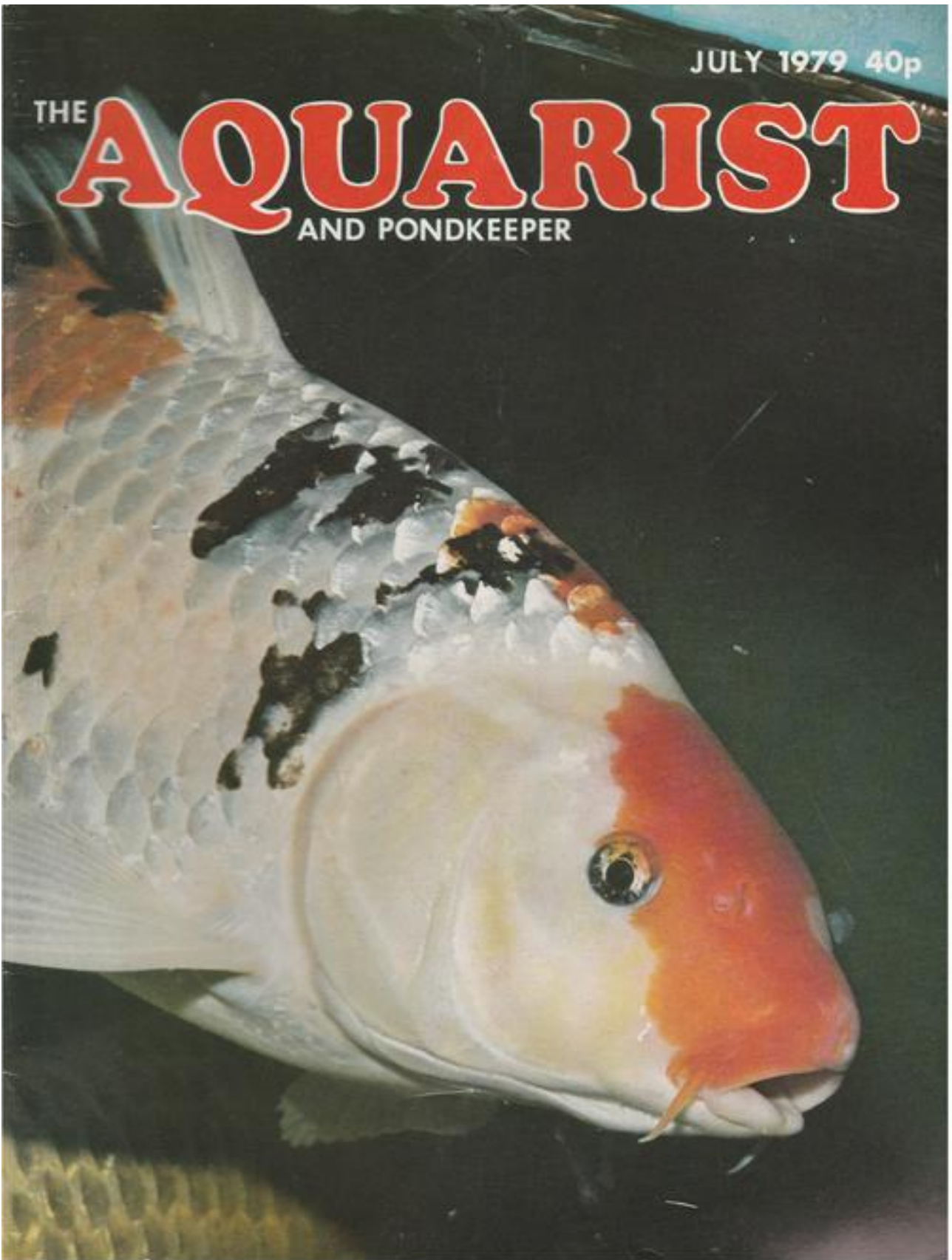


JULY 1979 40p

THE **AQUARIST**
AND PONDKEEPER





THE AQUARIST

AND PONDKEEPER

The Aquatic Magazine with the Largest Circulation in Great Britain

Published Monthly 40p

Printed by Buckley Press Ltd.
The Butts, Half Acre,
Brentford, Middlesex.
Telephone: 01-568 8441

Subscription Rates:
The Aquarist will be sent by
post for one year to any address
for £6.50. Airmail quoted on
request.

MSS, or prints unaccompanied
by a stamped addressed
envelope cannot be returned
and no responsibility is accepted
for contributions submitted.

