be interested to hear of other readers' experiences with it. (Anyone care to send me details please?) One floating plant that he can recommend is Indian fern; he finds it quite attractive, and the roots "ideal for fry to hide in." He has something to say also in answer to my query about green foods for fishes. He occasionally gives his fishes a few cooked peas to feed on, because he feeds his fishes on a lot of live foods *Daphnia* and white worms—and considers that the

*Hypostomus* and sucking loaches. His other fishes occasionally eat the peas. In reply to another of my queries—about how easy one finds platies can be bred—he states that he finds them to be "one of the easiest of tropical fishes to breed." He has not had much experience with breeding guppies, but from the experience which has had, he concludes that he did not have any difficulty. He finds white-cloud-mountain-minnows also easy to breed—possibly because, as he states, "they neither eat the eggs nor fry"; however, he finds that feeding the fry is not as easy as with young livebearers.

I'll break off here to say that I'm typing this particular section of the feature on 14th July, and I've just remembered that this is the first day of *The Aquarist and Pondkeeper* Fishkeeping Exhibition at Alexandra Palace. This is one event that I've hoped for years to be able to attend—but I have never managed to make it because I lived in N. Ireland. This year, yet again, my university studies and lack of cash prevented me from being present. I always look forward to reading Mr. A. Boarder's informative accounts of the annual show—but I would be interested to hear what those readers who have been able to be present think about it. If you have been lucky enough to have been present, drop me a few lines giving your opinion



vegetable part of fishes' diet is just as important as the other 'areas'. Another reason for his so doing is that if his fishes are getting enough vegetable matter in their diet, they will not, he says, attempt to eat the plants—as his fishes have done in the past.

Master Gill breaks the 'husks' from about four peas, thus allowing the fishes to get at the insides of the peas; the insides are dropped into the tank and allowed to settle on the bottom from where they are eaten by the fishes. Species which enjoy peas include he states, his ruby and lemon fin barb, swordtails,

of the show, and of what for you were its highlights. I'll use the most interesting letters in a future feature.

On now to a letter from 13 years old Master Brian Wressell, of The Hawthorns, Trunk Road, Althorpe, Nr. Scunthorpe, Lincs., DN17 3HP. The plants that Brian can grow best, in his hard, alkaline water, are *Cryptocoryne*, and the tank is populated by cichlids and cats. The 'boss' is a young Oscar—which takes charge of the Tetramin tablets fed to the cats. The fish's mouth is just big enough to swallow a whole tablet safely. The 12 gallon tank that it's in is too



small, so Brian has bred about 200 guppies, mollies and swords to pay for a 48in. x 15 in. x 15 in. tank—in which he hopes to keep a cichlid and cat "community." He would be pleased to hear from readers who can supply information on keeping and breeding cichlids and cats. (You would need to buy some books to cover those topics, Brian!) He goes on to say that he lost all his swords owing to over-feeding by his "mum at dinner times." Master Wressell's favourite filter is the Algarde because, he says, "they're the only filters that stay below the gravel and have such large air-lifts." He says that his friend's undergravel filter rose up through the gravel and spoilt a well set up tank. Brian goes on to ask if a tank for cichlids and cats should contain plants. (I would say yes—if the cichlids allow the plants to grow!) Brian's comment about wanting more advertisements enables me to ask where all those lovely big full or double page spread advertisements, listing lots of different sundries and prices, have gone. Are they out of fashion now? I found them both interesting and useful. If I needed a couple of smallish items, and couldn't get near a dealer's shop, I just had to glance through an advertisement page list, send my order and postal orders off in the post, and receive my items in a couple of days' time. Come on advertisers; what about a few of those list type ads. instead of your witty cartoons? Would any reader care to support my request? If so drop me a few lines for inclusion in a future edition).

I'd be pleased to hear of your observations on the courtship of Gouramies. Photograph 2 shows a pair of my opaline gouramies displaying "togetherness" as they devour a compressed tablet of freeze-dried shrimp.

I recently asked for information about specialist groups or associations. My request brought a copy of *Marinees*, the journal of the British Marine Aquarists Association—together with a letter from Mr. G. Robertson, who edits the journal. Mr. Robertson's address is 88 Cornhill Road, Aberdeen, Scotland, AB2 5DH, and he is to be congratulated for turning out such an interesting newsletter. In his letter, Mr. Robertson says that he has been an avid reader of W.Y.O. since he started getting *The Aquarist*—which was at the same time that I came up with the idea for W.Y.O. (At the time I thought that the idea might be of interest for a few months; little did I know that I had sentenced myself to years of hard work!) Regarding *Marinees*, Mr. Robertson writes: "We publish it monthly on the 14th and it is sent out to members of the B.M.A.A. The subscription is only £1.50 so I think that you will agree that it is good value for money. All our articles, contributed by members, are original, and not taken from books or other magazines. The subjects covered are various—from expensive angelfish to native invertebrates. Each month we have one illustration or more, if the space permits, but this rarely occurs. I have quite a

good stock of articles contributed by members and seldom have to look around for material to fill the news letter. You will also notice that there is a discussion page, which is run along similar lines to your own feature, and this allows ample member participation." Mr. Robertson goes on to say that he would appreciate my comments as to how his newsletter compares with others I have seen, and he would like any suggestions as to how it might be improved. He says that some members would like to see advertisements in *Marinees*; and photographs; but he says that the problem with the latter is in getting black and white photographs of a high enough quality as most people seem to concentrate solely on colour transparencies. (I consider that your newsletter compares very favourably with many others which I have seen; however, I would suggest that you keep Editorial (i.e. written) material off the cover. The newsletter's title, date, etc., would be enough, I think—unless you considered printing some sort of association emblem, or a single fish photograph on the cover. I would retain the idea of having a duplicated magazine, and omit advertising; thus you can remain totally independent. How about making use of an electronically cut stencil of a particular fish in each edition? Such stencils don't cost too much—and I'm sure that you could obtain good enough photographic prints from any of us whose photographs regularly appear in *The Aquarist*. However these are only suggestions; your newsletter is very creditable as it now is, and no doubt serves its purpose very well!) Mr. Robertson ends his letter with a nasty story that reminds me of the serious injury which I sustained to my left hand, several years ago, when I was attempting to reglaze an old fish tank. He writes: "While reglazing a small tank with thin glass the glass shattered and one small piece went into my hand, only missing the main artery by a  $\frac{1}{2}$  in. Unlike yourself, I was lucky; but it could easily have been quite serious. I hope that any aquarists glazing tanks will take care as the thinner sheets can so easily break if too much pressure is applied to them. Any glass, however, should be treated with respect. (I would most certainly agree, Mr Robertson, having a reminder which will remain with me for the rest of my life. Even to remove the glass cover from one of my tanks still makes me shiver. I would recommend the wearing of heavy leather gauntlets—such as those which can be purchased at some gardening shops—to those who intend glazing or reglazing tanks; otherwise have the job done by a professional. You might save some money by doing it yourself—but no money on earth would pay for a permanently damaged hand and nerve! I know from bitter experience!!!—and the only digit of my left hand with which I can type is the small finger, it being the only one not being severed by the median nerve, and the only one which did not suffer a severed tendon!)."



The next letter is from Mrs. N. Saxby, who lives at 19a Bennett Park, Blackheath, London, S.E.3, and it's pleasant to receive the opinions of a lady reader. Mrs. Saxby begins by saying: "Could the reason why most people omit the 'and Pondkeeper' bit from the title of *The Aquarist and Pondkeeper* be because the pages of the magazine only have *The Aquarist* printed at the bottom?" (I use the abbreviation because each time I use it I save space which would have been taken up by the two words. As the magazine was founded almost fifty years ago, I think that its fame allows the abbreviation to be used without any chance of confusion. As a matter of interest, do readers know of any 'older' aquarium magazines which are still being published?) Mrs. Saxby has had a mixed tank, which has contained platies since Sept. '72, and despite frequent matings the platies have not produced any young. (Might there have been babies—which could have been eaten by larger fishes?) However, her guppies have produced broods every 5-6 weeks since purchased in Jan. '73. Mrs. Saxby purchased a single plant of water wisteria in Aug. '72, and each time it grew more than 3 in. above water level—almost touching the hinged cover—it was cut back 4-5 ins. and the cuttings planted. She now has five plants in the tank and has given away about six (I recently cleared several of my small tanks of excess wisteria, and was able to give away several dozens of plants/cuttings. The relatively soft water in my area seems to suit this plant admirably as it grows like a weed—but then it is a weed in its native lands!) Our lady contributor comes up with what, to me, is a new tip. She finds that her goldfish like young seedlings of cress as an occasional green food! She found this out when a visiting child added some to her goldfish tank; and now she grows cress on moist cotton wool, in saucers, and feeds it to her fish a little per week. (I must give it a try!) Mrs. Saxby finds that *Aponogeton crispus* seems to grow best in her cold water tank—although the books that she has all list the species as a plant for tropical tanks. She finds the same with wisteria. (I must try some of my excess wisteria in the goldfish tank in school; no plants seem to have survived in it so far.)

She goes on to say that she only started keeping fish in May '72 when she won a small ( $\frac{3}{4}$  in.) goldfish at a local fair. The fish is now 3 in. long, despite an early attack of fungus. She bought another 'common' goldfish, to go with the one she won, together with a calico fantail. Both of the newer fish were  $\frac{3}{4}$  in. long when bought, and were kept in a 12 in. x 8 in. x 8 in. plastic tank which contained an inside filter complete with charcoal and filter wool. In Aug. '72 she bought a 30 in. x 15 in. x 12 in. glass tank, and fitted an external Hykro filter complete with air stone. This tank was planted with *spiralis* and *torta*, *Aponogeton*, wisteria and Amazon swords, A  $1\frac{1}{2}$  in. shubunkin, two  $\frac{3}{4}$  in. bitterlings and two 3 in. weather loaches were

added. The original 'won' fish is now almost  $3\frac{1}{2}$  in. long, the other common goldfish and the shubunkin are both  $4\frac{1}{2}$  ins. long, the fantail is 2 $\frac{1}{2}$  in. "in all directions," and the loaches  $4\frac{1}{2}$  in. long. Mrs. Saxby has further added a small "pearl scale," two platies and three female and two male guppies—some being survivors of her own breeding. The tank is fitted with a 22 in. Gro-Lux tube, and it's kept lit for about ten hours per day; the filter operates 24 hrs. per day. A 'vacuum cleaner' is used in the tank daily to remove solid waste. The fish are fed on Tetraamin flakes. Aquatabs, Pond Pride, shrimp tablets and dried Tubifex; live foods provided include Daphnia once per week, gnat larvae (when available from Mrs. Saxby's water butt), and young guppies; cress is also supplied; and Aquavite tablets are added to the tank. Mrs. Saxby ends her letter by saying that she suspects that she's "over crowded," but hopes to be able to afford another tank soon.

I recently asked about fish auctions, and Mr. M. White, of 95 Midland Road, Royston, Nr. Barnsley, Yorkshire S71 4QJ, sends his own personal opinions and findings. He begins his letter by saying now that V.A.T. applies so much to our hobby, one can make great savings at fish auctions. He attended one at Stockbridge, where it was held in a public house. He considers that the venue was not big enough to house the auction; and he reckons that there were about eighty people in attendance. This was the third fish auction that Mr. White attended. At a previous auction he arrived early and had time to look at the fishes to be sold—and also at those who were the sellers. At that particular auction the bidding was slow on one occasion, and the seller put in a bid himself—thus making other bidders raise their bids. As late comers did not know that this bidder was also the seller, they continued making bids, however, Mr. White does not consider that this was 'wrong' as the fish would probably have sold at "half the shop price" and he says that it must be remembered that, as likely as not, the seller may have bought the fish from a shop himself. Mr. White goes on to say that at fish auctions there is no fixed price to start off with, although some fishes may have a reserved price. This is not mentioned unless the item does not reach or surpass the reserved price. If the seller is amongst the bidders, he may decide whether or not to withdraw his fish. Mr. White says that on some occasions, judging by the number and variety of fishes bought by one person, one gets the impression that he may be a dealer getting rid of some old stock—and replacing it at less than half price, to sell again at full price. At the first mentioned auction, Mr. White bought a male firemouth for 50p; next day he bought a female in Wakefield for 70 p. The male fish had a reserve price of 25p, but Mr. White knew of this when he saw the fish during the interval when raffle tickets were being sold. (Mr. Whites' infor-



mation and opinions make interesting reading. Would readers let me know if the prices of fishes and plants have been affected by V.A.T., please? I haven't bought any of either this year, and am quite out of contact with current prices.)

Mr. T. Isaac's address is 62 Charles Rowan House, Wilmington Square, London, WC1X 0EJ, and his rather long letter (six pages) covers a variety of topics. He writes: "Living in London, water hardness has always been one of my major concerns. Fishes that have evolved for hundreds of years in soft, acidic water cannot thrive and produce brilliantly contrasting colours when put into the waters of London—conditions which are completely alien. Having found buying purified water in the chemist's at 29p per gal., rather expensive, I now soften it with resin, in a separate tank, to about 5° hardness. Both fishes and plant thrive. I am about to invest in an Elgastat 500 water deionizer kit. Mr. D. K. Brown wrote an interesting article, on deionized water in the aquarium, in the March '71 *Aquarist*. Still on the subject of water hardness, a strange thing happened recently when I decided to give my 36 in. tank a clean. I siphoned off some water into a spare 24 in. tank and put the fish in it. The following evening, before going to bed, I changed two gallons of the water in the spare tank. The water was not softened, as was the original water, and had been kept in my airing cupboard for a few days. When I came home from work the following day, there was a ½ in. layer of 'white powder' on the tank bottom, the water was cloudy, and the outside filter had stopped working because it was blocked up with this 'white powder.' Was it lime, or what? My local fish dealer uses unsoftened water—20° hardness—and never gets any lime problems. Any idea what happened, please?" (It would be difficult to say Mr. Isaac, without having seen and tested the white substance. It sounds as if some calcium salt or other had been precipitated in the water. Do readers have any suggestions, please?) Mr. Isaac continues: "I'm always interested in reading other people's opinions on air pumps; there are so many available. I have a Glory G6 pump; it's a bit noisy, so I keep it in the kitchen. It provides sufficient air to run the undergravel filters in my two 24 in. tanks, and two filters in my 36 in. tank. As for undergravel filters, I fitted the plate type—similar to the Algarde as advertised in your magazine." (I would point out that Mr. Isaac says his filters were "similar to the Algarde"; he does *not* say they were Algarde undergravel filters. To the best of my knowledge, all letters that I received mentioning the Algarde filters contained nothing but praise for them). Mr. Isaac continues: "After some time I noticed a build up of sediment under the filter plate. This sediment must obviously get drawn up the airlift tube and could possibly introduce disease to the fishes; so I now use the Windmill make undergravel filter, with a booster airlift.

It's just a series of tubes with small holes, and works very well.

"Mr. W. Blount's letter (March '73 edition) about 'rams' interested me greatly. I have several 'rams' in my community tank, and find them 'easy' fish; but I suffered, as did Mr. Blount, when the eggs were attacked by fungus. I left the eggs in the tank and covered them for protection. Water was still able to circulate round the eggs; but, alas, the fungus returned. I intend to put the 'rams' in their own tank for breeding in future. When I started keeping discus, I found that the type of plant one could grow was limited because of the water temperature. I keep mine around 80°F." (Try wisteria, large and dwarf Amazon swords, Indian fern, Ambulia and duckweed.) Back to Mr. Isaac: "At first I planted the tank with *Vallisneria* to give a more natural surrounding, but the plants died because of the high temperature. So now I use Amazon swords, Borneo swords, *Cryptocoryne*, Seriplex and—what I think is an unusual plant—one which I'm told is called the spade plant. It's a bright green and grows quickly—with its leaves spreading out each side of the tall, straight stem. I find it grows well in my discus tank, and provides that 'natural' surrounding. What I found strange was that you can pull off a leaf, stick the stem of the leaf into the gravel, and in a few weeks you have another plant growing. Since plants are expensive, I find this most useful; it's a most pleasing looking plant, especially when it's grown to the surface of the water." (If I recall correctly, *in theory* most plants should be able to be propagated from a single leaf cutting.)

On the subject of aquarium lighting Mr. Isaac has the following to say: "Over my 36 in. tank I have a 24 in. Gro-Lux tube fitted near the front of the hood. This brings out the colours well, and the plants tend to 'bend' towards the front of the tank. Two 15 watt pygmy bulbs are fitted at the back of the hood. When they are on at the same time as the Gro-Lux, the effect is quite pleasing. The tank is bright, and colours show well. In the evening I switch off the Gro-Lux and leave on the pygmy bulbs. This produces an 'evening' or 'sunset' effect, and has a yellow-green hue. My two 24 in. discus tanks are fitted with an 18 in. Gro-Lux tube and one 15 watt pygmy bulb, the latter being in a corner. The single pygmy bulb on its own has a marvellous effect in a dark room. Try it! Long shadows are cast by rocks, and by plants with broad leaves. Finally, I'd like to know how other people deal with *algae*. My 36 in. community tank suffers very little; but my two 24 in. discus tanks have a lot of *algae*. At first I used Shirley's No. 4, but the *algae* came back. At the moment I'm using Vetopet *Algae* Tabs—recommended by my local dealer. So far I've not had much trouble."

Continued on page 229



## THE HARDY EUROPEAN REPTILES AND AMPHIBIANS IN CAPTIVITY (Part 16)

by Andrew Allen

### 35. The Common Lizard (*Lacerta vivipara*).

*Description.*—This species grows to a maximum length of 18cms. The tail never reaches double the length of head and body, and is fairly short by lacertid standards. The head is short, blunt and flattened, whilst the body is rather slender. Coloration varies enormously. The back may be brown, grey, brick-red or even green. There is usually a vertebral stripe, and dark lateral bands. The sides are often darker than the back. The belly is red or orange spotted with black in males, and a more subdued and uniform yellow or grey in females. Melanism is a very frequent occurrence.

*Distribution.*—The Common lizard is a very hardy and adaptable creature, with a wide distribution throughout Northern and Central Europe, including Britain and Ireland. It also extends through much of temperate Asia right across to Sakhalin island, which lies off the coast of Russia near to Japan. Northwards it reaches the Arctic circle, and in all these regions it is to be found in a vast range of lowland and montane habitats. Southwards its distribution is more limited, and in warmer climes it is largely restricted to montane localities, notably the Pyrennees, the Alps (to the very snow-line), the Northern Balkan uplands (Bulgaria and Macedonia), Altai mountains and Caucasus. In all these areas it may be found at altitudes exceeding three thousand metres. Elsewhere it frequents woods, meadows, banks, verges, walls and sand dunes, tolerating both arid and damp conditions. All in all it is one of the most successful of living Reptiles.

*Breeding Habits.*—As its name implies this species brings forth live young, though it is perhaps more truly ovo-viviparous than viviparous. Mating takes place between February and May. The young are born fully formed in late Summer, though there are isolated reports of egg-laying, notably from the Pyrennees. Usually the baby lizards, up to ten in number, are deposited in a moist, concealed cavity,

still enclosed in their egg membranes. In the course of a few minutes or of several days they free themselves from these by movements of the head, emerging fully equipped to face the dangers of a hostile world.

*Care in Captivity.*—If suitably treated the Common lizard makes an excellent inmate of the vivarium, undemanding in its requirements and fascinating in its habits.

Except for purposes of close scientific study I believe that it is totally unnecessary to house this species indoors. Firstly enough space to accommodate its lively way of life is rarely available. Secondly it has absolutely no need for any supplementary heat or light being fundamentally a very hardy North European species. Thirdly its good health demands a period of hibernation, and allowing for this always causes problems in indoor vivaria. In view of these factors I think that this species is best housed outdoors, where climatic and environmental conditions will be more to its liking. Space indoors is better allocated to semi-hardy or tropical species that will appreciate hot conditions throughout the year.

Outdoors the Common lizard will thrive in almost all forms of accommodation. The extra warmth and protection afforded by a greenhouse are rather superfluous. I have several specimens in a small greenhouse and they live there quite happily, breeding regularly each Summer. However, they do not enjoy the great heat that can sometimes be generated there in high Summer, and tend only to emerge in dull weather, or at dawn and dusk. Perhaps then the ideal way to "house" these animals is just to release a few specimens onto an overgrown, South-facing rockery. If the location is right they will probably stay and mate, and establish a small colony. Alternatively they will do well in a reptiliary, provided that this stands in a sunny position well protected from the wind that lizards so detest. There should be some damp corners, and also a few shady areas where the inhabitants can escape from the hottest rays of the sun. It



will soon become obvious to the vivarium keeper that the Common lizard is the hardiest, most resilient animal in the entire reptiliary. It will probably retire to hibernate the last and emerge the first, whilst more sensitive relations are still buried deep beneath the earth. As long as the micro-habitat in the reptiliary is a reasonable copy of some typical environment in Northern Europe this lizard will not complain, for its tolerance of different conditions is enormously wide.

Feeding this adaptable animal is every bit as easy as accommodating it. A small lizard, it is only capable of dealing with small fare, but will take almost any tasty invertebrate of reasonable size. Mealworms and spiders are firm favourites, but slugs, woodlice, beetles, gentles, earthworms, houseflies, bluebottles and many others will be taken and enjoyed. Common lizards have the heartiest of appetites, and I have never known a specimen go on hunger strike, though unwanted offerings will be completely ignored. It is important to ring the changes, for these intelligent creatures will speedily become bored with a monotonous diet, and their health will deteriorate in consequence. They rapidly become thoroughly tame, and will readily take food from the fingers or allow themselves to be gently handled.

They are completely inoffensive animals that will never molest even their smallest companions, and hence make admirable members of a wide variety of community vivariums. Not only will they happily accompany a good range of fellow Reptiles and Amphibians, but they will tolerate many different habitats as well. However they are rather small, and have few defences apart from their intelligence and agility. As a result they are liable to fall prey to many larger creatures, among which we may number all the snakes, any Pond Tortoises or terrapins, Eyed, Green, Dalmation and Schreiber's lizards, Grass snakes and very large Slow-worms, adult Common toads (especially Southern sub-species like *Bufo b. spinosus*), and Marsh and Edible frogs. Common lizards should not be introduced to any community that contains one or more of these species. Baby *L. vivipara* are only about 40mms in length when first born, and unfortunately are fair game for almost any frog, toad or lizard—including sometimes their own parents. Unless the vivarium is particularly spacious it is kindest to remove the tiny lizards at an early date, and only return them when they are large enough to fend for themselves. This need not be an unduly long period, for the young lizards feed voraciously, grow rapidly, and soon attain maturity. Adult lizards may be housed in company with land tortoises, most Slow-worms, Sand, Wall and Ruin lizards, all European newts and salamanders, Painted frogs, Fire-bellied, Yellow-bellied and Midwife toads, Common, Agile and Moor frogs, and Green, Spade-

foot, Natterjack and most Common toads.

*L. vivipara* is not the most colourful or spectacular of the Reptilia, with its small size and subdued colours. In these respects it cannot hope to compete with the glories of such animals as the Ruin lizard, or the magnificently beautiful Green lizard. This is not where its attraction lies, and those who seek solely a living masterpiece in brilliant tantalizing hues would do well to look elsewhere. Seen in the company of lordlier, more aristocratic lizards it appears rather drab and insignificant. But exteriors aren't everything, and it fascinates instead by its liveliness and relative intelligence. Most individuals soon become confident and tame in the presence of humans, indeed some lose their fear even in the wild. Several times I have induced a completely free lizard to take a worm from my fingers, and on one occasion in France the animal in question even sunned itself on my hand for some minutes. This was certainly exceptional, but nonetheless it illustrates the perkiness of these delightful little creatures.

I hope that I have painted the portrait of these lizards in sufficiently appreciative colours. I have derived many hours of pleasure from watching their antics and studying their lives, and expect to find many more surprises in the future. They are an ideal species for the amateur, causing the barest minimum of trouble, and being almost too easy both to accommodate and feed. It is worth stressing once again that they are emphatically not suited to any indoor vivaria, where their condition will deteriorate and their life span be shortened. But for all the outdoor vivaria they can be recommended without reservation. They are almost certainly the simplest of all the European lizards to cope with, but at the same time will give just as much pleasure as their grander, more demanding cousins.

There are no sub-species.

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#### WHAT AM I?

By Hilary Maynard

My first is in PARTNER but not in MATE,  
My second is in PUNCTUALITY but not in LATE  
My third is in HAYRICK but not in STRAW,  
My fourth is in HAMMER but not in CLAW,  
My fifth is in PRINCIPLE but not in THOUGHT,  
My sixth is in NOTHING but not in NOUGHT,  
My seventh is in EXCITEMENT but not in GLEE,  
My eighth is in HE and also in SHE,  
My ninth is in BLINDNESS but not in SIGHT,  
My tenth is in AIR-TICKET and also in FLIGHT,  
My eleventh is in BODY and also in HEAD,  
My whole's coloured grey, flecked with orange and red.

Answer on page 233



# PROLIFIC POMPADOURS

by D. Rose

ABOUT six months ago my father and I decided to go in for either marines or discus. After months of careful deliberation, we decided to forget about marines for the time being, and set up a tank for discus. There was no definite reason for doing this, but it was concerned with room for a large tank—and the problems if it went wrong. So at last we ordered a 48 in. × 15 in. × 24 in. jewel tank from The House of Fishes, Hemel Hempstead and also purchased a Gretton Purifier and a large "Eheim" filter. After a week's wait, we tested the pH and DH of the water. The pH was about 6.6 and the DH was 2°. We considered this to be perfect, so we went to Hemel Hempstead and bought a pair of fully-grown discus. We did not know then whether they were male or female. They were really beautiful brown discus with very broad heads and wonderful markings. We were pleased to find that they settled down well and were extremely fond of the food that they were receiving, i.e. white worms and scraped raw ox-heart.

Unfortunately, the plants we had in the tank soon died which was very disappointing. We decided not to use plastic plants, but instead plant *Ceratopteris cornuta*, the floating fern. This turned out fine and we soon had them growing up to the surface of the tank, i.e. they were over 18 in. high and could grow another 6 in. before reaching the surface. Although Amazon swords are fairly hardy, they do not seem to flourish in our tank, so they remain stunted. However, the pieces of wood we have in the tank make up for the poorer plants.

After the two discus had firmly settled down, we decided to look for some other discus. We both agreed that five would be the limit in our tank. We found a beautiful red discus at Queensborough Fisheries in Goldhawk Road, and then two other discus at Tachbrook's in Victoria. One was blue and the second was red. They all settled down very well with the exception of the small blue one, which seemed to have been rejected by the others. When it was feeding time, however, this blue discus was the first fish to get

there!

For about four months the fish seemed to be getting on wonderfully and the small blue one had doubled in size, while the others seemed to have grown even more. One day I returned home to find the two brown discus performing a strange dancing ritual in which they darted at each other spasmodically. I was fascinated by this, but paid no great attention to their weird behaviour. Then, about a week later, I was delighted to find that they had spawned on a large Amazon sword leaf and were fanning their eggs with great pride. This kept me amused for ages. The next day I found the eggs gone and all the discus back to normal! After another month, I noticed another spawning, which was also eaten after a day or so. A third spawning took place after another month, and again they ate it.

Nothing further happened until about ten days ago when they spawned again, but by now I took little notice of their fanning and even paid no attention to the way in which the father was carefully protecting the eggs from the other fish. This was on Friday. On Saturday they were still fanning the eggs and going to great lengths to keep the other discus away from their nest. I was not too interested, however, because I had already seen three spawnings. By Sunday many of the eggs had turned white, proving them infertile. But they still persisted in fanning the eggs despite regular attacks by the large red discus. As usual I put out the lights at about 10 p.m. and left them.

On Monday, when I returned home at about five o'clock, I had the thrill of my life. The two discus were ferociously guarding about twenty young newly-hatched discus. I switched off the filter and for about an hour I just watched them care for their babies and protect them from the other discus. After watching them for this length of time, I decided that if the babies were to survive, I must assist the parents and the babies by separating them from the other fish. But how was I to do this? I couldn't catch them for fear of upsetting the parents and knocking the babies around



with the net, so this was definitely out of the question. I eventually decided to partition the tank by placing a large sheet of polythene inside it, and somehow making it taut so that it acted as a good divider instead of using a glass divider.

Firstly, I cut a sheet of polythene, of the type used for refuse bags (i.e. fairly thick) which was about 24 in. wide and 30 in. high. I had to make it this size so that it would overlap both in height and in breadth. Then I carefully placed it in the tank and unravelled it, because it seemed to crumple very easily. After I had straightened it out, I made sure that it was quite taut by holding it down with stones at the bottom and by resting the hood on the polythene which overlapped at the top. This did not prove too successful because the discus seemed able to wriggle their way past the edges. I was about to give up the whole idea, when my brother came home from work. He is not an aquarist, but suggested that the only way I would have an absolutely firm divider, would be by *pressing* suckers to the polythene which should be flat against the glass. This is where the overlap is most important. Any suckers will do as long as they are able to stick to glass quite firmly by just pressing on them. I did not at first think that the suckers would stick to the glass and the polythene bag pushing them against it, but it worked out perfectly well. This held firmly, but I needed about fourteen suckers—about seven on each side from top to bottom. Of course the polythene must be higher than the water level of the tank and must be securely held down at the bottom by heavy stones—i.e. the overlap at the bottom is held down by stones, the overlap at the sides is held to the glass by suckers, and the overlap at the top must be above water level so that no fish can swim over the divider. This only takes a few minutes to erect, and it was really successful as none of the babies could get through it even when they tried.

At first, I made the mistake of using transparent polythene and found that the parents constantly tried to attack the discus watching them on the other side.

So I had to do it all again using black polythene—which proved very successful. One needs a large number of suckers since the greater the number, the tauter the divider. To my knowledge, this method is not mentioned in any books.

Now back to the fry! They clung to the leaf for about three days. Then I decided to remove the other three discus from the tank to give the babies more room—as well as the parents. Taking the divider out was very easy and I am sure that the discus appreciated my doing this. Despite all this upheaval, the parents did not seem at all perturbed and continued to look after their fry with as much vigour as when they had first hatched. The babies are now a week old and growing every day. They are now about a quarter of an inch long. During the time that the babies were clinging to the leaf, we lost about four of them, and now have a total of thirteen big healthy young, out of a total of about seventeen or eighteen fry. Not bad for beginners! I know that about three quarters of the eggs were infertile so I am sure that very few have actually died.

During the first four or five days after the birth, we kept the tank illuminated all night, but not brightly. The filter is off all the time unless the tank gets very dirty, then we only switch it on when the fry and parents are nowhere near the intake.

The parents are now feeding the babies all the time and they have plenty of room and privacy in which to do this. The babies are constantly buzzing around the parents like a swarm of gnats. By the way, the temperature is around 86°F and we change one fifth of the water every fortnight.

The amazing thing is that the parents reared the babies in a tank with three other discus, and all this time they were cared for by my father and myself who have only had experience with the breeding of guppies.

They have spawned once again and are furiously fanning the eggs while their remaining offspring are pecking away at the parents.

Prolific pompadours—certainly!

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## What is Your Opinion?

*continued from page 225*

Well, once again all the page space has been used up long before the letters. There are quite a few queries posed in the text this month, so I'll only add a few here at the end. For a future edition please send me your opinions on any of the preceding, or following, subjects: (a) Have you had any experience of undergravel heating? If so, I would like to know of its effects on plant growth. (b) Does good water circulation in an aquarium encourage or retard plant growth? (c) Are freeze-dried foods as good as fresh live foods for fishes? (d) What have been your experiences with the climbing

perch? Please keep your letters fairly brief; PRINT your name and address; send letters to me c/o *The Aquarist*; and date your letter. If your including letters to any of the magazine's other writers, in the same envelope, PLEASE print the person's name at the top of his letter. This should prevent such letters ending up in the wrong place.

I hope you've had an enjoyable summer holiday, and that your stock has all survived during your absence. Best wishes until next month.



# From a Naturalist's Notebook

by Eric Hardy

*Vallisneria spiralis*, the well-known American oxygenating plant has been established as a wild plant introduced by aquarists into several canals and waterways in England from South Lancashire and South West Yorkshire to Worcestershire, Essex and the Berkeley canal in Western Gloucestershire. Usually regarded as a warm water plant, with some movement in the water, such as where cooling water flows in from mills and factories, this condition is not essential except for flowering and probably arose from its main haunts in industrial South-East Lancashire.

Contrary to this conception of it as a warm water plant, *Vallisneria spiralis* has increased considerably in the unheated River Lea Navigation Canal since it was first discovered at Wornley, in Herts. in 1961. There is no flow of water there, but it has also been found growing in stagnant water elsewhere. It now covers 5½ miles of the Lea Canal from Essex into Herts. and Middlesex, being most abundant around its original site at Cheshunt Lock, as well as from Aqueduct Lock to Waltham Locks. From Waltham Abbey to near the King George V reservoir it is more scattered.

This *Vallisneria* is widely distributed throughout the warmer parts of the world and is probably native as far north in Europe as central France. In U.S.A., where it is confusingly called wild celery and has the synonym *V. americana*, aquarists prefer to use plants grown in an aquarium and thus acclimatised to tank life, than wild specimens. *Vallisneria's* long, narrow leaves, divided into equal stripes of two shades of green, sometimes earn it the names of eel-grass and tape-grass. It is ideal as a screen and refuge for livebearers in a community tank; otherwise its size and rapidity of growth make it more suited to the rear of the tank, to avoid blocking the view. Planted with its root-crown just above the sand or other media, it usually thrives by runners in moderate light, and may even take over the tank if not thinned out at times.

The recently published paperback edition of Frost and Brown's New Naturalist monograph on *The Trout* (Fontana, 60p) which I had for review, hasn't corrected some of the omissions on its original distribution maps. That of the distribution of coarse fish, for example, still leaves the Isle of Man blank, denoting "coarse fish probably absent" whereas perch were noted in flooded limestone quarries there so long ago as the

end of the 19th century, and still survive as they do in some of the northern dubs or ponds. There is a law against introducing coarse fish into the island. There are also eels and sticklebacks.

Anglesey is likewise shown blank; but since at least early this century there have been perch, roach and other coarse fish in Llyn Coron (Bodorgan Lake), perch in Rhosneigr's Maelog lake and Valley's Llyn Penrhyn, as well as coarse fish in Ceryg Traffwl, Holyhead's water supply. Though most of north and west Wales are likewise mapped to lack coarse fish, roach and eels inhabit the Wheeler, a tributary of the Clwyd, near Ruthin. Shallow, peaty, wooded Llyn Helyg in Flintshire has big tench to 7 lb. and pike to 7 lb., as well as roach and perch, but no eels.

In South Wales there are pike in the Towy at Carmarthen and Orierton decoy-lake in Pembrokeshire (both mapped without coarse fish). Coarse fish inhabit some of the lakes near Dolgellau in west Wales and perch are in Arenig Mawr also in Merioneth.

This is very much a textbook, with a lot of general biology often leading to a surprising number of hypothetical explanations with the remarks that further work is required to be definite. It is, of course, a summary of very many people's researches and experiments with trout in various countries, and cheap at the new price.

Two further recent books to interest the aquarist are Kwang W. Jeon's 648 page *Biology of Amoeba* (Academic Press £17) and Allison L. Burnett's *Biology of Hydra* in preparation for the same series this year. Both works are a collection of papers by a score of experts. Hydra, the freshwater polyp of school biology, has an importance in neurophysiology and the study of development behaviour and may be the key to unsolved problems in chemistry and physics.

Amazonian swamps are a happy hunting ground for naturalists in search of new species of tree-frogs. W. E. Duellman recently described *Hyla cruentomma* from Amazonian Ecuador, and Fouquette and Pyburn a new species of the *H. rubra* complex from Colombia. Another good place would be Surinam, in Guiana, where 30 species of *Hylidae* and *Centrolenidae* tree-frogs exist. Meanwhile, in U.S.A., teachers and researchers are using up 360 tons of commoner frogs



a year in their labs.

Leeches have an unpleasant attachment for humans in such places. Yet they are resisted by several aquatic creatures, newts and salamanders for example. In the U.S.A., Pough has found a leech-repelling property in the skin of the eastern red-spotted newt, *Notophthalmus viridescens*, which is a salamander immune to leech parasitism in its aquatic stages and, he has shown, afterwards if the animal returned to water. Tetrodotoxin is not the repellent, he reports.

Cannibalism makes it necessary to be careful about keeping certain reptiles and fish together. A Canadian enthusiast found his young prairie rattlesnake swallowed a cage-mate of similar size, tail-first. It is one of the relatively few poisonous snakes in North America. Timber rattlesnakes and western diamond-

back are two relatives. Unlike cottonmouths, rattlesnakes prefer to live on land. Of only 3 poisonous snakes in subtropical Florida, two are rattlesnakes—diamondback and canebrake. The "rattle" was evolved from the single scale covering the tip of the tail into 3 hollow bulbs, gradually diminishing in size and opening one into the next. Rings are added annually and old snakes have several.

Rattlesnakes of course are New World reptiles, their deep pit between nostril and eye showing their link with less venomous Asiatic pit-vipers, whose small, horny spine at the tail-tip is their vestige of the rattle, remindful of the young rattlesnake's "button." Owing to their variability, the shields on the forehead are better field-clues to identification than their colour.

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## OUR READERS WRITE continued from page 219

hatched out. The name like "Baedekers" lingers in my mind.

Now, Mr. Editor, it occurs to me that these would be a marvellous "bait" to catch a potential aquarist. No trouble about electric heaters, etc.; and once hooked on a fish tank and "Aquamania" infection has got its victim!

Of course, it may only have been a dream, but I believe these little blighters about 1½ in. long would go down to 56°F without showing discomfort. Is all this my imagination, Sir? You see, I'm going back about 40 years.

Permit me another memory, not a dream. I got a glass firm to turn me out some 12 in. fish bowls, and a man with a lathe turned some plinths about 8 in. diameter and tapering to a top which would just take the bottom of the bowl. The height of the plinth was enough to allow the centre to be hollowed out deep enough to take a 15 watt miniature bulb well away from the glass. Just sufficient gravel was put in the bottom to take some plants. This would take about half a dozen small tropicals, and in the house the temperature kept in the seventies. Several people I supplied kept them for years standing on an asbestos mat with a 4 in. plain glass mat on top.

Using large glass beads instead of gravel, a multi-colour glow can be achieved.

The general idea worked alright, gave much pleasure, and the fish thrived.

V. V. PEDLAR,  
Uplands,  
Parbold,  
Lancs.

**Freshwater First? Tell the Marines**  
Mr. K. Ballard's "Third Commandment" for

beginners (W.I.Y.O.) finally forces me to express my annoyance at all the experts who think no one is capable of keeping a successful marine aquaria without previous freshwater experience.

Last year I was looking for a demanding hobby, to help combat the ulcer risk in middle age, when I picked up a copy of "Tropical Marine Aquaria (Cox)" and decided this was the hobby I needed. Till then, fish to me was something cooked in batter and eaten with chips.

For three months I read and studied everything I could find on marine aquaria technology and seawater chemistry—everyone thought I was mad, attempting marines without an apprenticeship with freshwater fish; so I sought the advice of Mr. A. Dale (Overseer at Skegness Natureland Marine Aquarium) who encouraged me to carry on and I am now successfully keeping 23 marines (damsels, surgeons, clowns, triggers, wrasses, puffers, etc.) in three tanks (25, 40 and 60 galls.) and a fourth (40 galls.) on its way for butterfly fish.

My advice to anyone wishing to start a marine tank is:—

1. Read and inwardly digest Graham Cox's "The New SeAquarium Systems";
2. Start with a tank of no less than 30 galls.;
3. Be patient and wait for the undergravel filter to really mature before buying any expensive fish;
4. Join the B.M.A.A.;
5. Don't worry too much if you have not had two years' experience with a tank full of guppies, it's not really necessary.

DON WHITE,  
20 Commercial Road,  
Alford,  
Lincs.



# MARINE QUERIES

by Graham F. Cox

## A QUERY FROM ONE OF OUR CANADIAN READERS

I have a Regal Tang in my 100 gallon sea aquarium which seems to scratch continually against corals, and then quits for a few days. Several days later it will start again. I have never been able to find any spots on this fish, although periodically he develops a whitish blotch on his flank which clears quite easily when the synthetic seawater is ozonised. However the blotch disease never coincides with the scratching.

Also I have recently bought Emperor Angel (*Pomacanthus imperator*) which scratches continually and sits near the surface of the water.

I have quite a few fishes in this tank and have set up a car battery to an auxiliary airpump so that, should the electricity fail, I can keep the water aerated. A friend of mine suggests I'd be better off using it to run a heater. What do you think?

The parasites which are afflicting both fishes are almost certainly monogenetic trematodes (possibly of *Dactylogyrus* spp. or related spp.) and/or the parasitic types of copepods (tiny marine crustaceans). For the first time in the history of the world aquatic hobby there is now a preparation on the market which destroys both parasitic flukes and parasitic copepods. I have advised you of the name of this preparation under separate cover. However before using this preparation I must inform you of the following facts:

The LD50 value of this new drug is of such an order that there is neither need of (nor leeway for) overdosing. You must calculate your tank gallonage very carefully, and then cross-check your calculation before adding the necessary number of drops. The slight yellow-green discoloration of the seawater produced by the drug will disappear within 24 hours.

**PLEASE NOTE: ALL CHARCOAL FILTRATION MUST BE SWITCHED OFF FOR 48 HOURS AFTER THE SEAWATER HAS BEEN MEDICATED WITH THIS NEW PREPARATION.**

The drug is lethal to monogenetic flukes of both gill and skin-infecting species within 24 hours, and to the larval forms of marine copepods within 48 hours. It should be noted here that the preparation which I have recommended that you use is only effective against the

larval stage of parasitic marine copepods. Neither copepod eggs nor the mature adults are killed by the preparation (although the latter are greatly weakened and subsequently fail to breed). Consequently, it is often necessary to medicate the whole marine biosystem every third day for two weeks or so in order to totally eradicate a large population of copepods.

You will notice by the second treatment however that the scratching has ceased, indicating that those flukes and copepod larvae which were actually causing the dermal irritation have been eradicated.

It is perhaps worth mentioning here that apart from buying a fish which is already parasitised by flukes or copepods, these pathogens can be introduced into marine aquaria by the following routes:—

- (A) By feeding prawn-meat, mollusc-flesh, frozen Mysis shrimps, frozen plankton and unsterilised living mussels to your fishes and invertebrates. Freezing marine-derived foods appears to kill the adults and larval forms of parasites but not the eggs. Canned marine shrimps (e.g. Krill) are steam-cooked and therefore sterile, as "freeze-dried" marine foods probably are. Incidentally, if you can obtain living mussels or clams these most excellent live foods are easily sterilised by keeping them alive in chilled seawater and exposing them to a four times normal dosage of the medication I have recommended to you for four days. This high dosage level doesn't harm the mussels one iota, (in fact this medication at normal dosage is quite safe in any collection of marine invertebrates *except one containing Crustaceans*), but renders them absolutely sterile prior to being fed to your marine animals. Even the really difficult coralfishes such as *C. trifasciatus* and *E. nevarchus* (Majestic Angelfish) eat live mussel-flesh greedily.
- (B) The eggs of the parasites can be introduced into your aquarium by being wind-blown. This is not a very likely possibility unless you live close to the ocean.
- (C) The eggs, larvae or adult forms of the parasites can be introduced into your aquarium in the water in which new fishes, invertebrates or marine plants are bought. Again this is not a very common occurrence with dealers who

regularly use the new medication in their own tanks and thoroughly quarantine new stock prior to sale.

- (D) People who collect rocks, algae, invertebrates and fishes from local shore lines and add them to a collection of tropical marine life without first quarantining their "finds" run the continual risk of introducing these parasites.