Founded 1924
as "The Amateur Aquarist"
Vol. XLIV No. 4, 1979

Editor: Laurence E. Perkins
Advertisement Manager:
J. E. Young

Our Cover:
Koi, (courtesy Waterlife
Research Industries Ltd).

July, 1979

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The Editor accepts no responsibility for views expressed by contributors.

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OUR EXPERTS' ANSWERS TO YOUR QUERIES

READERS' SERVICE

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

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

TROPICAL QUERIES



Quintana atrizona

Is *Quintana atrizona* peaceable enough to share living quarters with the miniscule *Heterandria formosa*?

Q. atrizona is a shy little fish never guilty of molesting other species. It should get on very well with the mosquito fish you mentioned in your letter. Make certain, however, that the tank the fish are kept in is thickly planted with some hair grass, warmwater myriophyllum, and the like, to protect the fry though normally, if the parent fish are well fed, they do not cast hungry eyes at their offspring.

What is an aeroplane fish?

Aeroplane fish is just another popular name for a small flatfish or flounder found in the salt, brackish and freshwaters of the eastern seaboard of the U.S.A. from Maine to Florida. It goes under the scientific name of *Achirus fasciatus*. It has the habit of adhering to the side of a tank for an irregular period of time and then taking off like an underwater bat to a fresh position. There are times, however, when this flounder prefers to bury itself in the sand with only the eyes showing. The species has a temperature range of about 68°F (20°C) to 75°F (24°C) and eats all the regular live foods as well as shredded lean meat or white fish such as cod or fresh haddock. It also eats greenstuff.

Is it safe to use soil from the garden to grow first class aquarium plants?

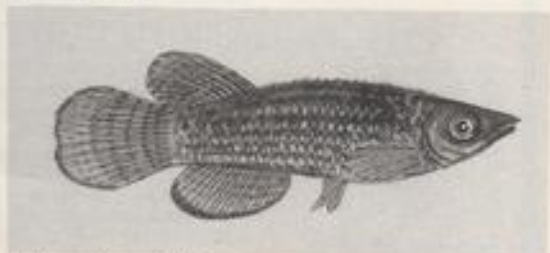
The short answer is yes if you take the following

by Jack Hems

precautions: Firstly, pick the soil clear of worms, slugs, wood-lice and vegetable debris. Next, sun or oven-dry it. Then break it down to fine crumb size. Sieve it. Then mix the sieved soil with some pure moss peat to add bulk and guarantee a non-clogging texture. Put the mixture in a well-crooked clay or plastic tray (perforated at the bottom) and press down so that only about half the container is filled. Introduce the plants, and then fill the tray to the rim with well-washed grit to prevent the peat rising to the surface or the fishes nosing down and churning the mud up.

What is the maximum length and food requirements of the kissing gourami?

The kissing gourami or *Helostoma temminckii* is said to reach a foot or more in its natural waters in Thailand, Malaysia and the Greater Sunda Islands. Aquarium specimens do not as a rule exceed 10½ in. Even this large size takes a few years to attain and only then on a good diet and in a tank affording plenty of swimming space. The species flourishes best on a diet of small live food such as gnat larvae, whiteworms, and the like, and vegetable matter. Of the latter, there is hardly anything to equal soft mossy algae and suitable substitutes such as cooked spinach, or turnip tops, or scalded lettuce pounded to a soft pulp.



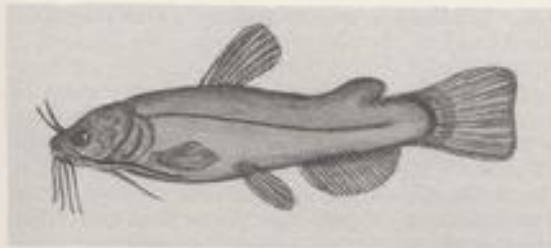
Pachypanchax playfairi

I have two fish which my dealer told me are known to science as *Pachypanchax playfairi*. Can you tell me where this fish lives in the wild, its maximum size, and its suitability as an occupant of a mixed species tank?

P. playfairi, or Playfair's panchax, is an oviparous member of the family Cyprinodontidae. It is native to East Africa and some islands thereabouts. It reaches a length of about 4 in. and is too predacious and snappy to share a tank with other less snappy species, particularly those much smaller than itself. It is no problem to feed. Eggs are deposited in submerged vegetation. The parent fish should be removed from the breeding tank as soon as egg-laying is over.

Is it true that there is more than one kind of archer fish known to the aquarium trade?