At this stage, it should also be mentioned that many of these dangerous parasites appear to be only semi- or partially-parasitic. By this I mean that, in the absence of a fish host, they are able to live, grow and rapidly breed in the presence of "sea-humus". This is the word I use to describe the greyish-brown accumulation of bacteriologically-indigestible organic matter which slowly builds up in any undergravel-filter which is not regularly scoured by "back-washing." This is especially true of the tank of the marine aquarist who is not too tidy and hygienic in his fish-feeding habits. Such an aquarist's filter-gravel, in addition to a massive amount of nutritious "sea-humus," usually contains at any given time a significant amount of half-rotten flake food, prawn eggs, shrimp-meat, etc. etc.—a wonderful "happy hunting ground" for flukes and copepods.

With regard to the "white patch disease" which you mention, I strongly suspect that this is a bacterial infection, (*Pseudomonas* spp. and/or *Aeromonas* spp.) which has arisen on the site of the fluke/copepod infestation. The puncture marks made by the *opisthaptor* (attachment organ) of the parasites allow the ingress of pathogenic bacteria. This causes the superficial rotting of the surrounding dermal tissue and your "white patch disease" (in Gt. Britain this phenomenon is equally erroneously known as fungus disease). Ozonisation of the sea water with a wooden

diffuser is the most convenient medication, although a cheaper (and equally efficacious) alternative is to brush a bacteriacidal solution formulated for saltwater use onto the wound area. Again I have advised you of the name of this preparation under separate cover.

Finally on this topic, the reason for your Emperor Angelfish's tendency to hang at the surface is either because the swim-bladder is damaged, or because of serious infestation of the gill tissues—or both. However, owing to the nature of the Regal Tang's condition I would suspect *anoxia* (oxygen deficiency) as the fish's problem caused by the multiple lacerations of the gill tissue effected by the parasites discussed above. Unless you swiftly cure both these conditions and, equally important, their underlying causes, these fishes will become increasingly debilitated by the parasites, which soon leads to a further parasitisation and so on until the condition becomes terminal.

Now, the question of whether during a power cut to use your car battery to operate an air-pump, thus guaranteeing aeration and U.G. filtration, or a heater/thermostat assembly thus maintaining the water temperature. I am going to assume that, like most homes in North America, yours is centrally-heated. This being so, your room temperature will certainly be above 20°C. most of the time, and consequently the seawater's temperature whilst falling below the level to which the fishes are normally accustomed would probably not fall to a *dangerously* low level for many hours. On the other hand, the oxygen tension of the water, on which both fishes and invertebrates and the all-important nitrifying bacteria depend, would very swiftly fall to danger level within a short space of time. *You therefore have no alternative but to utilise the auxiliary supply to drive your air pump.*



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### ANSWER TO WHAT AM I? PIKE CICHLID



# A WHALE OF A TIME

by *Daphnia Duckpuddle* (B.K.K.S. Member)

I HAVE been interested in coldwater fishkeeping for more than 30 years, so that to make a garden pool was one of the first things we did when we moved to our present address. My husband was equally interested and, in addition, he was a dab-hand at cement-mixing; in fact, it amounted almost to a "mud-pie" complex, so naturally, he made a concrete pool. Although small, this was a most attractive feature of the garden, and the goldfish, shubunkins, orfe and tench lived an idyllic life and reproduced at regular intervals.

After many years and feeling our age somewhat, coupled with the fact that my husband used to make frequent, lengthy trips abroad, usually when it needed digging, we decided to forego the doubtful benefits of a vegetable garden and construct a larger pool with a crazy-paving surround. Actually, I was quite fed-up with fighting off every known and unknown garden pest, as well as bribing the neighbours' children to do some weeding, when the end result was a few miserable vegetables that had cost a small fortune. (I did grow some excellent cauliflowers once. They were all ready on the same day, of course, when my husband was about 9,000 miles away—and I am sure he never believed it, anyway!)

So, we made a larger pool, using concrete slabs set in cement and incorporating a waterfall of natural stone over the deep end. We then visited our favourite supplier to enquire what fish he had, suitable for such elegant accommodation. THAT WAS IT! We heard that word for the very first time—"KOI." Oh, happy day! He didn't have any in stock, but assured us that these Japanese carp were of unbelievable beauty.

Ah so! How right he was.

Some weeks later, we saw, and bought, our first two Koi. These were a metallic gold one and a gold and silver mirror-scaled one, both 11 to 12 inches long, and promptly called "Fred" and "Sylvia," for reasons best known to ourselves. We were probably dazed at the magnificence of the fish and the magnitude of the price paid; quite unbelievable really, as we had never previously paid more than about 7s 6d for any fish. (We eventually learned that these Koi were an Ohgon and a Hariwake Doitsu Ohgon). I was most impressed

and almost lived with them for some time. At night, I used to creep outside with a torch to look at their gleaming beauty in our pool, quite convinced that any burglar in the vicinity would surely prefer them to anything indoors. I know I did! The days were very happy, as "Fred" and "Sylvia" obviously approved of their new home and rewarded us with their friendly welcome whenever we approached the pool. They were soon being hand-fed. Other Koi were added from time to time, many of which unfortunately went to join their honourable ancestors in that big pond in the sky, whilst some stayed with us and grew on very well.

Thought was then given, jokingly at first, to the construction of an even larger pool. We were quite enchanted with the Koi and anxious to give them as much swimming space as possible. The site was surveyed, plans were drawn, the bank balance examined and I promised not to mention a holiday, a new coat or even a coat of paint on the kitchen. The subsequent arrival of vast quantities of 3ft. by 2ft. concrete slabs, yards of sand and gravel, countless bags of cement and over 1,000 bricks, intrigued our neighbours sufficiently to ask: "What on earth are you going to build with that lot?" By then, feeling completely shattered with the effort of just moving it all from the front to the back garden, we were far from sure ourselves. But, being lumbered with all the material and our garden closely resembling a builder's yard, we really had no option but to press on regardless. It seemed at the time that coach trips were being organised just to bring people to watch, and at least one honest man was overheard to say: "It'll never work, it'll leak like a sieve." Such talk depressed me, but not my husband, who worked on like a Trojan, converting what was previously a sunken garden into a 400 sq. ft. pool, 3ft. deep, with raised sides and complete with an under-gravel filter and a Japanese water-changing system. (We read "Live Jewels" on wet days.)

The day the pool was filled with approximately 5,000 gallons of water happened to be very windy and the unaccustomed sight from the kitchen window of the waves on the large surface area made me feel quite queasy and not a little horrified at the enormity of



our folly, now much too late to undo.

Tests were carried out over the next few weeks to determine the hardness of the water and when this had dropped to an acceptable level, first water-lilies and *Elodea* were introduced, and then a few of our smaller Koi. These suffered no ill-effects and were soon joined by the others. The larger fish revelled in their new-found space and were soon leaping about. This habit carp have of leaping can be quite alarming and, to allow for this, the sides of the pool had been made about 12 inches higher than the water level; incidentally, this also prevents losses or damage by cats.

All my dreams have come true and all the work has been worthwhile; the 30 or so Koi are very happy and all come to see me when I approach the pool. Sometimes I talk to them and I am sure the neighbours think I am a little odd, but they are terribly nice about it, especially one, who I can hear saying "Come on Cherry, come on Blossom" to her gorgeous pair of Kohaku at feeding time.

It may be of interest to beginners to know that Koi will eat almost anything, particularly in the warmer weather. Live food is invaluable, earthworms being

firm favourites, but maggots, woodlice, ants, caterpillars and all grubs are eagerly taken. Generally, in our garden, "if it moves, in it goes." I now handle "creepy-crawlies" that nothing would have induced me to touch B.K. (Before Koi). Ours like Rice Krispies, Weetabix, Porridge Oats, tinned peas, mashed hard-boiled eggs, chicken and ox-heart, in addition to the usual prepared foods. All of these, of course, should only be given in quantities that are eaten within a few minutes, but generally, the warmer the water, the more food can be given.

Koi are a way of life—surely no other fish has enchanted man or woman to such an extent. One man I know always takes his holidays in mid-Winter when his Koi are inactive, so that he can be with them all summer. On the other hand, some people take theirs indoors with them for the winter, and I know of many pools that have been built in lounges.

Eventually, Koi-keeping takes hold of the whole family. For example, when passing a herd of Friesian cattle, a friend's young son said: "Oh, look Dad, Shiro-Bekko cows."

See what I mean?

## PRODUCT REVIEW

**Nuova Natura Inside Filter**, manufactured in Holland, and distributed by Hillside Aquatics, 29 Dixons Hill Road, Welham Green, Nr. Hatfield, Herts., AL9 7EF. I do not know the price of this product at the time of writing.

In the July edition, a young contributor to W.Y.O. ? wondered if manufacturers could produce a filter with a separate compartment for charcoal; he said that he found that charcoal either got into his tank or got mixed with the filter wool. As a result, I received a communication from Mr. E. J. Small, BVA/PTA Dip., Proprietor of Hillside Aquatics, stating that several such filters were available on the market. He also provided me with a test sample of one such filter—the Nuova Natura inside filter.

The first thing that struck me about this inside filter was its robust construction and its large capacity—given as "2,600ccm." The body of the filter is very roughly triangular in shape, being approximately 6½ in. x 6½ in. x 8 in., by 5 in. tall. The muted grey body is designed to fit into the rear corner of an aquarium, where the depth of gravel would be about 2½ in. The upper 2½ in. is "textured" to enable it to blend in with the aquatic scene. There are three pieces of green plastic tubing, with connectors, which can be joined together to form the airlift. The total length of the three pieces, when connected, is about 17 in.; and when fitted to the top of the filter body, the combined height is about 22 in. However, one, two or all three pieces of

airlift tubing can be connected, to provide different heights for aquaria of different heights. About 15 in. of narrow, green plastic air line is fitted to the airlift.

The filter is supplied with a clear plastic inner container which can very easily be lifted out for cleaning. This container has two removable green shelves. When fitted, they divide the inner container of the filter into three equal sized sections. One can thus use up to three different filter media in the filter—e.g. charcoal, filter wool, and whatever else one desires or requires. The two "shelves" fit neatly, and thus prevent, say, carbon from passing through into the filter wool chamber.

When connected to an air pump, water is drawn down through the inner container of filter media; cleaned water is then drawn up the airlift tube and returned to the top of the tank—thus providing good circulation and filtration.

In use, I found the filter to be efficient—as well as easy to clean. Its robust construction should ensure a long and useful life, and its design should prevent charcoal from mixing with other filter media. Due to its size, this filter would seem more appropriate for use in larger tanks.

I also received a leaflet on the Nuova Outside Filter No. 2; it also has three separate compartments to keep differing filter media apart. Its capacity is said to be 3,000ccm.—six pints. I have not yet seen or tested this model.

B. WHITESIDE.



# Coldwater Fishkeeping

## FEEDING

## THE FRY

by Arthur Boarder

IN MY PREVIOUS article I described the spawning of my fantails this spring and the subsequent hatching. I used Liquifry for the first seven days after the fry had hatched. They had soon used up their egg sac as the water had kept rather warm. I had a thermostat setting of 70°F, for the tanks but the very hot sun on most days took the temperature of the water up to 92°F at times.

This extreme heat did not appear to worry the fry at all but of course there was a good quantity of Hornwort in the tanks in which the fry could hide if necessary. The fry made good progress on the Liquifry and I used no artificially made *infusoria*. There would probably have been plenty in the tank for most of the time and the fry could be seen picking at the sides of the tanks for fine foods. After the week of feeding I started them on Tetramin fry food. This is quite powder-like and is so fine that even such small fry could take it quite easily. At this stage I used feeding rings, as there is no need to have much of the food floating all over the tank and one can see if the fry are on the feed by watching the inner ring.

My experiments were obstructed somewhat by a fortnight's holiday and I had to leave all fish and fry with no artificial feeding. The fry hatched on 24th May, and I left them on 11th June. I did not return until 22nd June, and found all the fish including the fry in good condition. This should be a lesson to those aquarists who repeatedly ask me whether it is safe to leave their fish while they are on holiday without them being fed. The fry had eaten from the water plants in the tank but when I introduced a little dried food on my return they soon found it.

The fry had grown large enough to take my next sized food. This was a mixture of three types, including a good flake food, Bemax and dried *Daphnia*. I had put this through my old coffee grinder and

brought it to a nice fine state. It was not nearly as dust-fine as the fry food I had been using but was not too large for any of the fry to take. They seemed very eager to eat this food as the water was still very warm, varying from 74°F to 88°F. I was using slight aeration all the time, night and day. Some of the fry were now half an inch long and I was rather surprised to see that one of them, with a little fat belly, had already started the colour change. This would not have been possible had I not kept the water warm, and the change could have taken many months at a cool temperature.

Some of the water was changed for fresh now and again, but it appeared to be in good order and the change appeared unnecessary; however, from past experience I knew how very important it was to keep the water fresh. So many aquarists write to tell me that they can get their fry to about a couple of weeks of age and then they start dying off one by one. I am almost sure that the reason is that the water is not changed. If the fry are rather numerous and are feeding well it is almost certain that the water would soon become foul. It is a great incentive to give that bit extra food when it is seen that the fry are feeding well, but one day's mistake could kill the whole tankful.

The same mixture of food will be used for some time, but the size will gradually be increased. My grinder is so adaptable that any size from an eighth of an inch downward can be obtained. Later some white worms will be mashed and from then on there should be no trouble in rearing the fry. I had hoped to make an experiment with some home produced *Daphnia*, but the scheme went wrong. I obtained some water fleas and inspected them very closely to see that there were no pests present. I put part in one 60 gallon coldwater tank and the other half in another. The tanks were out of doors and covered with sheets of glass. This to keep out the hedgehogs and frogs. On my return from holiday I could not

see a trace of a *Daphnia*, but soon found the reason. Smooth newts must have got into the tanks and bred for there were newt tadpoles instead of *Daphnia*. However, I shall try again with more care before using any tank with well established water.

I thought I would have another spawning of fantails before I went away, but it was a false alarm. One very young fantail was being chased all day long for a couple of days but no eggs appeared. The following morning this fish, a two year old, with a very fat abdomen was floating on the top of the water. I took it from the pond fearing it was dead, but it struggled well and so I popped it into one of my hatching tanks in the frame. I left it there with no base compost nor plants of any kind and went on holiday. On my return I found the fish in tip-top

condition. I have not yet returned it to the tank as I shall use it as an experiment. This will be in the form of feeding on Duck weed, *Lemma minor*, exclusively. I have plenty of spawners in the pond without this one and in any case, although fat, it was not ready to shed its eggs.

In all the many years I have been with fantail breeding I have never before found any fish in such distress. There is a theory that the reason male fish chase a female is because they are excited by the sight of the fat belly, but I cannot go along with this idea entirely, as if this is the case why is it that for months in the year the males do not chase such fish although they are always with them. Besides the fat belly there must be some other factor which encourages the chasing.

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## HERPETOLOGICAL NOTES

by Stephanie Peaker

### ANTI-INFLATION

The Pancake or Soft-shelled Tortoise (*Malacochersus tornieri*) which occurs in East Africa must be the oddest of all the land tortoises. The shell, which has the consistency of thick parchment, is thin and flat and entirely lacks a domed carapace. The bony plates which underlie the shell have large apertures so that the whole arrangement gives virtually no protection against predators. Early collectors found that these tortoises are extremely difficult to extricate from the rock crevices into which they run when disturbed, and suggested that not only do they wedge themselves in but also actually inflate the body in order to press the shell against the wall of the crevice.

In fact the ability to inflate was never checked although the story has been repeated from book to book since the 1920s with greater emphasis on the inflation than on the wedging action of the legs, even though Dr. Robert Mertens had failed to find any evidence for inflation during the early 1940s. Drs. L. C. Ireland and C. Gans of the State University of New York realised that the respiratory mechanism of tortoises probably could not allow the lungs to be inflated in order to distend the soft shell. Therefore they tested the response of Pancake Tortoises to being forcibly pulled from an artificial crevice they had been allowed to enter. Direct measurements of pressure on the

lungs (reported in *Animal Behaviour*, volume 20, pages 778-781, 1972) during this procedure clearly showed that there is no sustained inflation and that the tortoises depend on the wedging action of the fore- and hind-limbs to hold tightly in the crevice. Although the results seem clear I imagine it will be many years before this new information on this very interesting species reaches the text books.

In captivity Pancake Tortoises require a large heated enclosure, and it is best if some rocks can be provided so that they can hide in the crevices. As well as the usual varied diet of fruit and green vegetables tinned dog food (preferably rich in calcium) as well as vitamins and minerals should also be supplied; they have bred successfully in some collections.

### UROMASTIX

The lizards of the genus *Uromastix* (sometimes seen as *Uromastyx*) are known by so many different common names—mastigures, dab or dabb-lizards, spiny-tailed lizards—that the beginner can be bewildered by the situation. In fact the relatively few species in the genus are easily-recognised members of the agamid family which live in the hot and arid regions of North Africa, the Middle East and South-West Asia. They are heavily built lizards with a bulky armoured tail



which is used for defence. It is said that some, instead of disappearing into depths of their burrow (which may be several feet deep), when chased by a predator will stop in the entrance and leave the tail above ground level. This is then waved, spines and all, in the face of their pursuer. The attacker can then neither pursue further down the hole nor attack the body of the lizard on the surface, and the tail is so unpleasant that retreat is the only course of action possible.

Mastigures grow to something over a foot in length and some are attractively marked. The two species most commonly imported are Bell's whichever-name-you-choose-to-use (*Uromastix acanthimerus*) from North Africa and General Hardwicke's (*Uromastix hardwickii*) from Pakistan. Others however, for example the Egyptian (*U. aegyptius*), the Small-scaled (*U. microllpis*) and the Ornate (*U. ornatus*) have certainly been imported.

When adult these lizards are largely vegetarian but this does not mean to say that meat and large insects should not be given. By contrast the young are largely insectivorous and they lack the broad cutting teeth of the adult; instead they have small pointed teeth typical of insectivorous lizards. However the young will eat some plant food so for both adults and young a mixed diet should at least be offered. A good basic mixture of green vegetables (lettuce, dandelions, cabbage, clover etc.) with chopped fruit (apples, pears, banana, peaches, apricots etc.), flowers and chopped meat is ideal. A mixed vitamin and mineral preparation should be added. Mealworms or, better still, locusts should be offered to adults and all manner of insects supplied to young mastigures. It is wise not to give too much food at any one time because at the high temperatures these lizards need it will soon wilt and dry out.

Adults need a large vivarium if they are to be seen at their best and if a group is kept a really large enclosure, say five feet by four feet, may be necessary. The young or several adults can of course be kept in a much smaller cage. The detailed arrangements can be left to the imagination and ingenuity of the builder but with these lizards that prefer a home burrow a false floor can be fitted. If holes are cut in this and camouflaged with rocks and logs on the surface, burrows can be constructed underneath into which the lizards can retire. Both "floors" should be covered with builders' sand, ballast and peat. Large flat rocks or logs can be positioned for basking. The whole set-up should normally be kept as dry as possible and although a bowl of water should be provided seepage into the sand should be prevented. Although the humidity should be low the occupants and sand may be sprinkled occasionally and it may be found that the lizards drink this "dew" rather than from a bowl.

When the lizards start to slough the sand in the burrow should be dampened and then allowed to dry out again. This procedure will keep the skin moist at night during the slough.

Mastigures require high temperatures during the day-time. In a large cage an infra-red lamp hung from the ceiling can be used to provide a hot spot and the lizards choose their own temperature. In a small vivarium a thermostatically-controlled heater with a lamp to keep the temperature at 90°F. is probably the best arrangement, with the lamp directly over a basking spot so that there the temperature is somewhat higher than in the rest of the cage. At night the temperature should be allowed to fall to about 70°F. and the lights should also be turned off. The lizards will then enter their burrows until the light is switched on again in the morning and the temperature begins to rise.

Some authors have noted that mastigures sometimes suffer from worms in the intestine. It has been found advisable at Jersey Zoo to worm them every six months (G. Watson, *International Zoo Yearbook*, volume 9, pages 29-30, 1969). For this "Thiabendazole", which can be obtained on a veterinary prescription is ideal at a dose of 400 mg per adult. It can either be mixed with the food, pushed into the side of the mouth (or solution dropped in from a hypodermic syringe) or given by stomach tube. The last method is the most certain means of delivering the full dose but it requires practice and the first two may be preferred. If the infestation is severe it is worth asking a vet. to make sure a large dose is given by passing a soft rubber or plastic tube into the stomach.

Apart from being extremely interesting members of their family, mastigures are easily tamed, active when the temperature is high and can be highly recommended if some thought is given to their housing and feeding.

#### NAMES CHANGED

Taxonomists have been at work in the past few years on chelonians. We might soon start to see *Chrysemys* being used instead of *Pseudemys* because it has been decided that the two genera are indistinguishable. So the Red-eared or Elegant Terrapin now becomes *Chrysemys scripta elegans*, which is I think what it started out as not so many years ago. However I cannot avoid the suspicion that the painted terrapins as a group just look different from the sliders and cooters (*Pseudemys*) and I wonder whether future work will show the change to be justified.

It is also not so long ago that it was decided the Spanish Terrapin is a race of the Caspian (*Clemmys caspica*). But now I have seen this species placed in a new genus—*Mauremys*. So we have *Mauremys caspica leprosa*—still the Spanish Terrapin.





## from AQUARISTS' SOCIETIES

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

**OPEN** show results of the **Half Moon A.S.** were: **Furnished Aquaria:** 1, Mr. Smith (Mount Pleasant); 2, Mr. and Mrs. Saunders (Stockton); 3 and 4, Mr. and Mrs. Smith (H.M.A.S.). **Furnished Jars:** 1, J. Robertson (Mount Pleasant); 2, Mr. Smith (Mount Pleasant); 3 and 4, Mrs. Willis (H.M.A.S.). **Large Barbs:** 1, J. Robertson (Mount Pleasant); 2, Mr. and Mrs. Attwell (Billingham); 3, Mr. Beavis (H.A.S.); 4, Mr. Gallan (N.G.S.). **Small Barbs:** 1, W. Cowlam (H.M.A.S.); 2, H. Hubbard (Peterlee); 3, J. McClenaghan (Independent); 4, I. Anderson (Billingham). **Large Characins:** 1, Mr. and Mrs. Welford (Cleveland); 2, R. Caygill (H.M.A.S.); 3, Mr. Shanks-Davison (Mount Pleasant); 4, Mr. and Mrs. McGee (H.M.A.S.). **Small Characins:** 1 and 2, Mr. Robinson (Mount Pleasant); 3, Mr. and Mrs. Squirrel (Independent); 4, Mr. and Mrs. Copley (Doncaster). **Large Cichlids:** 1, B. Cooper (Peterlee); 2, H. Peacock (Stockton); 3, D. Suddon (Billingham); 4, I. A. Whiteley (Aireborough). **A.V. Angel:** 1, K. Rodway (Peterlee); 2, K. Greenley (H.M.A.S.); 3, Mr. Robinson (H.M.A.S.); 4, C. A. Enright (B.C.A.). **Small Cichlids:** 1, J. Robertson, Jr. (Mount Pleasant); 2, R. Walker (Stockton); 3, Mr. and Mrs. Low (Cleveland); 4, D. Turnbull (Mount Pleasant). **Rift Valley Cichlids:** 1, H. Hubbard (Peterlee); 2, Mr. Shanks-Davison (Mount Pleasant); 3 and 4, C. A. Enright (B.C.A.). **A.V. Labyrinth:** 1, D. Keithley (Stockton); 2, W. Warral (Peterlee); 3, Mr. and Mrs. Thompson (Bishop Auckland); 4, J. Gamesby (H.M.A.S.). **Siamese Fighters:** 1, Mrs. Corbett (H.M.A.S.); 2, B. Cooper, Jr. (Peterlee); 3, J. Lockwood, Jr. (Peterlee); 4, Mrs. Corbett (H.M.A.S.). **E.L.T.C.:** 1, J. Robertson (Mount Pleasant); 2, J. McClenaghan (Independent); 3 and 4, Mr. Candler (B.K.A.). **Tropical Catfish:** 1, Mr. and Mrs. Low (Cleveland); 2, P. Wright (Houghton); 3, K. Rodway (Peterlee); 4, Mr. and Mrs. Copley (Doncaster). **Corydoras and Brochis:** 1, K. Greenley (H.M.A.S.); 2, Mr. and Mrs. Attwell (Billingham); 3, J. Lockwood (Peterlee). **Rainbow, Danio and Minnow:** 1, Mr. and Mrs. Attwell (Billingham); 2, Mr. Crombie (Peterlee); 3, J. A. Whiteley (Aireborough); 4, Mr. Smith (Peterlee). **Sharks and Flying Fox:** 1, K. Greenley (H.M.A.S.); 2, P. Wright (Houghton); 3, G. Brown (H.M.A.S.); 4, H. Hubbard (Peterlee). **A.O.S. Tropical Egglayer:** 1, Mr. Smith (Peterlee); 2, J. McGee (H.M.A.S.); 3 and 4, W. Warral (Peterlee). **Breeding Pairs (Egglayers):** 1, H. Hubbard (Peterlee); 2, Mr. and Mrs. Low (Cleveland); 3, J. A. Whiteley (Aireborough); 4, D. Connelly (H.M.A.S.). **Breeding Pairs (Livebearers):** 1, P. Cooper (Peterlee); 2, R. Crombie (Peterlee); 3, Mr. and Mrs. McGee (H.M.A.S.); 4, H. Hubbard (Peterlee). **A.V. Guppy:** 1, I. Kennedy (H.A.S.); 2, K. Rodway (Peterlee); 3, B. Hipkin (H.M.A.S.); 4, J. McClenaghan (Independent). **A.V. Swordtail:** 1, B. Hipkin (H.M.A.S.); 2, R. Caygill (H.M.A.S.); 3, L. Osman (Stockton); 4, R. Wrighton (Billingham). **A.V. Platy:** 1, B. Cooper (Peterlee); 2, Mr. Smith (Peterlee); 3, R. Crombie (Peterlee); 4, Mr. and Mrs. Copley (Doncaster). **A.V. Molly:** 1, B. Cooper (Peterlee); 2, Mr. and Mrs. McGee (H.M.A.S.); 3, J. Lockwood (Peterlee); 4, Mr. Smith (Peterlee). **A.V. Goldwater:** 1 and 4, Mr. Edwards (H.M.A.S.); 2 and 3, W. Cowlam (H.M.A.S.). **Breeders Class (Egglayers):** 1 and

3, H. Hubbard (Peterlee); 2, R. Walker (Stockton); 4, P. Wright (Houghton). **Breeders Class (Livebearers):** 1, Mr. and Mrs. Sowerby (Mount Pleasant); 2 and 4, R. Caygill (H.M.A.S.); 3, J. Robertson (Mount Pleasant). **Junior Class:** 1, S. Brown (H.M.A.S.); 2, D. Chamberlain (H.A.S.); 3, K. Brown (Mount Pleasant); 4, G. Smith (Peterlee). **Best Fish in Show** was a Red Pinned Shark owned by K. Greenley (H.M.A.S.). There were 423 entries.

A TALK on "Classes of Fish" was given by A. Worth at the June meeting of the **Dorchester and District A.S.** This was followed by a talk on "Preparation of Fish for Showing" given by M. Cleal. Both classes in this month's table show were won by R. Christopher, with an Angel fish and a Goldfish.

The **Sudbury A.S.** held their first open show early in June, with a total of 458 entries. The Best Fish in Show award went to J. Batts with a Tilapia Mariae. Other awards were as follow: **Class B:** 1, B. Bissoon; 2, R. Coyle; 3, A. Marshall, Sr.; 4, T. Taylor. **Class C:** 1, M. Strange; 2, W. Bradford; 3, A. Durrant; 4, T. B. Adams. **Class Ca:** 1, P. Moye; 2, R. Bowes; 3, B. Bissoon; 4, J. Bayly. **Class D:** 1, J. Batts; 2, D. Howe; 3, D. Dare; 4, A. Spooner. **Class Da:** 1, D. White; 2, B. Bissoon; 3, M. Lewis; 4, J. Batts. **Class Db:** 1, B. Bissoon; 2, M. Chapman; 3, R. Ashworth; 4, A. Heath. **Class E:** 1, Mrs. Sawford; 2, T. B. Adams; 3, C. Goddard; 4, Mrs. Warner. **Class Ea:** 1, T. Taylor; 2, J. Parker; 3, R. Taylor; 4, D. C. Durrant. **Class F:** 1, J. Garrad; 2, A. Harnsworth; 3, D. Dare; 4, K. Usher. **Class G:** 1 and 2, D. Howe; 3, J. Parker; 4, D. Dare. **Class H:** 1 and 3, J. Batts; 2, V. E. Valley; 4, P. Moye. **Class I:** 1, S. Mason; 2 and 4, D. Reilly; 3, T. Taylor. **Class K:** 1, 2 and 4, J. B. Connelly; 3, J. Smith. **Class L:** 1, A. P. Taylor; 2, R. Leslie; 3, K. Usher; 4, R. Bowes. **Class M:** 1, D. Reilly; 2, R. Coyle; 3, J. Garrad; 4, B. Robinson. **Class N.O.T.:** 1, I. R. Pierce; 2, M. Lewis; 3, B. Robinson; 4, A. Marshall, Jr. **Class N.B.M.:** 1, R. Leslie; 2, D. Reilly; 3, B. Bissoon; 4, I. R. Pierce. **Class O:** 1, J. Murphy; 2, A. P. Taylor; 3, M. Chapman; 4, C. Kinsbury. **Class P:** 1, J. Murphy; 2, K. Usher; 3, L. J. Brazier; 4, P. Coyle. **Class Q:** 1, J. E. Connelly; 2, E. Fantham; 3, J. Murphy; 4, A. M. Adams. **Class R:** 1 and 2, M. Chapman; 3, B. Bissoon; 4, D. Cruikshank. **Class S:** 1, T. Taylor; 2, R. Ashworth; 3, D. Reilly; 4, D. Cruikshank. **Class T:** 1, D. Stafford; 2, B. Bissoon; 3, A. Marshall, Jr.; 4, R. Bowes. **Class X.B.M.:** 1, T. B. Adams; 2, A. Marshall, Sr.; 3, V. E. Valley; 4, D. C. Durrant. **Class X.O.T.:** 1, M. Chapman; 2, J. Howe; 3, A. M. Adams; 4, J. Murphy.

**RESULTS of Freeland A.S.** open show held in June were as follow: **Furnished Aquaria:** 1, Mrs. B. Cowell (United); 2, R. Burton (Freeland). **Aquascaper:** 1, S. Cowell (United); 2, T. Batts (Ealing); 3, Mrs. M. Miller (Freeland). **Barbs:** 1 and 2, R. Leslie (High Wycombe); 3, A. E. Williams (Freeland); 4, S. Mason (Rochampton). **Characins:** 1, Mrs. P. Coyle (Independent); 2, P. W. Cottle (North Kent); 3, J. Batts (Ealing); 4, Mrs. B. Scates (Erith). **Cichlids:** 1, A. Kinsey (Independent); 2, P. D. Elson (Freeland); 3, P. Coyle (Independent); 4, T. Hall (High Wycombe). **Dwarf**

**Cichlids:** 1 and 4, P. Moye (Bletchley); 2, R. Bowes (Independent); 3, A. E. Williams (Freeland). **Labyrinths:** 1, Mrs. B. Scates (Erith); 2, G. Elson (Freeland); 3, S. Cowell (United); 4, T. B. Adams (Hastings). **Egg-laying Toothcarps:** 1, 2 and 4, C. Thomas (Walthamstow); 3, K. E. Usher (Anson). **Tropical Cats:** 1, K. A. Beale (Erith); 2, R. Bowes (Independent); 3, W. F. Sutton (Freeland); 4, R. D. Wright (East Dulwich). **Corydoras:** 1, R. D. Wright (East Dulwich); 2, Mrs. D. Winder (East Dulwich); 3, T. Batts (Ealing); 4, R. E. Day, Rainora; 1, Mrs. M. Stamp (Freeland); 2, G. Mason (Rochampton); 3, S. Mason (Rochampton); 4, Miss A. Martin (North Kent). **Danio and W.C.M.M.:** 1, K. A. Beale (Erith); 2, J. Warner (Freeland); 3, P. Coyle (Independent); 4, Mrs. G. M. Brazier (Sudbury). **Loach:** 1, Mr. and Mrs. Martin (North Kent); 2, R. Leslie (High Wycombe); 3, T. Batts (Ealing); 4, W. F. Sutton (Freeland). **A.O.S. Tropical:** 1, Mrs. R. Coyle (Independent); 2, S. Mason (Rochampton); 3, H. Robinson (Lewisham); 4, Mr. and Mrs. Rossiter (W.A.D.A.S.). **Pairs:** 1, L. Brazier (Sudbury); 2, P. W. Cottle (North Kent); 3, T. Batts (Ealing); 4, R. Leslie (High Wycombe). **Male Guppy:** 1 and 3, Mr. and Mrs. Murphy (Greenford); 2, K. E. Usher (Anson); 4, Mr. and Mrs. Rossiter (W.A.D.A.S.). **Female Guppy:** 1, Mrs. J. Garrad (Runnymede); 2, R. Bowes (Independent); 3, K. E. Usher (Anson); 4, Mr. and Mrs. Murphy (Greenford). **Swordtails:** 1, Mrs. A. M. Adams (Hastings); 2, M. Lewis (Sudbury); 3, G. Mason (Rochampton); 4, Mr. and Mrs. Murphy (Greenford). **Platy:** 1, G. Smith (Walthamstow); 2 and 3, A. R. Chandler (Walthamstow); 4, R. Burton (Freeland). **Mollies:** 1, G. Mason (Rochampton); 2, A. Heath (Lewisham); 3, A. R. Chandler (Walthamstow); 4, A. E. Williams (Freeland). **A.O.S. Livebearers:** 1, D. Stratford (Kingston); 2, R. Wright (East Dulwich); 3, A. Heath (Lewisham); 4, P. W. Cottle (North Kent). **Singletail Goldfish:** 1, Mrs. M. Pinder (G.S.G.B.); 2, I. Flemming (G.S.G.B.); 3 and 4, P. Pinder (G.S.G.B.). **Twintailed Goldfish:** 1, 2 and 4, A. Lawman (G.S.G.B.); 3, W. F. Woodward (Freeland). **A.O.S. Coldwater:** 1, C. J. Mears (Kingston); 2, D. E. Goodbody (Walthamstow); 3, C. Thomas (Walthamstow); 4, Mrs. O. Leslie (High Wycombe). **Breeders (Egglayers):** 1 and 3, D. Moye (Bletchley); 2 and 4, T. B. Adams (Hastings). **Breeders (Livebearers):** 1, P. K. E. Cottle (North Kent); 2, B. C. Fry; 3, K. E. Usher (Anson); 4, J. Gathergood. **Best Junior:** Master D. Elson (Freeland). **Best Lady:** Mrs. Coyle (Independent). **Best Club Freeland:** Best Fish in Show: A. Kinsey (Independent).

The **Havant and District A.S.** held its third Open Show recently and the record number of entries of 473 for the club was achieved. The most successful exhibitor, particularly as he was able to enter one fish, was R. Bley of Basingstoke. With a Polypterus ornaticornis he won not only the Best Fish in the Show trophy and the Aquarist Gold Pin, but the F.B.A.S. Championship Trophy for A.O.S. Tropical Egglayer and the John Dickinson Cup, as well. Overall results were as follow: **Class A:** 1, Mrs. D. Booker (Havant). **Class Agh:** 1, Miss J. Booker (Havant); 2, M. Hinton (Havant). **Class B:** 1, Mrs. J. Vincent (Southampton); 2 and 3, A. Marshall (Basingstoke); 4, L. Little (Brocknell). **Class Ca:** 1, L. Little (Brocknell); 2, I. Clarke (Gosport); 3, K. Clements (Basingstoke); 4, A. Houghton (Gosport). **Class C:** 1 and 4, J. Pollard (Kingston); 2, D. Jones (Southampton); 3, P. Spenshott (Havant). **Class Da:** 1, M. Cott (Gosport); 2, P.

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**WHITE SPOT OUT**  
Hillside Aquatics London N12



Willis (Portsmouth); 3, J. Hughes (Roehampton); 4, K. Norris (Reigate & Redhill). Class Db: 1 and 2, F. Willis (Portsmouth); 3, J. Dickinson (Havant); 4, N. Franklin (Havant). Class Dc: 1, K. Groves (Mid-Sussex); 2, R. Houghton (Gosport); 3 and 4, J. Hughes (Roehampton). Class Dd: 1 and 3, M. Freemantle (Gosport); 2, P. Brown (Southampton); 4, N. Davis (Havant). Class Ea: 1, M. Freemantle (Gosport); 2, P. Pink (Unattached). Class E: 1, S. and H. Parrish (Hounslow); 2 and 3, D. Mackay (Kingston); 4, M. Uden (Reigate & Redhill). Class F: 1 and 3, M. Cott (Gosport); 2, A. Houghton (Gosport); 4, N. Franklin (Havant). Class G: 1, K. Taylor (Havant); 2, J. Dickinson (Havant); 3, J. Hughes (Roehampton); 4, A. Harnsworth (Basingstoke). Class H: 1, K. Taylor (Havant); 2, J. Pollard (Kingston); 3, J. Hughes (Roehampton); 4, S. and H. Parrish (Hounslow). Class I: 1 and 3, A. Harnsworth (Basingstoke); 2, Mr. and Mrs. Le Cuirot (Roehampton); 4, S. Crabtree (Havant). Class K: 1, P. Watt (Havant); 2, D. Mackay (Kingston); 3, Miss J. Lamboll (Portsmouth); 4, Mrs. P. Newbury (Southampton). Class L: 1, S. Crabtree (Havant); 2, Mrs. P. Newbury (Southampton); 3, J. Dickinson (Havant); 4, K. Groves (Mid-Sussex). Class Ma: 1, H. Platt (Hounslow); 2, J. Hughes (Roehampton); 3, D. Hinton (Havant); 4, P. Watt (Havant). Class Mb: 1, R. Bailey (Basingstoke); 2, Mr. and Mrs. Le Cuirot (Roehampton); 3, L. Little (Bracknell); 4, N. Fisher (Havant). Class Nc-m: 1, W. Ryder (Portsmouth); 2, D. Jones (Southampton); 3, A. Houghton (Gosport); 4, S. Crabtree (Havant). Class No-t: 1 and 2, L. Little (Bracknell); 3, A. Marshall, Jr. (Basingstoke); 4, K. Holmes. Class O: 1, 3 and 4, C. Beets (Unattached); 2, K. Forster (Havant). Class P: 1, P. George (Basingstoke); 2, P. Brown (Southampton); 3, A. Layton (Havant); 4, D. Tucker (Salisbury). Class Q: 1, P. Ronald (Basingstoke); 2, Mrs. M. Blifield (Havant); 3, D. Parkes (Havant); 4, Mr. and Mrs. Le Cuirot (Roehampton). Class R: 1, R. Adams (Salisbury); 2, H. Platt (Hounslow); 3, N. Davis (Havant); 4, C. Beets (Unattached). Class S: 1, 2 and 3, N. Davis (Havant); 4, K. Holmes (Havant). Class T: 1, A. Marshall, Jr. (Basingstoke); 2, L. Little (Bracknell); 3, M. Strange (Basingstoke); 4, J. Lamboll (Portsmouth). Class Ua: 1, R. Adams (Salisbury); 2, R. Little (Bracknell); 3, R. Rich (Basingstoke); 4, A. Marshall, Jr. (Basingstoke). Class Ucd: 1, R. Adams (Salisbury); 2, D. Stokes (Portsmouth); 3, P. Stevens (G.S.G.B.); 4, Mrs. M. Dudley (S.P.A.S.S.). Class Va-g: 1, E. Binstead (Portsmouth); 2, D. Stokes (Portsmouth); 3, R. Rich (Basingstoke); 4, E. Binstead (Portsmouth). Class Vb-l: 1, D. Stokes (Portsmouth); 2, E. Binstead (Portsmouth). Class Wb: 1, E. Binstead (Portsmouth); 2, Mrs. M. Dudley (S.P.A.S.S.); 3, V. Hunt (Havant); 4, D. Stokes (Portsmouth). Class W: 1, D. Stokes (Portsmouth); 2 and 3, V. Hunt (Havant); 4, Mrs. M. Dudley (S.P.A.S.S.). Class Xb-m: 1, F. Willis (Portsmouth); 2, R. Lowe (Gosport); 3, D. Jones (Southampton); 4, N. Franklin (Havant). Class Xq-t: 1 and 4, L. Little (Bracknell); 2, P. Ronald (Basingstoke); 3, N. Davis (Havant). Class Xop: 1, C. Beets (Unattached); 2, A. Marshall, Jr. (Basingstoke); 3 and 4, P. Blifield (Havant). Class Xu-w: 1, A. Marshall, Jr. (Basingstoke); 2, D. Stokes (Portsmouth). Class Ya: 1, D. Haines (Gosport); 2, M. Strange (Basingstoke). Class Yb: 1, J. Lamboll (Portsmouth); 2, Mrs. D. Booker (Havant). Class Z: 1, 3 and 4, J. Hughes (Roehampton); 2, W. Ryder (Portsmouth).