If you mean archer fish of the genus *Toxotes*, it is true that dealers sometimes receive species other than *T. jaculator* in their purchases from wholesalers in this country and abroad. The genus *Toxotes* is very widely distributed from India through to the Malay peninsula and beyond. Even southern Australia has its archers. Species of *Toxotes* favour coastal waters, fresh or brackish. The species most commonly kept in the home aquarium are *T. jaculator* and *T. chatareus*. The latter species differs from *T. jaculator* in having irregularly sized blotches on its body instead of v-shaped vertical bars.



Black bullhead catfish

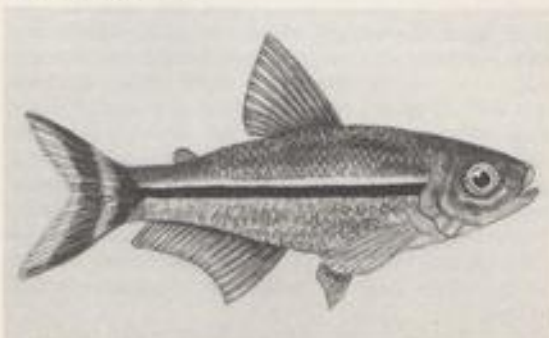
I have been told that the North American catfish popularly known as bullheads settle down very well in the tropical aquarium. Is this true?

There appears to be no question that the bullheads would settle down very well in a tropical aquarium. But the question is: would the introduction of a bullhead into a tropical tank suit the other fishes? Bullheads, known to science under the generic name of *Ameiurus* (*Ictalurus*), grow to more than a foot in length and long before they reach as much as 6 in. they can, and do, gulp down or bite any smaller fishes that stray across their way. Bullheads are best placed in a coldwater tank kept at comfortable room temperature and fed on earthworms, white-

worms, lean meat and various aquatic larvae. They usually find dried food unpalatable. Bullhead catfish are widespread over the U.S.A. from the Great Lakes and thereabouts down to Texas and Florida.

I have noticed more than one reference to *Pangasius sutchi* in your pages over the last year or so. Are there many other catfishes of this genus known to the aquarist?

Sterba writing some twenty years ago mentions *P. micronemus* but omits to describe any other species. It is known, however, that some 15 species of *Pangasius* are common to south-east Asia. Of these interesting catfishes, few appear to have been introduced to aquarists in this country. Species of *Pangasius* vary in size (full grown) from about 6 in. to well over a foot.



Hemigrammus marginatus

Does the margined tetra make a good community fish?

If you have *Hemigrammus marginatus* in mind, then the answer is yes. It does, however, attain a length of some 2½ to 3 in. and full grown fish are quite capable of nipping at the fins of sluggish moving fishes or fishes given to spells of inactivity.

Do you recommend snails or fishes as eradicators of excessive soft green algae?

Although some species of snail do a great deal towards keeping some algaic growths in check there is no question that they produce young snails far too quickly and in the end the aquarist discovers that snails cause more trouble than they are worth. On the other hand certain species of fish eat algae as a main course, and these include the catfishes called *Hypostomus* (*Plecostomus*) and *Otocinclus*. The sucking fish called *Gyrinocheilus aymonieri* is an avid eater of algae. *Jordanella floridae*, the American flag fish, the various mollies, and the Australian rainbow fishes (*Melanotaenia*) are fond of green algae too. All the same, it is necessary to know something about the general behaviour of the algae-eating fishes before you introduce them into a community tank.

COLDWATER QUERIES by Arthur Boarder

We have recently moved into a house and have inherited a fish pond measuring 12 ft., by 5 ft. There are about 30 fishes of 4-6 inches long. Some are gold, some black and some white with red spots on them. What are they, please, and how can we clear the water?

Your pond should not have more than 60 inches of body length of fish or they may not thrive. The water may be dirty because the pond was not cleaned out late autumn of last year. Any decaying matter on the bottom would soon pollute the water as foul gases could not escape whilst the pond was frozen over. A large amount of the water can be removed and fresh run in. Once the water plants become active in the spring, they will tend to keep the water pure. The fishes in the pond are probably goldfish. When they are young they are dark in colour and gradually change to red or orange. Some take a long time and some never change and remain black. There may be Koi in the pond and these can be distinguished by the fact that they have small barbels on the lower part of the mouth, whereas goldfish do not.

In early March we found three dead goldfish in our garden pond. They had no signs of injury or disease. Can you say why they died?