ALMOST 500 entries were received at the Accrington and District A.S. Open Show. The Best Fish in Show was a Black Moor

**A FRACTION**  
 **A DAY, KEEPS**  
**ALGAE AWAY**  
 Hillside Aquatics London N12

owned by C. H. Whitsey. Results: Guppies: 1 and 2, D. and M. Laycock (Sheffield); 3, A. Kaye (Top Ten). Platies: 1 and 2, C. Goodman (Oldham); 3, C. Beckenham (Oldham). Swordtails: 1 and 3, C. Beckenham (Oldham); 2, S. Clarke (Aireborough). Mollies: 1, K. Atherton (Grimwood); 2, S. Clarke (Aireborough); 3, J. S. Hall (Aireborough). A.O.V. Livebearer: 1 and 2, Mr. and Mrs. Toyne (Sheaf Valley); 3, Mr. and Mrs. Clarke (Aireborough). Characins under 3in.: 1, D. Richardson (Kraft); 2, B. Sumner (Sandgrounders); 3, D. and M. Laycock (Sheffield). Characins over 3in.: 1 and 2, R. Walker (Morecambe Bay); 3, D. Grogan (Accrington). Cichlids under 3in.: 1, M. Tonge (Oldham); 2, L. and B. Graham (East Lancs.); 3, Mr. and Mrs. Marshall (Oldham). Cichlids over 3in.: 1, D. Grogan (Accrington); 2, Mr. Reid (Workop); 3, P. Mulla (Merseyside). Angels: 1, H. R. Sephton (Grimwood); 2, L. Watkins (Grimwood); 3, Mr. and Mrs. Toyne (Sheaf Valley). Barbs under 3in.: 1, 2 and 3, P. H. Gregory (Oldham). Barbs over 3in.: 1, B. Sumner (Sandgrounders); 2, P. Mulla (Merseyside); 3, Mr. and Mrs. G. Shaw (Morecambe Bay). Egg-laying Toothcarps: 1, D. I. Whiteside (B.K.A.); 2, A. Churchill (Castleford); 3, Mr. and Mrs. Toyne (Sheaf Valley). Carps and Minnows: 1, M. Kember (Unattached); 2 and 3, Mr. and Mrs. Toyne (Sheaf Valley). Labors, Sharks and Foxes: 1, S. Locke (Salford); 2, Mrs. D. T. Armour (Ellenmere Port); 3, F. Mulla (Merseyside). Fighters: 1, S. Clarke (Aireborough); 2, A. Churchill (Castleford); 3, Mr. and Mrs. Toyne (Sheaf Valley). Labyrinths: 1, A. Gregory (Nelson); 2, Mrs. B. Clarke (Aireborough); 3, S. Hooton (Sandgrounders). Danios and Rasboras: 1, B. Sumner (Sandgrounders); 2, Mr. and Mrs. G. Shaw (Morecambe Bay); 3, Mr. and Mrs. W. Smith (Osram). Livebearer (Pairs): 1, B. Sumner (Sandgrounders); 2, T. Hallett (Accrington); 3, Mr. and Mrs. Marshall (Oldham). Egg-layers (Pairs): 1, F. E. Gregory (Oldham); 2, P. Mulla (Merseyside); 3, A. Churchill (Castleford). Breeders Livebearers: 1 and 3, Mr. and Mrs. Toyne (Sheaf Valley); 2, S. Hooton (Sandgrounders). Breeders (Egg-layers): 1, S. Hooton (Sandgrounders); 2, A. Churchill (Castleford); 3, Mr. and Mrs. Perkins (Workop). Catfish and Loach under 3in.: 1, F. E. Gregory (Oldham); 2, Mr. and Mrs. Clarke (Aireborough); 3, M. Tonge (Oldham). Catfish and Loach over 3in.: 1, D. Grogan (Accrington); 2, Mr. and Mrs. Toyne (Sheaf Valley); 3, Mrs. D. T. Armour (Ellenmere Port). A.O.V. Tropicals: 1, Mr. and Mrs. Marshall (Oldham); 2, R. Atherton (Grimwood); 3, Mr. and Mrs. Norris (East Lancs.). Common Goldfish: 1, Mr. and Mrs. B. G. Holroyd (Morecambe Bay); 2, P. Foote (Accrington); 3, J. S. Hall (Aireborough). Shubunkins: 1, P. Foote (Accrington); 2, A. Isherwood (Accrington); 3, J. S. Hall (Aireborough). Mosses: 1, C. H. Whitsey (Accrington); 2, P. Foote (Accrington); 3, J. S. Hall (Aireborough). Vultures: 1, 2 and 3, C. H. Whitsey (Accrington). Kio Carp: 1 and 2, J. S. Hall (Aireborough); 3, S. Walsh (Accrington). Pantails: 1, C. H. Whitsey (Accrington); 2 and 3, J. S. Hall (Aireborough). Orandas: 1 and 2, P. Foote (Accrington); 3, J. S. Hall (Aireborough). Lionheads: 1, C. H. Whitsey (Accrington); 2, J. S. Hall (Aireborough); 3, S. Walsh (Accrington). A.O.V. Coldwater: 1, 2 and 3, J. S. Hall (Aireborough). A.V. Fancy: 1, C. H. Whitsey (Accrington); 2, P. Foote (Accrington); 3, J. S. Hall (Aireborough). Coldwater Breeders Twin Tail: 1, 2 and 3, J. S. Hall (Aireborough). Coldwater Breeders Single Tail: 1, J. S. Hall (Aireborough); 2 and 3, J. Baxter (N.G.P.S.). Juniors A.V.: 1, R. Fifield (Accrington); 2, S. Foote (Accrington); 3, S. Clarke (Aireborough). Marine: 1, Mr. and Mrs. Grafton (Kraft); 2, S. Wolstenholme (Heywood); 3, G. Craven (Accrington). Ladies Class A.V.: 1, Mrs. Norris (East Lancs.); 2, Mrs. Marshall (Oldham); 3, Mrs. P. Graham (East Lancs.). Furnished Mini Jars: 1, 2 and 3, M. Wild (Accrington).

RESULTS of the Alexandra Palace Exhibition were as follows: A.V. Barb: 1, S. Mason; 2, R. Leslie; 3, Rita Coyle; 4, J. H. Jackson; 5, P. Jarvis; 6, Mr. and Mrs. A. J. Crew. A.V. Characin: 1, D. Dare; 2, Gwen Watts;

3, J. H. Jackson; 4, R. C. Burton; 5, R. F. Thoday; 6, F. Pimm. Hyp. Hem. and Cheiron: 1, Miss Rhonda Coyle; 2, J. H. Jackson; 3 and 4, D. P. Ingle; 5, P. Moye; 6, A. Powell. Class D Cichlids: 1 and 5, D. Dare (also wins trophy for highest pointed angel); 2, Sybil Hedges; 3, T. Woolley; 4, A. King; 6, J. Houlahan. Dwarf Cichlids: 1 and 6, Singapore A.S.; 2, P. Jarvis; 3, A. West; 4, R. G. Piggins; 5, J. Pimm. Labyrinths: 1, Sybil Hedges; 2, J. H. Jackson; 3, H. Watts; 4, R. Newman; 5, J. Houlahan; 6, A. Runnalls. Beta Splendens: 1 and 2, S. W. Applin; 3, E. McQuade; 4, T. Taylor; 5, Singapore A.S.; 6, G. M. Brazier. Toothcarps: 1, 2 and 3, D. Dare; 4 and 6, W. E. Goodwin; 5, Mr. and Mrs. D. Keen. A.O.S. Cats: 1, D. J. Howe; 2, May Nethersell; 3, A. Powell; 4, R. S. Thompson; 5, J. Batts; 6, D. H. Marshall. Corydoras and Brochis: 1 and 4, J. Batts; 2, L. J. Brazier; 3, P. Moye; 5, May Nethersell; 6, Sybil Hedges. Rasboras: 1 and 5, A. G. Harnsworth; 2, M. Lewis; 3, S. Mason; 4, T. Woolley; 6, E. G. Harvey. Danios W.C.M.M.: 1, Mr. and Mrs. D. Keen; 2 and 3, D. W. Armour; 4, J. H. Jackson; 5, Mrs. Iris Applin; 6, P. Moye. Loaches: 1 and 3, D. W. Armour; 2, Master T. Coyle; 4, Mr. and Mrs. D. Keen; 5, A. Powell; 6, May Nethersell. A.O.S. Egg-layers: 1, Sybil Hedges; 2, R. S. Thompson; 3, May Nethersell; 4, A. Taylor; 5, P. Moye; 6, Iris Applin. Male Guppies: 1, 3, 4, 5 and 6; Singapore A.S.; 2, L. J. Brazier. Female Guppies: 1, P. Coyle; 2 and 6, E. G. Harvey; 3, D. Barker; 4, P. George; 5, A. Taylor. Swordtails: 1, P. Pimm; 2, G. M. Brazier; 3 and 4, Mr. and Mrs. Murphy; 5, J. Howe; 6, M. Lewis. Platys: 1, Master G. Mason; 2, Mr. and Mrs. D. Keen; 3 and 6, T. Woolley; 4, A. Alexander; 5, L. J. Brazier. Molly: 1, J. Howe; 2 and 5, S. Mason; 3, A. Heath; 4, May Nethersell; 6, T. Taylor. A.O.S. Livebearer: 1, R. S. Thompson; 2, B. Peacock; 3 and 6, A. Heath; 4, T. Woolley; 5, A. King. Rooted Plants: 1 and 2, M. J. Allen; 3, H. Watts; 4, M. J. Allen; 5, Mr. and Mrs. D. Keen; 6, J. Hughes. Cuttings: 1, M. J. Allen; 2, 3, 5 and 6, J. Hughes; 4, M. J. Allen. Floating Plant: 1 and 5, May Nethersell; 2, Mr. and Mrs. D. Keen; 3 and 4, H. Watts; 6, T. Taylor. Society Furnished Aq. Tropical: 1, Leytonstone and Stratford; 2, Walthamstow; 3 and 5, Stevenage; 4, Roehampton; 6, Hornsey and District. Ind. Furnished Aq. Tropical: 1, A. Welsh; 2, Gwen Watts; 3, C. S. Stanfield; 4, M. Goss; 5, Mrs. V. Reich; 6, Master G. Hackeshall. Ind. Furnished Aquaria Coldwater: 1, M. Goss; 2, H. Watts. Junior Furnished: 1, Masters A. Alexander and P. Piela; 2, Linda Armour; 3, Master P. Newman. Aquascapes: 1 and 5, J. M. Shepherd; 2, J. Batts; 3, M. Goss; 4, P. Cairn; 6, R. Welsh. Barb Pairs: 1, J. Batts; 2 and 3, R. Leslie; 4, M. Lewis; 5, A. Runnalls. Characins Pairs: 1 and 4, L. J. Brazier; 2 and 3, Mrs. H. C. Thompson; 5, J. Batts; 6, T. Woolley. Pairs Cichlids, Labyrinths, Toothcarps and A.O.S. Egg-layers: 1 and 5, D. J. Crucifix; 2, D. Dare; 4 and 6, Singapore A.S.; 3, T. Birch. Pairs Cats, Corydoras and Loaches: 1 and 4, J. Batts; 2, A. Runnalls; 3, R. S. Thompson. Pair Rasboras and Danios: 1, P. Robinson; 2, 3 and 5, S. Mason; 4, Singapore A.S.; 6, J. H. Jackson. Guppy Pairs: 1, 4 and 6, Singapore A.S.; 2, H. Manning; 3, D. Phillips; 5, E. G. Harvey. Pairs Swords, Platys and Mollies: 1, May Nethersell; 2, D. Linford; 3, Mr. and Mrs. D. Keen; 4, T. Woolley; 5, M. Lewis; 6, A. Welsh. A.O.S. Livebearer pairs: 1, 2 and 5, E. A. Holmes; 3, A. Heath; 4, L. J. Brazier; 6, T. Woolley. Best Fish in Show: Sybil Hedges with Oph. Obscurus. Total number of entries 579.

PRIZES at the Basingstoke and District A.S. Open Show were presented by Mr. Frank Tomkins, Chairman of the F.B.A.S. Entries were received from a wide area including South Wales, Kent and from South Shields and a total of 935 were judged and pointed by F. Tomkins, F.B.A.S.; R. Eison, G.S.G.B., F.B.A.S.; B. Baker, F.B.A.S.; P. Bayntum, F.O.B.S., F.B.A.S.; C. A. T. Brown, F.B.A.S.; M. Carter, F.B.A.S.; L. Doubleday, B.M.A.A., F.B.A.S.; C. Harding, C.N.A.A., F.B.A.S.; D. Hancock, F.B.A.S.; A. Hobbott, C.N.A.A.,



F.R.A.S.; E. Nicholl, F.R.A.S.; and J. Jeffery, F.R.A.S. Results were: Class Ag, 1. L. Lewis, Rochampton; 2. D. Parman, B.M.A.A.; 3. R. Bisson, Basingstoke; 4. Mrs. B. Jackson, Basingstoke. Class Ba: 1, 2 and 3: K. Smith, Rummode; 4. A. Marshall, Basingstoke. Class Bz: 1, A. Blake, Basingstoke; 2. B. Bisson, Basingstoke; 3. S. Mason, Rochampton; 4. L. Little, Bracknell. Class Ca: 1, A. Blake, Basingstoke; 2. T. Taylor, Basingstoke; 3. M. Strange, Basingstoke; 4. Mrs. P. Newbury, Southampton. Class Cb: 1, D. Reilly; 2. L. Brazier, Sudbury; 3. T. Taylor, Basingstoke; 4. Mrs. W. Lambby, Mid-Herts. Class Cc: 1, R. Goodson, Rochampton; 2. M. Strange, Basingstoke; 3. I. Strange, Basingstoke; 4. Master R. Woolley, Harlow. Class Da: 1, F. Willis, Portsmouth; 2. L. Bezier, Sudbury; 3. G. Dixon, Newbury; 4. S. Broome, Reading. Class Db: 1, K. Bisson, Basingstoke; 2. F. Willis, Portsmouth; 3. T. Istrad, Uxbridge; 4. B. Bisson, Basingstoke. Class Dc: 1, R. Groves, Mid-Sussex; 2. D. Haines, Gosport; 3. K. Rees, Gosport; 4. V. Valley, Ealing. Class Dd: 1, J. Batts, Ealing; 2 and 3, Master T. King, Rochampton; 4. S. Freemantle, Gosport. Class E: 1, A. Tracy, Gosport; 2. A. Taylor, Sudbury; 3. T. Taylor, Basingstoke; 4. P. Moye, Sudbury. Class Ee: 1, H. Pratt, Hounslow; 2, K. Holmes, Havant; 3, Mrs. C. Sawford, Rochampton; 4. T. King, Erith. Class Ee: 1, Mrs. S. Parrish, Hounslow; 2, Mrs. J. Twine, Walthamstow; 3, A. Blake; 4, A. Taylor, Sudbury. Class F: 1 and 4, M. Cott, Gosport; 2, A. Harmsworth, Basingstoke; 3, J. Jackson, Basingstoke. Class F: 1, A. Blake; 2, A. Cutting, South Shields; 3, P. Rushbrook, Reading; 4, A. Gibson, Reading. Class G: 1 and 2, B. Jones, Basingstoke; 3, D. Lambourne, Rochampton; 4, C. Kittingbury, Uxbridge. Class H: 1, B. West, Kingston; 2, R. Sellers, Ealing; 3, A. Blake, Basingstoke; 4, Mrs. P. Lambourne, Rochampton. Class J: 1 and 4, A. Harmsworth, Basingstoke; 2, A. Blake, Basingstoke; 3, D. Reilly, Class K: 1, Master P. Watt, Havant; 2, K. Lewis, Rochampton; 3, Master J. Wood, Greenford; 4, K. Holmes, Havant. Class L: 1, R. Leslie, High Wycombe; 2, Mrs. Lloyd, Newbury; 3, P. Newbury, Southampton. Class Ma: 1, H. Pratt, Hounslow; 2, J. D. Reilly and D. Hinton, Havant; 3, P. Merritt, Reading; 4, J. Wood, Greenford. Class Mb: 1, R. Goodson, Rochampton; 2, P. Lambourne, Rochampton; 3, T. Woolley, Harlow; 4, D. Reilly, Class O: 1, A. Taylor, Sudbury; 2, K. Lewis, Rochampton; 3, P. Greenwood, Bishops Cleeve; 4, V. Valley, Ealing. Class P: 1, Mr. and Mrs. Murphy, Greenford; 2, C. Beets; 3, Mr. and Mrs. Murphy; 4, P. George, Basingstoke. Class Q: 1 and 3, I. Pierce, High Wycombe; 2, B. Bisson; 4, Mrs. A. Adams, Hastings and St. Leonards. Class R: 1, M. Chapman, Basingstoke; 2, T. Taylor, Basingstoke; 3, G. Smith, Walthamstow; 4, L. Bezier, Sudbury. Class S: 1, G. Mason, Rochampton; 2, T. King, Rochampton; 3, J. Wilson; 4, D. Hains, Gosport. Class T: 1, A. Lushy, Mid-Herts.; 2, Master T. King, Rochampton; 3, E. Parham, Sudbury; 4, R. Newman, Uxbridge. Class No-m: 1, J. D. Wilson; 2, C. Turner, Cardiff; 3, A. Heath, Lewisham; 4, I. Pierce, H.W. Class Nbn: 1, B. Bisson, Basingstoke; 2 and 4, L. Brazier, Sudbury; 3, I. Clarke, Gosport. Class Xb-m: 1, F. Willis, Portsmouth; 2, G. Dixon, Newbury; 3, T. Adams, Hastings; 4, A. Chandler, Walthamstow. Class Xo-t: 1, R. Newman, Uxbridge; 2, L. Little, Bracknell; 3, T. King, Erith; 4, C. Turner, Cardiff. Class Uad: 1, R. Rich; 2, Mrs. Pinder; 3, R. Adams, Salisbury; 4, Mr. Pinder. Class Ue: 1, L. Memmert, New Forest; 2, E. Binstead, Portsmouth; 3, R. Onslow, Basingstoke; 4, Mrs. M. Pinder. Class Ue: 1, J. Wilson; 2, R. Adams, Salisbury; 3 and 4, D. Letts (G.S.G.B.). Class V: 1, R. Rich; 2 and 3, R. Davis, Bath; 4, A. Marshall, Basingstoke. Class W: 1, R. Goodson, Rochampton; 2, K. Bisson, Basingstoke; 3, E. Binstead, Portsmouth; 4, A. Goodbody, Walthamstow. Class Ya: 1 and 3, A. Harmsworth, Basingstoke; 2 and 4, T. Taylor, Basingstoke. Class Yb: 1, D. Parman, B.M.A.A.; 2, J. and B. Burles, Mid-Sussex; 3, P. Ronald, Basingstoke; 4, J. and B. Burles. Class Z: 1, K. Bisson,

Basingstoke; 2, A. Chandler, Walthamstow; 3, A. Lesby, Mid-Herts.; 4, G. Dixon, Newbury. Novelties: 1, Mrs. C. Sawford, Rochampton; 2, S. Freemantle, Gosport; 3, Mr. and Mrs. Murphy, Greenford; 4, G. Cope, Tottenham. Best Exhibit by a Lady was owned by Mrs. S. Parrish, Hounslow. The Highest Pointed Society was Rochampton A.S. and the Best Fish in Show was the *Tilapia Mariae* owned by John Batts of Ealing A.S. The F.R.A.S. Championship Trophy was won with a *Limia Virata* by A. Lushy of Mid-Herts.

A SLIDE Tape/Lecture, incorporating a "Fish Quiz", was given at the June meeting of the **Shrewsbury and District A.S.**, and some beautiful slides of fish were shown. Much interest was shown in some of the large and flamboyant Cat fish which are the property of Braz Walker, the noted American aquarist. A short "Meet the Aquarist" was held and new members' fish, and problems discussed. At the first of the July meetings Diane Schofield's Slide/Tape lecture "So you want to be an Aquarist" was shown and proved very successful. The projectionist and narrator for both Slide/Tape shows was Ed. Harvey. The Society are arranging a trip to the Ringley Hall Aquarist Show in Birmingham during August, and to the B.A.F. at Belle Vue during October. The Society Shield for the Aquarist of the Year was again awarded to W. G. Jones.

AT the July meeting of the **Ilford and District Aquarist's and Pondkeepers' Society** a quiz was arranged between two teams of members, on all aspects of fish keeping. This was enjoyable and entertaining to all present. The monthly table show results were as follows: A.V. Single Tail Gold Fish: 1 and 2, H. Berger; 3, P. Haines, A.V. Barb: 1, 2 and 4; M. Shadrack; 3, M. Rush, A.V. Molly: 1 and 2; M. Rowe; 3, M. Shadrack; 4, C. Hackshill.

THE Annual General Meeting of the **Exmouth and District A.S.** was held in May. The Secretary, Mr. R. Crossland, is now the Chairman of the Society and the new Secretary is Mrs. Penny Stevens, 52 Holland Road, Exmouth EX8 4BA. The post of Treasurer remains with Mr. B. Stevens, of the same address.

IN July, members of the **Suffolk Aquarist's and Pondkeeper's Association** were entertained with a most informative and entertaining talk by Mr. W. Card, the president of the club, on the journey of the tropical fish from its natural habitat to the retailer's tank and the costs involved. A few days after Mr. Card's most appreciated lecture, the club journeyed to London to support, and gain knowledge from, the now famed "Aquarist and Pondkeeper Exhibition".

THE **Bristol Tropical Fish Club** held their thirteenth Open Show recently, and the results were as follows: The Best Fish in the Show: Siamese Fighter, A. Gilbert; most points, Nigel Gray (one of the junior members of the club). Class results, for which there were over 300 entries: Fighters: 1 and 3, A. Gilbert; 2, N. Gray; 4, G. Furber, Labyrinth: 1, R. Lawrence; 2, P. Fitchett; 3, R. Popel; 4, Mrs. K. Martin, Barbs: 1, A. Gilbert; 2, Mrs. K. Castle; 3, R. Hyett; 4, N. Gray. Hemmi and Hypheosobrycon: 1, R. Hyett; 2, G. Furber; 3, Mrs. B. Pederson; 4, N. Gray. A.O.V. Characins: 1, J. Phillips; 2, G. Furber; 3, R. Hyett; 4, T. Dunsford. Angels: 1 and 3, N. Gray; 2 and 4, T. Hamshire. Dwarf Cichlids: 1 and 2, Mrs. B. Pederson; 3, R. Hyett; 4, R. Popel. A.O.V. Cichlids: 1, G. Furber; 2, T. Hamshire; 3, E. Davis; 4, T. Tovey. Corydoras Catfish: 1 and 4, N. Gray; 2, T. Hamshire; 3, R. Toose, A.O.V. Catfish: 1 and 2, R. Lawrence; 3 and 4, N. Gray. A.V. Danios and Rasboras: 1 and 4, R. Hyett; 2, Mrs. B. Pederson; 3, P. Fitchett. A.V. Sharks and Loaches: 1, T. Coggins; 2, R. Popel; 3, N. Gray; 4, T. Hamshire. Mollies: 1, 2 and 3, Mrs. K. Martin; 4, N. Gray. Swordtails: 1, N. Gray; 2, P. Fitchett; 3 and 4, Miss S. Phillips. Plaxies: 1 and 2, Mrs. K. Martin; 3 and 4, N. Gray. Guppy Male: 1 and 4, G. Furber;

2, N. Gray; 3, R. Lawrence. Guppy Female: 1, R. Lawrence; 2, N. Gray; 3 and 4, G. Furber. Killifish: 1, R. Toose; 2 and 3, R. Lawrence; 4, R. Chapman. A.O.V. Tropical Fish: 1, G. Furber; 2 and 3, R. Lawrence; 4, Mrs. B. Pederson. Breeders Egglayers: 1 and 4, R. Chapman; 2, Mrs. B. Pederson; 3, N. Gray. Livebearers: 1, Mrs. K. Martin; 2 and 4, N. Gray; 3, R. Bennett. A.V. Sixed Pairs: Mrs. K. Martin; 2 and 3, N. Gray; 4, R. Lawrence. A.V. Egglayers Junior: 1 and 2, N. Gray; 3 and 4, Miss M. Martin. A.V. Livebearers Junior: 1, 2, 3 and 4, Nigel Gray. Individual Furnished Aquaria: 1, R. Lawrence; 2, R. Bennett; 3, G. Furber; 4, Mrs. L. Stone.