It is, of course, impossible to say with certainty what caused the death of the fish. However, when fishes are found dead at this time of the year it is almost certain that they died through lack of oxygen or to put it another way, through the excess of foul gases in the water. This is especially so when the fish show no signs of injury or disease. When fishes cannot get enough oxygen in the water they mouth at the surface in search of it. They soon become exhausted and die. If a pond is not cleaned out in the late autumn it is possible that there is a quantity of decaying matter on the bottom. When the water freezes over the foul gases cannot escape and so the water becomes badly polluted and the fishes die. If it is not possible to clean out the pond now, most of the water can be removed and the pond filled up with fresh water. As you have not had any previous experience with a garden pond, you will be well advised to get the book, "Coldwater Fishkeeping" price, £1-50 post paid from "The Aquarist & Pondkeeper."

Should I remove dying water lily leaves or leave them on the plant?

All water lily leaves should be removed as soon as they start to turn yellow. If you push a decaying leaf under the water you will notice an oily colour appear on the surface of the water. As the decaying increases so will the foul matter be exuded. Also it is well to remove all dead flowers from the lily. I have found that a sharp knife securely tied to a long stick is useful for removing leaves and flower stalks which may be out of ordinary reach.

I have a tank, 60 x 12 x 15 inches and at the moment I have 10 inches of fish in it. I would like to get some Lionheads, Pompons and Celestials to add to the collection but I have been unable to get any of these varieties locally. Can you help?

I am enclosing an address where you should be able to get the fish you require. However, I must point out that you must not overstock the tank. It will hold 30 inches of body length of fish. The Lionheads are not as difficult to find as the other two varieties. These are a special type and the Celestial is not always an easy fish to keep with other varieties. If you have had plenty of experience with keeping fancy goldfish you should be able to avoid any difficulties.

Can you advise a good water pump for use in my pond?

It is not easy to give advice on any particular type of pump. There are so many on the market and so much depends on the use you wish to make of the pump and the cost you are prepared to pay. Obviously you should never buy a cheap pump unless you have had a good recommendation from someone who has used it. Write to one or two dealers who advertise pumps in "The Aquarist" informing of the size of your pond and the purpose for which you need the pump. For a filter for a large pond one would require a much stronger pump than if one only needed one to work a fountain or a small waterfall.

I have been keeping tropical fishes for over twenty years and now have turned to coldwater ones. I have recently obtained 3 Golden Medaka. Can you tell me anything about them please?

The Golden medaka, *Oryzias latipes*, is known as the Japanese rice fish and reaches a length of about 4 cm. A well planted tank is preferred by these fish and a rather higher temperature than is usual for coldwater fishes. A slightly brackish water is also

preferred by these fish and a teaspoon of sea salt to a litre of water will be enough. The female has a more rounded dorsal fin than the male. Small live foods should be in the diet although they will take flake foods. Pairing takes place among the water plants and the female carries the eggs around in a mucus sheath on the belly until they are rubbed off on water plants. Hatching takes about ten days at a temperature of about 80°F. The fry should be fed on *infusoria* and later on powdered flake food. Of recent years the Japanese have exported a strain which appear to be larger and able to stand lower temperatures.

Is it a good idea to let Algae grow on the back glass of a coldwater tank?

Both the back and ends of a tank should be left to become green through the growth of Algae. This gives the tank a much better appearance as if shut out the sight of wallpaper, etc., which might be seen through the tank. Also, when the tank becomes well set up with water plants, to try to remove the Algae would only disturb the plants and perhaps spoil the look of the whole tank. Only the front glass should be kept quite clean.

I have been given a tank with a pair of Shubunkins, one Koi of about 5 inches, 1 largish fantail of about 6 inches and a couple of tiny Fantails. My problem is keeping the water clear as it seems to have white powder floating about in it. What is the cause please?

You did not state the size of your tank. This is most important, as you appear to have an odd mixture of fishes and you may have too many. You also may be over-feeding them. Not that fish will over eat but what they do not eat will soon pollute the water and it appears that the white matter in the water is a microscopic bacteria type of trouble which can occur in a tank where there is a quantity of uneaten food decomposing. You should not have more than an inch of body length of fish to each 24 square inches of surface area. It is also not good practice to have large fishes with smaller ones as there might be bullying or the smaller ones could be deprived of food. Check up on the sizes of the fish in relation to the size of the tank and then go easy with the food. Nearly all troubles with a tank are caused by giving more food than can be cleared up quickly. If a tank is set up properly and the right number of fishes added the water will keep quite clear if no food is given for some days. It is only when food is given every time fish rise to the surface that the water will soon start to become polluted. You feed twice a day. I only feed once a day throughout the year and only offer as much as I think can be quickly eaten. Any well planted tank will always have some food for the fishes in the form of soft vegetation.