THE Committee of the **Hemel Hempstead A.S.** for the coming year will be: Chairman, A. Tuff; Vice-Chairman, A. Dibley; Treasurer, G. Whitty; Secretary, Mrs. Ann Graham; Asst. Secretary, R. Holliday; Show Secretary, E. Bier; Asst. Show Secretary, Mrs. Jan Collins; Social Secretary, Mrs. Mary Whitty; Press Officer, V. Mills; Librarian, S. Collins; Catering Officer, Mrs. Ann Tuff; Junior Representative, D. Whitty.

THERE was an attendance of over thirty members at the July meeting of the **Weymouth A.S.**, which was held at the new venue at Ratcliff Hall, Queen's Road, Radpole Spa, Weymouth. It was decided that no summer outing would be arranged, but that the Society would hold a club show on 9th September, which will be open to the public at approximately 3 p.m. A show committee was elected consisting of D. Kelly (Show Manager); M. Nixey; D. Mullen; Mrs. P. Carter and Mrs. V. Worth (Catering). The slide show for September meeting will be "Betras by the Bucketful" on Siamese Fighters. After the usual club business, members took part in a light-hearted "fishy" Quiz, the result of which was a draw! The winners of the Table Show were: Pairs: 1, 2 and 4, Mrs. V. Worth; 3, R. Hart, Coldwater; 1, M. Nixey. Meetings are held on the second Tuesday of the month, at 7.30 p.m., at the Ratcliff Hall, Queen's Road, Radpole Spa, Weymouth. Visitors and new members welcome.

AT the July meeting of the **Dorchester and District A.S.**, the Chairman, Mr. B. Cornicks, welcomed the Weymouth and District A.S. members who were taking part in the annual inter-club fish show. The evening started with guest speaker Mr. Hawthorn, a Marine Biologist at Hardy's School, Dorchester, speaking on "Marine Life". This proved to be a most interesting talk with slides.

The judge for the "Ladies' Night" table show and the inter-club show was Mr. J. Jefferies of Bourne-mouth. The results were as follows: "Ladies' Night" table show: 1 and 2, Mrs. J. Worth; 3, Mrs. M. Fox; 4, Mrs. H. Cleal. Inter-Club show result: Weymouth won by 884 points to 878. Tropical Fish: 1, Mrs. P. Carter (Weymouth); 2 and 3, D. Norman (Dorchester); 4, R. Christopher (Dorchester). Cold Water Fish: 1 and 2, J. White (Weymouth); 3, G. Fox; 4, R. Christopher (Dorchester).

THE **Blackburn Aquarist Water Life Society** have started this time on a new basis with the emphasis on the social side for the wives and children, in order to encourage new members. At present meetings are held on the first Tuesday of the month.

At the first meeting early in July, Officers were appointed as follows: Chairman, T. Apin; Hon. Secretary, Mr. D. G. Metcalfe; Treasurer, P. Whelan; Show Secretary, A. Ellison. A Junior Section has been formed with Master

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D. Johnson as Chairman and D. Bradley as Secretary. Meetings will be held the first Tuesday of every month at the "Printers Arms", Accrington Road, Blackburn, at 7.30 p.m.

The regular monthly meeting of **Newbury and District A.S.** was enlivened by an amusing but nonetheless informative talk by Mr. Dodkins of Brentwood. Meetings are every third Monday of the month in the Town Hall at 7.30 p.m. All are welcome.

**DESPITE** incessant heavy rain on the day of their third annual Open Show, the **Sandgrounders A.S.** had no difficulty in staging their biggest and most successful show to date at their new venue. The results were: Guppies: 1, P. Hall, Runcorn; 2, E. Leadbetter, Fleetwood; 3, G. Wilkinson, Hyde. Swordtails: 1 and 2, B. Black, Fleetwood; 3, S. Clarke, Aireborough. Platies: 1, Carl Norton, Sandgrounders; 2, W. D. Haddock, Hyde; 3, B. W. Carter, Merseyside. Mollys: 1, B. Leadbetter, Fleetwood, Section winner; 2, J. and S. Hall, Aireborough; 3, B. W. Carter, Merseyside. Small Anabantids: 1, S. Clarke, Aireborough; 2, B. and C. White, Leigh; 3, R. I. Payne, Merseyside. Large Anabantids: 1, A. Gregory, Nelson, Section winner; 2, J. Boardman, Leigh; 3, K. Walsh, Independent. Siamese Fighters: 1, S. Clarke, Aireborough; 2, Mr. and Mrs. Toyne, Sheaf Valley; 3, Andrew Waterhouse, Sandgrounders. Small Cichlids: 1, L. and P. Graham, East Lancs.; 2, P. Whelan, Blackburn; 3, Mr. and Mrs. Toyne, Sheaf Valley; Large Cichlids: 1, D. Grogan, Accrington; 2, B. Leadbetter, Fleetwood; 3, G. Wilkinson, Hyde. Rift Valley Cichlids: 1, H. Ormscher, Sandgrounders, Section winner; 2, C. Norton, Sandgrounders; 3, S. Hooton, Sandgrounders. Angels: 1, E. Leadbetter, Fleetwood; 2, Mr. and Mrs. Toyne, Sheaf Valley; 3, A. Gregory, Nelson. Small Characins: 1, M. Lennox, Belle Vue; 2, P. Whelan, Blackburn; 3, A. Waterhouse, Sandgrounders. Large Characins: 1 and 2, P. Whelan, Blackburn; 3, R. Walker, Morecambe Bay. Small Barbs: 1, K. Wright, Sandgrounders, Section winner; 2, Mr. and Mrs. Birdsall, Aireborough; 3, S. Clarke, Aireborough. Large Barbs: 1, E. Leadbetter, Fleetwood; 2, R. A. Barton, Hoylake; 3, R. Sumner, Sandgrounders. Rasboras: 1 and 2, E. Leadbetter, Fleetwood; 3, Mr. and Mrs. W. Smith, Osram. Minnows: 1 and 2, Mr. and Mrs. Toyne, Sheaf Valley; 3, Mr. and Mrs. W. Smith, Osram. Danios: 1 and 3, D. Whiteside, B.K.A.; Section winner; 2, M. Titterton, Hyde. Killifish: 1, P. M. Goodwin, B.K.A.; 2 and 3, P. K. Brown, B.K.A. Small Catfish: 1 and 2, P. and H. Batchelor, Lorne; 3, B. W. Carter, Merseyside. A.O.V. Catfish: 1, E. Leadbetter, Fleetwood, Section winner; 2, D. Armour, Ellesmere Port; 3, P. and M. Batchelor, Lorne. Loaches: 1, R. I. Payne, Merseyside; 2, A. Weedon, Merseyside; 3, P. and H. Batchelor, Lorne. Sharks: 1, J. S. Hall, Aireborough, Section winner; 2, T. Hampson, Merseyside; 3, D. Whiteside, B.K.A. Flying Foxes: 1, S. Clarke, Aireborough; 2 and 3, P. Whelan, Blackburn, Section winner; 2, Mr. and Mrs. Toyne, Sheaf Valley; 3, Mr. and Mrs. Birdsall, Aireborough. Pairs (Egglayers): 1, J. S. Hall, Aireborough; 2, B. and C. White, Leigh; 3, Brian Sumner, Sandgrounders. Breeders (Livebearers): 1, A. Waterhouse, Sandgrounders; 2, E. Leadbetter, Fleetwood; 3, S. Hooton, Sandgrounders. Breeders (Egglayers): 1, E. Leadbetter, Fleetwood, Section winner; 2, D. Whiteside, B.K.A.; 3, R. Clift, Sandgrounders. A.O.V. Tropical: 1, R. Francis, Lorne; 2, J. S. Hall, Aireborough; 3, R. Whiteside, B.K.A. Common Goldfish: 1, Miss June Baxter, Northern Goldfish; 2, Mr. and Mrs. B. G. Holroyd, Morecambe Bay; 3, J. S. Hall, Aireborough. Fancy Goldfish: 1, A. Baxter, Northern Goldfish; 2, C. Wainey, Accrington; 3, Mrs. Harvey, Merseyside. A.O.V. Coldwater: 1, L. and P. Graham, East Lancs.; Section winner; 2, J. S. Hall, Aireborough; 3, S. Walsh, Accrington. Junior Livebearers: 1 and 2, S. Clarke, Aireborough; 3, Master D. Roberts, Oldham. Junior Egglayers: 1, I. Armour, Ellesmere Port, Section winner; 2, L. D. Watkins, Grimwood; 3, S.

Lennox, Belle Vue. Ladies: 1, Mrs. E. Ormscher, Sandgrounders; 2, Mrs. Walker, Morecambe Bay; 3, Miss Crabtree, Aireborough. Martinis: 1, B. Black, Fleetwood.

**MEMBERS** of the **Hastings and St. Leonards A.S.** met recently and heard Mr. Roy Skipper, famous for his success with Discus, lecture on the Discus fish. He spoke on feeding, rearing and spawning of the fish, also of the importance of the pH of the water, and illustrated his talk with slides.

The Table show, judged by Mr. P. Stapley, was for Swordtails. The winners were: 1, Ann Adams; 2, S. Livings; 3, B. Frear. Following the visit of Dr. Carrington of Interpet last month, about forty members and their families travelled to Dorking to see the Interpet Establishment and factory. Then on to Waltham-on-Hill to the fish farm, where tanks of Anemones, Marine and Fresh Water tropical fishes were shown to the visitors. The Society is holding their first Open Show in September.

**OFFICERS** elected at the second Annual General Meeting of the **Dunmow and District A.S.** were as follows: Chairman, D. Perry; Vice-Chairman, K. Andrews; Secretary, Mrs. Eileen Andrews; Show Secretary, D. McMurdy; Treasurer, T. Dadd; Librarian, P. Roache; Social Secretary, C. de Cruze; Press Officer, R. Thoday; Lay Member, I. Farlow. The society would like to thank Ian Farlow, the former chairman, who resigned as chairman after two years, for his devotion and work for the club.

The following awards were then presented by Mr. M. Pearson, club president: Breeders: 1, D. McMurdy; 2, M. Pearson; 3 and 4, R. Thoday; Barbers: 1, K. Andrews; 2, M. Pearson; 3, D. McMurdy; 4, M. Green. Furnished Aquaria: 1, M. Seago; 2, Eileen Andrews; 3, F. Vickers; 4, I. Farlow. Mini Furnished: 1, Mrs. E. Andrews; 2, M. Green; 3, I. Farlow. Overall points for the year's table shows: 1, Mrs. E. Andrews; 2, Mrs. W. Smith; 3, B. Thoday; 4, M. Green. Fish of the Year was won by I. Farlow.

**IN** June two aquarists, Mrs. Audrey Andrews and Mr. Don Macpherson, from Ontario Canada, visited Hastings. Unfortunately although their visit did not coincide with the **Hastings A.S.** meeting, they were able to join the Hastings party at the Bexhill three-way interclub show where they met members of the three clubs, Tonbridge, Bexhill and Hastings A.S. Mrs. Andrews and Mr. Macpherson belong to the Hamilton and District A.S., Ontario, Canada. At the meeting Graham Pryke gave a lecture on "Fishes I have bred". He started with the Common Guppy and Swordtails, went on to Egglayers and finished with Killifish and Neon Tetras. The table show entries were judged by R. J. Baker (Tonbridge A.S.). At the second meeting of the month Dr. Carrington on Interpet spoke of his recent tour of the Far East and developments in the hobby there. The table show was Catfish. Results: 1 and 3, T. Adams; 2, C. Pannell. The table show was judged by Colin George. During June a party of members went to Bexhill for an interclub show between Tonbridge, Hastings and Bexhill A.S. In addition to the show J. Bartley (Mid-Sussex A.S.) spoke on Native Marines. He divided his talk into three parts: Fishes, Invertebrates, Sea Anemones.

The three way table show resulted in a win for Tonbridge with 16 points, Hastings scoring 8 points, Bexhill 6 points. It was judged by D. Soper, F.B.A.S., Mid-Sussex A.S. The winners were: Barbs: 1 and 2, J. E. Bellington (Tonbridge); 3, J. T. Mathieson (Tonbridge). Characins: 1, Mrs. Sonell (Tonbridge); 2, C. Joyce (Bexhill); 3, C. Halliday (Bexhill). Rasboras: 1 and 3, Mrs. Mathieson (Tonbridge); 2, M. Gillingham (Bexhill). Swordtails: 1, Mrs. Adams (Hastings); 2, Mrs. E. Reed (Hastings); 3, P. Bates (Bexhill). Corydoras: 1, T. Adams (Hastings); 2, Mrs. Mathieson (Tonbridge); 3, D. Purchard (Tonbridge). In June P. Stapley represented Hastings at the **Littlehampton and Bognor A.S.** Open Show at Littlehampton and obtained 1 Rasboras, 2 Cichlids, 3 Breeders team, J. Grieg;

2, Labyrinths; 3, B. Frear. White Clouds Mountain Minnows.

**ENTRIES** at the **Bishops Cleeve A.S.** Open Show were over five hundred and the results were: Class 1: 1, G. V. Ludlow; 2, Atwood and Williams; 3, P. Greenwood; Highly commended: A. Faulkner, Class 2: 1, Mr. and Mrs. Carter; 2, Atwood and Williams; 3, P. Greenwood; Highly commended, B. R. Goll, Class 3: 1, R. Shakespeare; 2, C. Pratt; 3, D. Sullivan; Highly commended, C. Pratt, Class 4: 1 and 2, B. R. Goll; 3, A. Groom, Class 5: 1, D. R. Phippen; 2, K. Hall; 3, N. Gray; Highly commended, N. Gray, Class 6: 1, C. Turner; 2, B. R. Goll; 3, N. Furness; Highly commended, V. R. Goll, Class 7: 1 and 3, A. Hilliard; 2, N. Gray; Highly commended, Atwood and Williams, Class 8: 1, A. Hilliard; 2 and 3, B. R. Goll; Highly commended, N. Gray, Class 9: 1 and 2, Master J. Edwards; 3, J. P. Hughes; Highly commended, J. Salisbury, Class 10: 1, J. Rice; 2, Mrs. V. Russell; 3, C. Turner; Highly commended, J. Edwards, Class 11: 1, M. Strange; 2, P. Greenwood; 3, Atwood and Williams; Highly commended, K. Hodges, Class 12: 1 and 3, Master M. Loveless; 2, Mrs. I. Strange; Highly commended, P. Greenwood, Class 13: 1 and 3, D. Phippen; 2, K. Daniels; Highly commended, D. Phippen, Class 14: 1, G. Ludlow; 2, Mrs. V. Russell; 3, J. Rice; Highly commended, Mrs. I. Strange, Class 15: 1 and 3, T. Hampshire; 2, N. Gray; Highly commended, G. Ludlow, Class 16: 1 and 2, Mr. McQuade; 3, K. Daniels; Highly commended, B. R. Goll, Class 17: 1, D. Sullivan; 2, A. Faulkner; 3, P. Russell; Highly commended, M. Bishop, Class 18: 1 and 2, N. Gray; 3, B. Webb; Highly commended, T. Hampshire, Class 19: 1, B. R. Goll; 2, C. Turner; 3, A. Faulkner; Highly commended, Atwood and Williams, Class 20: 1, J. Salisbury; 2, A. Hilliard; 3, A. Heels; Highly commended, B. R. Goll, Class 21: 1, C. Turner; 2, B. Holmes; 3, B. R. Goll; Highly commended, P. Greenwood, Class 22: 1 and 2, C. Turner; 3, M. Bishop; Highly commended, T. Allen, Class 23: 1, J. Salisbury; 2, M. Loveless; 3, A. Faulkner; Highly commended, A. Heels, Class 24: 1, M. Strange; 2, E. Holmes; 3, N. Gray; Highly commended, C. F. Scriven, Class 25: 1, B. R. Goll; 2, C. Turner; 3, J. Hall; Highly commended, J. Salisbury, Class 26: 1, T. Hampshire; 2, K. Daniels; 3, D. Phippen; Highly commended, B. R. Goll, Class 27: 1, A. Faulkner; 2 and 3, R. Shakespeare; Highly commended, R. Shakespeare, Class 28: 1, C. Pratt; 2 and 3, N. Furness; Highly commended, N. Gray, Class 29: Extra Class Coldwater Twaits: 1 and 3, Mr. Bradley; 2, Atwood and Williams; Highly commended, J. Salisbury. Best Fish in Show award went to J. Salisbury of Bedworth Society. Lucky Programme No. 97 unclaimed. Please send programme with name and address to Mrs. J. Hawkins, 44 Burton Street, Cheltenham, Glos.

**THERE** was a large number of members in attendance at the June meeting of the **Gloucester Fishkeeping and Social Club.**

In view of the large number of junior members who have joined this year it has been decided to hold a series of talks covering all aspects of fishkeeping starting with the initial setting up of a tank, selection of fish for a community tank, and over a number of lectures hope to deal with all related subjects of both tropical and coldwater fish.

The table show was in two sections any variety, Livebearers and also Coldwater fish. The results were: 1 and 3, C. Dyke; 2, A. Lamb; 4, J. Pinkney, in the tropics, and in the Coldwater section T. Collier was first, second and fourth, with Mrs. J. Mitchell third. Guest speaker was Stan Lloyd, who is a member of the Severnside speakers panel and his subject was Coldwater fish. This was the first time the society had had a talk by a Coldwater enthusiast and the large audience was very interested in the lecture. Mr. Lloyd started by describing the various types of fish, and their breeding which he illustrated with eggs and fish from a few weeks old up to about four years. He also spoke of his experiences in "line breeding" and the snags he had encountered, and to conclude



be give a demonstration of stripping eggs from gravid fish, and answered a number of questions from the members. The meeting was closed by the chairman thanking Mr. Lloyd on the members' behalf for a most entertaining and interesting talk.

**THE Annual General Meeting of the Rhondda A.S.** was held early in July. The Secretary, who unfortunately could not get off the Committee, gave a vote of thanks to the retiring members of the Committee, who were: G. Pinkham, who has been a Founder Member of the Club and has been concerned with Committee work for eight years; M. Williams, who has been Show Secretary for five years; and A. Picton, Assistant Show Secretary for one year; and the Treasurer, D. Imbling.

The number of members present were not as many as usual, but it was as usual an exciting if often argumentative meeting. For the fourth year in succession M. Williams won the Shield for the Highest Number of Points for the year. In the Furnished Jar entry, the winner was M. Williams, and the runner up T. Click. The Knock-out competition and Shield was won by M. A. Picton. Committee for the coming year: Chairman, G. Mason; Secretary, R. Richards; Treasurer, E. Dunn; Show Secretary, E. Oakley; Asst. Show Secretary, G. Hardy; Minute Secretary, A. Click.

**AT the last meeting of the Slough and District A.S.** K. Ferris gave a very interesting talk on Photography with a demonstration of setting up a tank and how to ensure that the fish stays in the right place, while having its photograph taken. This was followed by a slide show of fish taken by K. Ferris and R. Knight. At the table show the results were as follows: Advanced class: 1, B. Withers; 2 and 3, R. Miles. Novice: 1, G. Williams. Characins: 1, A. Kitley; 2 and 3, R. Miles; 4, G. Williams. The next meeting will be held on 19th September at 7.30. R. Armstrong will be giving a talk on Killifish. Meetings are held at the Friends Meeting House, Ragstone Road, Slough.

**THE July monthly meeting of the Southampton A.S.** attracted an audience of forty-two, the largest since the club was revitalised last year. The principal attraction for the evening was a talk by R. Mosley of Hythe, area representative of Armitage Bros. Ltd., who introduced the members to the whole range of "Gossie" aquatic products, from the oldest goldfish food in Europe, to the latest under-gravel filter newly imported from Denmark and of course, the famous Gossie "Turtle Food". Mr. Mosley went on to describe the technique and importance of correct feeding, mentioning that ideally, fish should be fed five to six times a day. The members' monthly fish show was judged by C. Lennox of Salisbury, who complimented the Society on the quality and quantity of fish on display.

**RESULTS of the Dunmow and District A.S.** first Open Show which was very successful, were as follows: Best Fish of the Show: A. Lusby, Mid-Herts.; Class Ad: 1, P. Roache, Gt. Dunmow; 2, Mrs. E. Andrews, Gt. Dunmow. Class Ac: 1, K. Appleyard, T.A.S.; 2, Mrs. E. Andrews, Gt. Dunmow; 3 and 4, A. Bates, T.A.S. Class B: 1, Mrs. R. Coyle, Independent; 2, R. Thoday, Gt. Dunmow; 3, M. Lewis, Sudbury; 4, Garthwaite, Wisbech. Class C: 1, Mrs. R. Coyle, Independent; 2, R. A. Ott, Haverhill; 3, M. Pearson, E. London; 4, J. M. Smith, Chelmsford. Class D: 1 and 2, I. Parlow, Gt. Dunmow; 3, D. G. Wood, Haverhill; 4, C. Kittingbury, Uxbridge. Class Db: 1, V. C. Green, S.A.P.A.; 2, M. Pearson, E. London; 3, C. Kittingbury, Uxbridge; 4, A. C. Tuffin, S.L.A.D.A.S. Class Bt: 1, C. W. Goddard, Sudbury; 2, J. London, T.A.S.; 3, K. Andrews, Gt. Dunmow; 4, D. G. Wood, Haverhill. Class Ea: 1 and 4, A. P. Taylor, Sudbury; 2, R. Wall, T.A.S.; 3, A. Thacker, Vauxhall. Class F: 1 and 4, R. A. Ott, Haverhill; 2, K. Adams, S.L.A.D.A.S.; 3, P. Martin, Haverhill. Class G: 1, 2 and 3, C. Kittingbury, Uxbridge; 4, R. Thoday, Gt. Dunmow. Class H: 1 and 2, A. C. Tuffin, S.L.A.D.A.S.; 3, D. McMurdie, Gt. Dunmow;

4, C. J. French, Chelmsford. Class J: 1, P. O'Bryan, T.A.S.; 2, P. Coyle, Independent; 3, J. London, T.A.S.; 4, K. Adams, S.L.A.D.A.S. Class K: 1 and 2, P. O'Bryan, T.A.S.; 3, G. J. Coe, S.L.A.D.A.S.; 4, K. Adams, S.L.A.D.A.S. Class L: 1, A. Lusby, Mid-Herts.; 2, Master T. Coyle, Independent; 3, Miss L. Lambert, Harlow; 4, K. Adams, S.L.A.D.A.S. Class M: 1, J. London, T.A.S.; 2, Mrs. R. Coyle, Independent; 3, C. de Cruze, Gt. Dunmow; 4, L. Norris, Chelmsford. Class Nb-m: 1, K. Adams, S.L.A.D.A.S.; 2, G. J. Coe, S.L.A.D.A.S.; 3, R. A. Ott, Haverhill; 4, S. Jordan, Harlow. Class Ng-t: 1, M. Lewis, Sudbury; 2, A. Lusby, Mid-Herts.; 3, D. M. Chewright, S.L.A.D.A.S.; 4, R. Wall, T.A.S. Class O: 1 and 2, A. P. Taylor, Sudbury; 3, R. Wall, T.A.S.; 4, A. C. Tuffin, S.L.A.D.A.S. Class P: 1 and 3, A. P. Taylor, Sudbury; 2, P. Coyle, Independent; 4, C. W. Goddard, Sudbury. Class Q: 1 and 2, P. O'Bryan, T.A.S.; 3, K. Adams, S.L.A.D.A.S.; 4, D. J. Livermore, T.A.S. Class R: 1 and 2, P. O'Bryan, T.A.S.; 3, J. London, T.A.S.; 4, V. C. Green, S.A.P.A. Class S: 1, W. S. Clarke, Bury St. Edmunds; 2, J. London, T.A.S.; 3, H. Junon, T.A.S.; 4, A. C. Tuffin, S.L.A.D.A.S. Class T: 1 and 4, A. Lusby, Mid-Herts.; 2, J. London, T.A.S.; 3, D. M. Chewright, S.L.A.D.A.S. Class Xb-m: 1, D. McMurdie, Gt. Dunmow; 2, M. Pearson, E. London; 3, F. Vickers; 4, V. C. Green, S.A.P.A. Class Xo-t: 1, A. Lusby, Mid-Herts.; 2, J. Lambert, Harlow; 3, K. Appleyard, T.A.S.; 4, F. Vicker, E. London. Class Z: 1, A. C. Tuffin, S.L.A.D.A.S.; 2, D. M. Chewright, S.L.A.D.A.S.; 3, P. O'Bryan, T.A.S.; 4, D. Keen, Bury St. Edmunds. Class Zc: 1, D. Keen, Bury St. Edmunds; 2, I. Parlow, Gt. Dunmow.

**RECENT activities of the Wrexham T.F.S.** have included a slide show, a talk entitled "Holiday Preparations" by E. Jones, and a general talk on Cichlids by J. M. D'Arcy, followed by a very enjoyable Cross-Cross Quiz organised by R. Mathers. The fish show results, judged by C. Pritchard, were: Cichlids: 1 and 3, J. M. D'Arcy; 2, T. Pound. Bettas: 1, T. Pound; 2, E. Jones; 3, J. M. D'Arcy. Furnished Jars: E. Jones. A.O.V. Catfish: J. M. D'Arcy. The Summer Shield winner was E. Jones.

**THE seventh annual open show of the Gosport and District A.S.** was held in June. Detailed results are as follows: Wargate Cup Class Not: E. Little, Bracknell. Corney Cup Class Xb-m: F. Willis, Portsmouth. M. & E. Cup Best Furnished Aquarium: P. Jupe, Gosport. J. R. Ellick Cup Best Catfish: Mr. and Mrs. Parrish, Hounslow. J. R. Ellick Best Cichlid: B. Bisson, Basingstoke. J. R. Ellick Best labyrinth: Mr. and Mrs. Parrish, Hounslow. Gosport Club Trophy Best Livebearer: L. Little, Bracknell. J. Hobart Rose Bowl Best Coldwater Fish: B. Cowley, Gosport. M. & E. Trintail Cup: J. Jupe, Gosport. 1. Wine Cup Best Barb: B. Bisson, Basingstoke. Plaque and 1971 Committee Cup, Best Fish in Show and Aquarists Gold Pin: B. Bisson, Basingstoke. 1973 Committee Cup: P. Newbury, Danos and White Cloud Mountain Missons, Southampton. A. V. Taylor Cup, Highest Pointed G.D.A.S. Member: D. Haines, John and June Taylor Cup Best Guppy: V. Valley, Ealing. Class Aa-Ad: 1, M. Cott, Gosport; 2, K. Rees, Gosport; 3, D. Haines, Gosport. Class Ab-Ae: 1, P. Jupe, Gosport. Class B: 1, B. Bisson, Basingstoke; 2, R. Leslie, High Wycombe; 3, H. Armitage, Havant. Class C: 1, K. Etheridge, Gosport; 2, N. T. Fisher, Havant; 3, M. Blodfield, Havant. Class Ca: 1, B. Bisson, Basingstoke; 2, D. Haines, Gosport; 3, H. Pratt, Hounslow. Class D: 1, S. Freemantle, Gosport; 2, K. Rees, Gosport; 3, G. Dixon, Newbury. Class Da: 1, B. Bisson, Basingstoke; 2, F. Willis, Portsmouth; 3, G. Dixon, Newbury. Class Db: 1 and 3, B. Bisson, Basingstoke; 2, F. Willis, Portsmouth. Class Dc: 1, D. Haines, Gosport; 2, K. Groves, Mid-Sussex; 3, V. Valley, Ealing. Class E: 1, Mr. and Mrs. Parrish, Hounslow; 2, T. Adams, Hastings and St. Leonards; 3, D. Brooks, Hounslow. Class Ea: 1, T. Taylor, Basingstoke; 2, T. Winter, Southampton; 3,

A. Tracey, Gosport. Class F: 1, 2 and 3, M. Cott, Gosport; 1, M. Taylor, Havant; 2, J. Dickinson, Havant; 3, B. Bisson, Basingstoke. Class H: 1, Mr. and Mrs. Parrish, Hounslow; 2, M. Taylor, Havant; 3, Fiona Etheridge, Gosport. Class J: 1, T. Taylor, Basingstoke; 2, M. Cott, Gosport; 3, H. Armitage, Havant. Class K: 1, Mrs. P. Newbury, Southampton; 2, J. Jackson, Basingstoke; 3, P. Watt, Havant. Class L: 1, R. Leslie, High Wycombe; 2, P. Newbury, Southampton; 3, I. Pierce, High Wycombe. Class M: 1 and 3, T. Winter, Southampton; 2, J. White, Gosport. Class Nb-m: 1, R. Leslie, High Wycombe; 2, P. Jupe, Gosport; 3, G. Dixon, Newbury. Class Ng-t: 1, L. G. Little, Bracknell; 2, I. Pierce, High Wycombe; 3, S. Freemantle, Gosport. Class O: 1, V. Valley, Ealing; 2 and 3, C. Rees, Gosport; 1, V. Valley, Ealing; 2, G. Dixon, Newbury; 3, Mrs. J. Garrad, Runnymede. Class Q: 1, Mrs. A. M. Adams, Hastings and St. Leonards; 2, I. Pierce, High Wycombe; 3, A. Weaire, Southampton. Class R: 1, L. G. Little, Bracknell; 2, D. Haines, Gosport; 3, M. Cott, Gosport. Class S: 1, D. Nicholson, Gosport; 2, B. Bisson, Basingstoke; 3, P. Ronald, Basingstoke. Class T: 1, B. Bisson, Basingstoke; 2, Mr. and Mrs. Lines, Southampton; 3, Mrs. Adams, Hastings and St. Leonards. Class U: 1 and 3, B. Cowley, Gosport; 2, Master R. Little, Bracknell. Class V: 1, J. Jupe, Gosport; 2, R. Rich, Basingstoke; 3, D. Stokes, Portsmouth. Class W: 1 and 3, D. Stokes, Portsmouth; 2, B. Cowley, Gosport. Class Xb-m: 1, F. Willis, Portsmouth; 2, G. Dixon, Newbury; 3, T. R. Duffy, Bracknell. Class Xo-t: 1, 2 and 3, L. G. Little, Bracknell. Class Za-Zb: 1, T. Duffy, Bracknell; 2, B. Bisson, Basingstoke; 3, G. Dixon, Newbury. Class Zc: 1, B. Bisson, Basingstoke; 2, K. Ayling, Gosport; 3, M. Cott, Gosport.

**THE Worsley and District A.S.** is pleased to announce they now have forty-nine members and would welcome all new members to the club. They would also take this opportunity to thank the societies who attended the first inter-club show on 25th April. The evening was extremely successful and over eighty people attended.

**A TALK on koi keeping illustrated by slides,** will be given to the Corby and District A.S. by Mrs. Hilda Allen, General Secretary of the British Koi-Keepers' Society. The meeting will be at 7.30 pm on Wednesday, 5th September, at The Nag's Head, High Street, Corby. A special invitation is extended to B.K.K.S. members by the Corby A.S. Secretary, Mr. R. E. Tyler, 30 High Street, Rothwell, Kettering, Northants.

**SHOW results of Vauxhall Motors A.S.** were as follows: Highest Pointed Society (Vauxhall), Barbs: 1 and 2, Mr. and Mrs. Oakley, Dunstable; 3, Mrs. A. Crew, W.A.D.A.S.; 4, J. Aspinall, Vauxhall. Characins: 1, D. Dare, Independent; 2, R. A. Ott, Haverhill; 3, Mr. Ashworth, Sudbury; 4, D. Luxton, Vauxhall. Cichlid Class D: 1, D. Dare, Independent; 2, G. B. Discon, Newbury; 3, Mrs. Oakley, Dunstable; 4, D. Luxton, Vauxhall. Class Db: 1 and 4, R. Ashworth, Sudbury; 2, P. A. Moye, Bletchley; 3, R. P. Rumney, Mid-Herts. Angels: 1, J. Wishnie, Bletchley; 2, G. W. Allen; 3, G. Whittle, Vauxhall; 4, W. Abbot, Dunstable. Class E: 1, A. Taylor, Sudbury; 2, R. Sinfield, Vauxhall; 3, D. Wright, Vauxhall; 4, A. D. Philip, Vauxhall. Class Ea: 1, A. Taylor, Sudbury; 2 and 3, P. A. Moye, Bletchley; 4, A. Crew, W.A.D.A.S. Class F: 1, D. Dare, Independent; 2 and 4, W. E. Goodwin, Bletchley; 3, R. A. Ott, Haverhill. Class G: 1, D. Dare, Independent; 2, C. Kittingbury, Uxbridge; 3, J. McCabe, Vauxhall; 4, D. Brunton, Vauxhall. Class H: 1, R. Gillard, Dunstable; 2 and 3, P. A. Moye, Bletchley; 4, D. Reilly, Independent. Class J: 1, D. Brunton, Vauxhall; 2, C. Kittingbury, Uxbridge; 3 and 4, D. Reilly, Independent. Class K: 1 and 3, G. W. Allen; 2, R. Sinfield, Vauxhall; 4, A. Worth, Mid-Herts. Class L: 1, A. Taylor, Sudbury; 2, G. W. Allen; 3, A. Lusby, Mid-Herts; 4, W. E. Goodwin, Bletchley. Class M: 1, D. Reilly, Independent; 2, A. Thacker, Vauxhall;



3, D. Brunton, Vauxhall; 4, C. Kildingsbury, Uxbridge. Class N: 1, D. Reilly, Independent; 2, M. Lewis, Sudbury; 3, Mrs. Crew, W.A.D.A.S.; 4, A. Holmes, Banbury. Class O: 1, Mr. and Mrs. Murphy, Greenford; 2 and 3, A. Taylor, Sudbury; 4, C. Kildingsbury, Uxbridge. Class P: 1, P. Coyle, Independent; 2 and 4, Mr. and Mrs. Murphy; 3, B. Carter, Vauxhall. Class Q: 1, P. A. Moya, Bletchley; 2, G. Bryan, Vauxhall; 3, M. Lewis, Sudbury; 4, S. Willshire, Bletchley. Class R: 1, D. Reilly, Independent; 2, J. Asinail, Vauxhall; 3, A. Thacker, Vauxhall; 4, J. Baines, Vauxhall. Class S: 1, R. Ashworth, Sudbury; 2 and 3, G. W. Allen; 4, P. A. Moya, Bletchley. Class T: 1 and 2, A. Luby, Mid-Herts; 3 and 4, A. Holmes, Banbury. Class X: 1 and 2, A. Holmes, Banbury; 3, Mrs. Oakley, Dunstable; 4, W. E. Goodwin, Bletchley. Class Y: 1 and 2, W. E. Goodwin, Bletchley; 3, G. E. Discon, Newbury; 4, D. Calver, B.K.A. Class A: 1 and 2, Vauxhall. Class Ad: 1, D. Reilly, Independent; 2, J. Baines, Vauxhall; 3, A. Luby, Mid-Herts. Class Ae: 1, J. Baines, Vauxhall. Class Z: 1 and 2, J. Baines, Vauxhall. Class Junior: 1 and 3, P. Philip, Vauxhall; 2, D. Heys, Mid-Herts; 4, J. Abbit, Dunstable.

**GOLDWATER** Fishkeeping was the subject of a very interesting lecture by J. S. Hall to Lincoln and District A.S. at the July meeting. A table show was judged by Mr. Hall and the results were as follows: 1, Ian Smith; 2, R. Peach; 3, T. Dobbs. Meetings are held every third Monday in the month.

**THE British Killifish Association** wish to announce that owing to ever increasing costs the annual subscription rates have unfortunately had to be increased to £3.00 for Inland Members and £4.50 for Overseas Members. These rates will cover the fiscal year 1st September, 1973, to 31st August, 1974. For any further information please send a stamped addressed envelope to the Secretary, Mr. W. Devison, 2 Shaw Road, Tipton, Staffordshire DY4 7QA.

**THE annual show of the Billingham A.S.** was held in July and the results were as follows: A.V. Sword: 1, Mr. and Mrs. Coates, South Shields; 2 and 3, Mr. and Mrs. Sowerby, Mr. Pleasant; 4, Mr. Kennedy, B.A.S. Small Characins: 1, Mr. and Mrs. Coates, South Shields; 2 and 3, P. T. Robinson, Mr. Pleasant; 4, Messrs. Connolly and Robinson, Half Moon. Fighters: 1, A. Cochlin, Castleford; 2, B. Cooper, Peterlee; 3, Mr. and Mrs. G. Brown, Half Moon; 4, Mr. and Mrs. Milne, Doncaster. Livebearers: 1, S. J. W. Mowbray, Mr. Pleasant; 2, B. Cooper, Peterlee; 3, S. Smith, Peterlee; 4, J. Beavers, Hartlepool. Small Barbs: 1 and 2, D. Nagle, Redcar; 3, Mr. and Mrs. Wells, Doncaster; 4, Mr. and Mrs. Atwell, B.A.S. Corydoras and Bioclini: 1, Mr. and Mrs. Wells, Doncaster; 2, J. Chamberlain, Hartlepool; 3, Mr. and Mrs. Atwell, B.A.S.; 4, Mr. Squirrel, Independent. A.V. Guppy: 1 and 3, Mr. Gillespie, Castleford; 2, L. Smith, Castleford; 4, A. and L. Barrett, Castleford. Junior: 1, I. Chamberlain, Hartlepool; 2, T. Roper, B.A.S.; 3, Master A. Thompson, Half Moon; 4, Master A. Barrett, Castleford. E.L.T.C.: 1, Mr. and Mrs. Milne, Doncaster; 2, J. Smith, Castleford; 3 and 4, A. Cochlin, Castleford. A.V. Goldwater: 1, 2 and 3, B. Edwards, Half Moon; 4, Mr. Goodchild, Redcar. A.O.V. Tropical: 1, S. Smith, Peterlee; 2, Mr. Wainwright, Hartlepool; 3, B. Steele, B.A.S.; 4, Mr. and Mrs. Coates, South Shields. Rift Valley Cichlids: 1, R. Atherton, Hartlepool; 2, P. Cowe, Half Moon; 3 and 4, Mr. and Mrs. A. Saunders, S.A.S. Large Characins: 1, Mr. and Mrs. Welford, Cleveland; 2, J. Furness, Castleford; 3, E. Rodway, Peterlee; 4, B. Steele, B.A.S. Large Barbs: 1, A. and L. Barrett, Castleford; 2, R. Atherton, Hartlepool; 3, J. Beavers, Hartlepool; 4, Mr. Gillespie, Castleford. Angels: 1, T. Ravel, Hartlepool; 2, A. Crossley, B.A.S.; 3, P. Wright, Houghton; 4, D. Sudron, B.A.S. A.O.V. Labryinth: 1, S. Smith, Peterlee; 2, D. Sudron, B.A.S.; 3, Mr. and Mrs. Milne, Doncaster; 4, Mr. Hipkins, S.A.S. Egg-layers (Pairs): 1, B. Cooper, Peterlee; 2, A. Cochlin, Castleford; 3, Mrs. Willis, Half Moon; 4, Mr. and Mrs.

Wells, Doncaster. A.O.V. Catfish: 1, Mr. H. Garthwaite, Independent; 2, Mr. and Mrs. A. Saunders, S.A.S.; 3, J. Beavers, Hartlepool; 4, Mr. and Mrs. Coates, South Shields. Loach: 1, Mr. and Mrs. Walker, S.A.S.; 2, J. Ryan, B.A.S.; 3, Mr. Wainwright, Half Moon; 4, Messrs. Connolly and Robinson, Half Moon. Rashoras, Danios and Minnows: 1, Mr. and Mrs. Atwell, B.A.S.; 2, B. Cooper, Peterlee; 3, A. and L. Barrett, Castleford; 4, Mr. and Mrs. Wells, Doncaster. Large Cichlids: 1, Mr. Wainwright, Hartlepool; 2, P. Newton, Hartlepool; 3, D. Sudron, B.A.S. Breeders (Egg-layers): 1 and 2, L. Smith, Castleford; 3, A. Cochlin, Castleford; 4, Mr. and Mrs. Wells, Doncaster. Furnished Jar: 1, Mrs. Willis, Half Moon; 2 and 3, Mr. and Mrs. Saunders, S.A.S.; 4, Mrs. Willis, Half Moon. A.V. Pity: 1, B. Cooper, Peterlee; 2, J. Beavers, Hartlepool; 3, Mrs. Linwin, B.A.S.; 4, Mr. and Mrs. Milne, Doncaster. Breeders (Livebearers): 1, Mr. and Mrs. Sowerby, Mr. Pleasant; 2, J. Furness, Castleford; 3, L. Smith, Castleford; 4, Mrs. Richardson, B.A.S. A.V. Mollie: 1, B. Cooper, Peterlee; 2, J. Beavers, Hartlepool; 3, P. Cowe, Half Moon; 4, K. Greenley, Half Moon. Small Cichlids: 1, R. Wrightson, B.A.S.; 2, L. Smith, Castleford; 3, G. Brown, Mr. Pleasant; 4, Mr. and Mrs. R. Thompson, Bishop Auckland. Sharks and Flying Fox: 1, K. Greenley, Half Moon; 2, G. Brown, Mr. Pleasant; 3, I. R. Thompson, Redcar; 4, R. Charlton, Redcar.

**DETAILS of the third leg of an Interclub competition held at the Thurrock A.S.'s last meeting held in July were as follows:** The four societies involved were: Southend, Leigh and District A.S., East London A.S., North Kent A.S., Thurrock A.S., and C. A. T. Brown gave a most enlightening lecture on differentiation between various species of Corydoras Catfish. On the whole, despite setbacks, the evening was a great success. The results were: Class C-a-b: 1, J. London, T.A.S.; 2, K. Adams, S.L.A.D.A.S.; 3, G. Coe, S.L.A.D.A.S.; 4, D. C. M. Durrant, S.L.A.D.A.S. Class O: 1 and 2, J. Martin, B.L.A.S.; 3, J. London, T.A.S.; 4, R. Eury, B.L.A.S. Class P: 1, D. Chamberlain, S.L.A.D.A.S.; 2, J. London, T.A.S.; 3, P. Cottle, N.K.A.S.; 4, D. C. M. Durrant, S.L.A.D.A.S. Class C-a-b: P. Coe, N.K.A.S.; 2, M. Will, T.A.S.; 3, K. Bishop, T.A.S.; 4, D. C. M. Durrant, S.L.A.D.A.S.

**RESULTS of Grantham and District A.S. Show were:** Plates: 1, Mr. and Mrs. Milne, Doncaster; 2, Mr. and Mrs. Daines, Doncaster; 3, Mr. and Mrs. Copley, Doncaster. Mollies: 1, T. Smith, Sheffield; 2, J. S. Hall, Aireborough; 3, R. Brown, Southnorpe. Swordtails: 1, E. Kirk and Son, South Humberdale; 2, D. and M. Laycock, Sheffield; 3, Mr. Remde, Kettleby. Guppies: 1 and 2, D. and M. Laycock, Sheffield (Section winner); 2, Mr. and Mrs. Milne, Doncaster. Small Characins: 1, D. and M. Laycock, Sheffield (Section winner); 2, R. Elliott, Corby; 3, W. Rosdell, Rostington. Large Characins: 1, T. Smith, Sheffield; 2, Mr. and Mrs. Daines, Doncaster; 3, G. Thackbroom, Castleford. Small Barbs: 1, Mr. and Mrs. Pritton, Grantham (Section winner); 2, Mrs. Birdall, Aireborough; 3, Mr. and Mrs. Sellars, Lincoln. Large Barbs: 1 and 3, Mr. and Mrs. Stanton, Sheffield; 2, Mr. L. Jackson, Grimsby and Cleethorpes. Dwarf Cichlids: 1, J. A. Whitley, Aireborough; 2, Mr. and Mrs. Sellars, Lincoln; 3, H. Kuhns, Lincoln. Large Cichlids: 1, M. T. Reid, Wookop; 2, Mr. and Mrs. Blades, Cresswell; 3, R. Wadlen, Peterborough. Angels: 1, E. Kirk and Son, South Humberdale (Section winner); 2, Mrs. J. Kirk, South Humberdale; 3, Mr. and Mrs. Dixon, Gainsborough. Corydoras: 1 and 3, Mr. and Mrs. Wells, Doncaster (Section winner); 2, P. H. Mighall, Hacknall and Bulwell. A.O.V. Catfish: 1, J. S. Hall, Aireborough; 2, Mr. and Mrs. Stanton, Sheffield; 3, Mr. and Mrs. Wells, Doncaster. Loaches: 1, Mr. and Mrs. Toyne, Sheaf Valley; 2, Mr. and Mrs. Clarke, Aireborough; 3, Mr. and Mrs. Harris, Gainsborough. Killies: 1, Mr. and Mrs. Blade Cresswell (Section winner); 2, T. Smith, Sheffield; 3, A. Curchin, Castleford. Minnows

and Danios: 1, Mr. and Mrs. Blades, Cresswell; 2, Mr. and Mrs. Cohen, Pontefract; 3, H. Thorpe, Doncaster. Sharks and Plovers: 1 and 2, G. Thackbroom, Castleford (Section winner); 3, J. S. Hall, Aireborough. Rashoras: 1, T. Smith, Sheffield; 2, H. Kuhns, Lincoln; 3, Mr. and Mrs. Fletcher, Doncaster. Fighters: 1, Miss S. Clarke, Aireborough; 2 and 3, Mr. and Mrs. Cohen, Pontefract. A.O.V. Arabonids: 1 and 2, Mr. and Mrs. Cohen, Pontefract (Section winner); 3, Mr. and Mrs. Milne, Doncaster. Breeders (Livebearers): 1 and 2, Mr. and Mrs. Daines, Doncaster; 3, Mr. and Mrs. Toyne, Sheaf Valley. Breeders (Egg-layers): 1 and 3, A. Curchin, Castleford (Section winner); 2, Mr. and Mrs. Wells, Doncaster. Pairs (Livebearers): 1, Mr. and Mrs. Toyne, Sheaf Valley; 2, Mr. and Mrs. Birdall, Aireborough; 3, Mr. and Mrs. Daines, Doncaster. Pairs (Egg-layers): 1 and 2, Mr. and Mrs. Stanton, Sheffield (Section winner); 3, Mr. Hubbard, Independent. A.O.V. Tropical: 1, J. S. Hall, Aireborough (Section winner); 2, Mr. and Mrs. Simpson, Worsnop; 3, J. A. Whitley, Aireborough. Novice (Livebearers): 1, Mr. and Mrs. Birdall, Aireborough; 2, Mr. Staines, Lincoln; 3, Miss D. Crabtree, Aireborough. Novice (Egg-layers): 1, Mr. Portman, Lincoln (Section winner); 2 and 3, E. Neville, Grantham. Goldfish and Guppies: 1, 2 and 3, J. S. Hall, Aireborough. Shubunkins and Fancy Goldfish: 1, 2 and 3, J. S. Hall, Aireborough. A.O.V. Goldwater: 1 and 2, J. S. Hall, Aireborough (Section winner); 3, J. Gray, Independent. Ladies: 1, Mrs. M. Smith, Castleford; 2, Mrs. D. Copley, Doncaster; 3, Mrs. D. Hughes, Grimsby and Cleethorpes. Juniors (Livebearers): 1, Master P. Smith, Sheffield; 2, Master G. Borrill, Lincoln; 3, Miss C. Deller, Grantham. Juniors: 1, Master S. Neville, Grantham (Section winner); 2, Master P. Smith, Sheffield; 3, Miss W. Thackbroom, Castleford. S. Female (Livebearer): 1, K. Barrett, Doncaster (Section winner); 2, J. S. Hall, Aireborough; 3, J. A. Whitley, Aireborough. S. Female (Egg-layer): 1, Mr. and Mrs. Sellars, Lincoln; 2, Mr. and Mrs. Stanton, Sheffield; 3, Mr. and Mrs. Shipman, Grantham.

**THE Salisbury and District A.S. Open Show** was well supported with 308 entries from sixty-seven exhibitors. Club member D. Tucker took the Fish of the Show award with his Jack Dempsey Cichlid. Results were: Club Furnished Aquarium Tropical: 1, Salisbury Barbs; 1, J. H. Jackson, Basingstoke; 2, L. G. Little, Bracknell; 3, A. Barton, Weymouth; 4, R. P. Adams, Salisbury. Hypheosobranch, etc.: 1, B. A. Jones, Basingstoke; 2, F. Grant, Salisbury; 3, A. G. Tull, Salisbury; 4, M. Hutchings, Salisbury. A.O.V. Characins: 1, P. J. Legg, Newbury; 2, G. R. Foster, Newbury; 3, F. Grant, Salisbury; 4, Mr. and Mrs. Medway, Weymouth. Angels: 1, D. Tucker, Salisbury; 2, R. K. Wiley, Independent; 3, M. B. Tull, Salisbury; 4, A. R. Carter, Southampton. Dwarf Cichlids: 1 and 2, F. Willis, Portsmouth; 3, T. Morris, Salisbury; 4, J. G. Dickinson, Havant. Rift Valley Cichlids: 1, D. Kerr, Salisbury; 2, J. Brown, Didcot; 3, K. Rees, Gosport; 4, G. E. Dixon, Newbury. Cichlids, A.O.S.: 1 and 3, D. Tucker, Salisbury; 2, S. Freeman, Gosport; 4, R. P. Adams, Salisbury. Siamese Fighters: 1, A. Tracy, Gosport; 2, P. Mackay, Havant. Albinos, A.O.S.: 1, Mrs. V. J. Lloyd, Newbury; 2, G. Castle, Trowbridge; 3, J. H. Jackson, Basingstoke; 4, W. West, Independent. Killies: 1, Mrs. V. J. Lloyd; 2, J. H. Jackson; 3 and 4, F. Grant. Tropical Catfish: 1, B. A. Jones, Basingstoke; 2, J. Dickinson, Havant; 3, J. H. Jackson; 4, G. E. Dixon. Corydoras and Bioclini: 1, 2 and 4, K. E. Taylor, Havant; 3, D. Eddelstein, Salisbury. Rashoras: 1, K. Rees; 2 and 4, D. Tucker; 3, Mr. and Mrs. Medway, Danios and White Cloud Mountain Minnows: 1 and 3, G. Castle; 2, J. H. Jackson; 4, Mrs. P. Newbury, Southampton. Loaches and Bionis: 1, Mrs. V. J. Lloyd; 2, J. Dickinson; 3, Mrs. P. Newbury; 4, A. C. Tull. Tropical Egg-layers, A.O.S.: 1, L. G. Little; 2, T. Blinhard, Salisbury; 3, W. West; 4, P. J. Legg. Sead Pairs: 1, G. E. Dixon; 2, Mrs. P. Carter; 3, Mr. and Mrs. Medway; 4, S. Freemantle. Male Guppy: 1, Mrs. P. Newbury; 2, Mrs. I.



Mewitt, Amersbury; 3 and 4, C. Bees, Independent, Swindon; 1, D. Kerr; 2 and 4, P. Ronald, Bevington; 3, K. Holmes, Havant. Platies: 1, R. F. Adams; 2, 3 and 4, L. G. Little. Mollies: 1, K. Holmes; 2, A. H. Weare, Southampton. Livebearers, A.O.S.: 1 and 2, M. Mansbridge, Southampton; 3, G. Castle; 4, T. A. Lines, Southampton. Single Tailed Goldfish and London Shubunkin: 1, R. Little; 2 and 4, R. F. Adams; 3, G. J. Aze, Yeovil. Bristol Shubunkins and Comets: 1, G. J. Aze; 2 and 3, R. F. Adams; 4, C. Beets. Any Variety Twin Tail Goldfish: 1, Miss S. Jackson, Koi Carp; 1, E. Binns, Poetsmouth; 2 and 3, T. Chu, Independent; 4, Mrs. P. Goddard. Centrepieces: 1 and 2, E. Binns, A.O.S. Coldwater Fish: 1, 2 and 3, V. Hunt, Havant; 4, K. Blanchard, Salisbury. Breeders Tropical Egg-layers: 1 and 4, Mr. and Mrs. Medway; 2, F. Willis; 3, G. E. Dixon. Breeders Tropical Livebearers: 1 and 2, L. G. Little; 3, P. Ronald; 4, T. A. Lines. Breeders Coldwater: 1, G. J. Aze. Rooted Plants: 1 and 2, T. Duffey, Bracknell; 3, V. Hunt; 4, J. H. Jackson. Floating Plants: 1 and 2, R. F. Adams.

**THE Fancy Guppy Association** (Birmingham Section) 1973-74 Points Cup Trophy, comprises twelve calendar monthly competitions. Table Shows 1-5 inclusive, first ten positions only: Mr. and Mrs. Phillimore, 141 points; K. Lee, 81 points; G. Steadman, 74 points; Mr. and Mrs. Burnell, 50 points; A. Charlton, 49 points; W. Bishop, 45 points; W. Myers, 41 points; J. Ishih, 40 points; D. R. Becham, 37 points; Mrs. J. Croft, 28 points. At last month's meeting the major awards were Best Female, E. Smith; Best Male, B. Beacham senior; Best Breeder, Best in Show, A. C. and J. Truman. Anyone who is interested in breeding good stock Guppies is welcome. The Section meet on the fourth Sunday afternoon of each month at the Gible Farm Community Centre, Steadford, Birmingham.

At the July meeting of the **Goldfish Society of Great Britain**, Mr. J. Linnac gave a talk on how he produced a Calico Celestial. After the break for tea J. Bunnell gave a talk on his and the members' studies on the connection between fish spawning and moon phases. The G.S.G.B. Open Show will be held on 22nd September at Sutton Adult School, Sutton, Surrey. Show schedules are available from Mrs. P. Whittington, Pisces Lodge, Ringley Park Avenue, Reigate, Surrey.

The **Horsforth and District A.S.** had an enjoyable day trip to Skegness Marine Land in June. They were also allowed to view behind the scenes in the aquarium. At the July meeting in the New Civic Hall, Pudsey, Mr. Shephardson of Hull gave an interesting slide show on Marines, Zebra Danios and Siamese Fighters. The table show was won by J. Dunn. Meetings are now held in the Green Room on the first Tuesday in each month. All communications to the secretary, Leeds 675712.

The Northern Section of the **British Koi Keepers' Society** met at Southport in July. A large number of members were present and Koi keeping in general was discussed. The next meeting, which will deal with fish diseases, will be held on Sunday, 16th September, 1973, in Manchester. All are welcome. Full details of venue, memberships, etc., may be obtained (s.a.e. please) from the Section Secretary, Mr. W. R. Seal, 7 Highlands Road, Offerton, Stockport, Cheshire.

The following officer changes will take place in the **British Killifish Association** on 1st September: Chairman, J. Jeremy; Vice-Chairman, D. Ellis; Treasurer, B. Tate; Secretary, W. Devision; Technical Editor, A. Wright; Species Controller, N. Hulme-Vickerstaff; Services Secretary, F. Bolton; Newsletter Editor, R. Heap; Post and Despatch, J. Harris; Registrar, P. Brown, Rushen, Elm Grove, Eccleston Park, Prescott, Lancs. The subscription is £3.00 for members in the British Isles and £4.50 for overseas members. All enquiries regarding membership should be sent to the Registrar and be accompanied by a s.a.e.

**RESULTS of the Dagenham A.S. Town Show** were as follows: Furnished Aquaria: 1, P. Jacobs, Romford; 2, H. G. Berger, Ilford; 3, D. L. Seaman, Ilford; 4, R. F. Victory, Romford. Barbos: 1, J. M. London, Thurrock; 2, D. E. Byfield, Romford; 3, H. C. Junon, Thurrock; 4, F. A. Pimm, Chingford. Characins: 1, B. Peacock, Thurrock; 2, R. Argent, East London; 3 and 4, Mrs. M. J. Wall, Thurrock. Cichlids: 1, D. E. Byfield, Romford; 2, R. A. Jones, Romford; 3, W. Rowe, Ilford; 4, M. J. Moffat, Romford. Labyrinth: 1, Sybil Hedges, Bethnal Green; 2, J. M. London, Thurrock; 3, R. Sammons, Leytonstone and Stratford; 4, Mr. and Mrs. G. Tolladay, Chingford. Invertebrates: 1, J. M. London, Thurrock; 2 and 4, L. R. Baker, East London; 3, R. Argent, East London. Tropical Catfish: 1, Sybil Hedges, Bethnal Green; 2 and 3, B. L. Wright, Thurrock; 4, J. M. London, Thurrock. A.V. Corydoras and Brochies: 1, P. O'Bryan, Thurrock; 2, R. A. Jones, Romford; 3, D. E. Byfield, Romford; 4, Sybil Hedges, Bethnal Green. Rasbora: 1, D. Bundy, Bethnal Green; 2, P. O'Bryan, Thurrock; 3, J. M. London, Thurrock; 4, B. L. Wright, Thurrock. Danios and W.C.M.M.: 1 and 4, P. O'Bryan, Thurrock; 2, Mr. and Mrs. G. Tolladay, Chingford; 3, Mrs. M. J. Wall, Thurrock. A.O.S. Tropical Egg-layers: 1 and 3, Sybil Hedges, Bethnal Green. Best Fish in Show: 2, J. M. London, Thurrock; 4, B. Peacock, Ilford. Swordtails: 1, P. O'Bryan, Thurrock; 2, F. A. Pimm, Chingford; 3, J. M. London, Thurrock; 4, G. W. Irish, Ilford. Platies: 1 and 2, P. O'Bryan, Thurrock; 3, J. M. London, Thurrock; 4, D. L. Seaman, Ilford. Mollies: 1, R. Wall, Thurrock; 2, J. M. London, Thurrock; 3, B. L. Wright, Thurrock; 4, W. Rowe, Ilford. A.O.S. Livebearers: 1, P. Vicker, East London; 2 and 3, J. M. London, Thurrock; 4, R. Wall, Thurrock. Single Tailed Goldfish: Sybil Hedges, Bethnal Green; 2, I. Fleming, G.S.G.B.; 3, Mary Linsley; 4, H. G. Berger, Ilford. Twin Tailed Goldfish: 1, J. Linnac, East London; 2 and 3, A. Blawman, G.S.G.B.; 4, H. G. Berger, Ilford. A.O.S. Coldwater: 1 and 2, Sybil Hedges, Bethnal Green; 3, H. G. Berger, Ilford; 4, W. Rowe, Ilford. Breeders Tropical Egg-layers: 1, P. Vicker, East London; 2, Mrs. M. J. Wall, Thurrock; 3, R. Argent, East London; 4, R. C. Smith, Romford. Breeders Tropical Livebearers: 1 and 2, W. Baker, Romford; 3, M. J. Wall, Thurrock; 4, R. F. Victory, Romford. Plants: 1, 3 and 4, H. C. Junon, Thurrock; 2, P. O'Bryan, Thurrock. Junior Tropical Fish: 1 and 4, Trudy Hedges; 2, W. Wright; 3, Lynn Junon. Junior Coldwater Fish: 1 and 3, Trudy Hedges; 2, Mary Linsley; 4, M. Junon. Inter-Club Cup: 1, Thurrock, 94 points; 2, Romford, 44 points; 3, Bethnal Green, 30 points; 4, East London, 29 points; 5, Ilford, 20 points; 6, G.S.G.B. 8 points and Chingford 8 points. Best Fish in Show and Tropical Fish: Sybil Hedges, Class M. Best Coldwater: J. Linsley, Class V.

THERE was a record number of 485 entries for the **Llantwit Major A.S.** annual open show. Results: Barbos: 1 and 4, A. Hilliard, Bath; 2, 3 and 5, W. Limbrick, Llantwit Major. Characins: 1 and 5, R. Howe, Rhondda; 2, C. Harding, Roath; 3, A. Hilliard; 4, R. Perkins, Port Talbot; 4, J. Cilia, Llantwit Major. Siamese Fighters: 1, C. Turner, Cardiff; 2 and 4, R. Perkins, Port Talbot; 3, C. Philippart, Swansea. H. and H.C.: 1, M. Wilkie, Bath; 2, W. Sims, Newport; 3, J. Hiffe; 4, C. Harding; 5, R. Howe. Cichlids: 1, J. Rice, Port Talbot; 2, C. Morrison, Port Talbot; 3 and 4, W. Gorsell, Roath. Angels: 1, Miss J. Parkin, Swansea; 2, K. Player; 3, R. Perkins; 4, M. Poursere, Port Talbot. Dwarf Cichlids: 1, C. Turner; 2, J. A. Thomson, Llantwit Major; 3, R. Howe; 4, W. Gibbon, Newport. Labyrinth: 1, J. Hiffe; 2, W. Gibbon, Newport; 3, G. Castle; 4 and 5, P. G. Thomas, Swansea. Egg-laying Tooth-carp: 1, C. H. Morrison; 2, 3 and 4, M. Williams, Rhondda. Tropical Catfish: 1, W. Williams, Rhondda; 2, C. Turner; 3, M. Wilkie; 4, J. Davs, Cardiff. Corydoras and Brochies: 1 and 3, M. Quennell; 2, M. Williams; 4, R. Richards, Rhondda. Junior Tropical Egg-layers and Livebearers: 1, Susan Morrison, Port Talbot; 2, G. Harry, Rhondda; 3 and 4, K. Thomas; 5,

A. Hilliard, Bath; 1, R. Howe; 2, C. Earnshaw, Tonnem; 4, C. Harding, Darnem and W.C.M.M.: 1, L. Limbrick; 2, 3 and 5, J. J. Edwards, Llantwit Major; 4, J. Edwards, Llantwit Major. Loach: 1, M. Wilkie; 2, C. Turner; 3, Master P. Glover, Llantwit Major; 4, Master K. Williams, Rhondda. A.O.V. Tropical Egg-layer: 1, S. Nelson, Llantwit Major; 2 and 4, H. Chick; 3, J. A. Thomson; 5, J. J. Edwards. Pairs of Fish: 1, W. Sims; 2, Master P. Glover; 3, G. Castle; 4, C. Turner; 5, D. J. Edwards, Cardiff. Male Guppy: 1, H. Chick; 2, P. A. Player; 3 and 4, P. J. Greenwood, Bishops Cleeve; 5, G. Castle. Female Guppy: 1, W. Barton, Tonnem; 2, 3 and 4, J. Cilia; 5, Miss J. Parkin. Swordtail: 1, C. Turner; 2, P. Johnson; 3, G. Harry; 4, W. G. Best; 5, C. Harding. Platy: 1 and 2, C. Turner; 3, G. Gibbon; 4, P. A. Player; 5, Mr. and Mrs. W. P. Johnson. Mollies: 1 and 2, J. R. Rice; 3, Master P. Glover; 4, C. Harding. Breeders Egg-layers: 1 and 3, C. Harding; 2, C. Turner; 4, J. Egan, Port Talbot. Breeders Livebearers: 1, W. Gibbon; 2, R. S. Wigg, Llantwit Major; 3, K. Player; 4, C. Harding. Goldfish: 1 and 2, Mr. and Mrs. W. P. Johnson. Shubunkin: 1 and 2, Mrs. Perkins, Port Talbot; 3, P. Johnson, A.O.V. Coldwater: 1, 2 and 4, R. Davis; 3, P. Johnson. Furnished Aquaria Individual: 1, A. Thomson; 2, P. Glover; 3, R. S. Wigg. Junior Furnished Aquaria: 1, Master J. Edwards. Best Fish in Show: Platy Variatus, C. Turner. F.B.A.S. Championship Trophy, Class U: Mr. and Mrs. W. P. Johnson. The highest pointed Llantwit Major entry: Giant Danio, W. Limbrick. Special Award: A. G. Walters, Port Talbot.

NOTE: We regret that the Show results attributed to Llantwit Major A.S. in the August edition of 'The Aquarist' were in fact the results of the Bourne-mouth A.S. Open Show, held on June 3rd. Many apologies to all concerned.

At a meeting of the **Bradford and District A.S.** held in June, the following members were elected to the Committee. They were: J. Barford, R. Hamworth, N. Ratcliffe, A. Firth, A. Herbert, B. Sheppard. The society has now moved from the Unity Hall, Rawson Square, Bradford, to QSS Aquarium Products, Wakefield Road, Bradford. Meetings are now being held on the first Wednesday of each month in the Lecture Room of the Hall. All aquarists new and old will be given a warm welcome.

Midland Association of Aquarists Societies are holding their next delegates meeting in Room 3 at the Dgthel Civic Hall, Birmingham, on 6th September, 1973, at 7.30 p.m.

**THE BRITISH KOI-KEEPERS' SOCIETY** At the Annual General Meeting of the Society, held at Alexandra Palace during July, the following officers were elected: Chairman, E. A. Allen; General Secretary, Mrs. H. M. Allen; Treasurer and Newsletter Editor, M. G. Waunsley; Show Secretary, R. Curtis; Committee members, B. Chapman, J. Gann, E. Gibbons, A. Lawrence, G. Lupton, J. Powell, R. Seal, M. Shaw. The founder of the Society, E. D. Fawcett, was elected Honorary President with life membership, and Honorary members for the year 1973-74 included A. Evans, L. E. Perkins and C. Roe. A wide variety of matters in connection with future activities of the Society were discussed and U.K. subscription rates for the next year agreed at Member £1.50, Married couple £1.75. To supplement the regular issue of Newsletters, local sections have been formed in the Home Counties, Midlands and Northern areas to facilitate discussion between members. Anyone interested in joining the growing ranks of successful koi keepers is welcome in membership of the British Koi-Keepers' Society at the above subscription rates sent to the General Secretary, Mrs. H. M. Allen, 1 Anthony Close, Peterborough PE1 3XU. Tel: 0733-67997.

**SECRETARY CHANGES** **Borehamwood and District A.S.:** J. Coombe, 11 Brevan House, Ripon Way, Borehamwood WD6 2HT. Tel: 01-953 9265.