July, 1979

I think that the fish in my coldwater tank are attacked by flukes. I have read how to kill them on a fish but how do I make sure there are no more in the tank?

There are two kinds of flukes which attack fishes in ponds and tanks. The skin fluke, *Gyrodactylus vastator*, and the gill flukes *Dactylogyrus auriculatus*, although there are other species of both which might be found on coldwater fishes. The chief difference between them is that the skin flukes are viviparous and the gill flukes are egg-layers. The eggs drop to the bottom and when fresh parasites emerge they must find a host or they will soon die. If one is not sure which type of parasite is to be treated it is as well to remove the fishes from the tank and disinfect it with a fairly strong solution of permanganate of potash.

I wish to start a coldwater tank, 36 x 12 x 15 inches and would like to know the stocking rate and if I need a filter and a heater?

The tank will hold 18 inches of body length of fish and no filter nor heater will be necessary. As long as you do not over-stock with fishes nor over-feed, a filter is not needed. A heater is not needed in a coldwater tank kept in a living room, but if it is kept in an unheated fish house then some form of heating will be necessary in winter to prevent the water from freezing and the glass cracking.

I had four good quality fancy goldfish in a tank, 24 x 12 x 12 inches and fed them in flake food. A few weeks ago I bought them some blood worms and within a week the fish were dashing about in the tank rubbing themselves on rocks, etc. The fins folded and they became emaciated. Two died even after treatment. Later I noticed a number of tiny flies under the cover. Were these from the flukes and did they cause the trouble?

Although the tiny flies you sent were quite dried up, I am of the opinion that they were midges. These lay their eggs on water and the resultant larvae are tiny transparent caterpillar-type creatures. I do not think that they would harm the fish, but I have found them attacking fish eggs. From your description of the actions of the fishes I have no doubt that they were being attacked by flukes. These are a type of flatworm, Nematodes. Some of these lay eggs whilst other species are viviparous. The midges had nothing to do with flukes. I am repeatedly warning aquarists about the dangers of using *Tubifex* and *Daphnia* which have come from natural waters. These can introduce pests and diseases to a tank. I know that many aquarists use these foods, but one day they will suffer as I did on the first and only occasion when I used *Daphnia* from a wild pond many years ago.

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MARINE QUERIES

by Graham F. Cox

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.

I have recently acquired and matured a 36 × 22 × 12 marine aquarium.

I have decided on my selection of fish but am not sure of their compatibility. Could you please tell me if the following fish would live together peacefully:

1 Electric-blue damselfish; 1 Maroon clownfish; 1 Copperband butterflyfish; 1 Powder-blue surgeonfish; 1 Mandarin.

As stated above I would like to keep a mandarin fish, however I have been unable to find any information on their care. Could you please inform me on how to feed these fish and what water conditions suit them?

In my tank at the moment I have two (2) airstones and two (2) $\frac{1}{2}$ in. diameter airlifts. The turnover rate of the tank is about once every 15 minutes. However due to unforeseen circumstances my airpumps will have to be switched off for approx. 8 hours for 5 consecutive nights. Will this be possible without harming or weakening the fish?

(1) *Your chosen selection of fishes.*

I foresee no real problems here provided that you pay careful attention to the following:

- (a) In view of the relatively small size of your aquarium, all the fishes selected should be small immature specimens.
- (b) The maroon clownfish should be significantly smaller than the copperband butterflyfish to reduce the risks of aggression from the former toward the latter.
- (c) Mandarin dragonets are very difficult to feed unless you are prepared to hatch out *Artemia* nauplii (i.e. brine shrimp) continuously OR have a large fallow tank containing plenty of

living-rock and a permanent population of copepods.

(2) *Water conditions.* All coral fishes require exactly the same conditions of water chemistry, i.e. pH value of the water in the range of 7.8-8.2, a temperature in the range of 75°-80°F. (24-26°C.), zero nitrites, no more than 50 ppm. of nitrate (NB: a very few marine animals, e.g. *Octopus* spp., will not tolerate more than 5 ppm of nitrate) and as near saturation oxygen tension as possible.

The only important parameter which does vary widely throughout the world's oceans is the specific gravity or "saltiness" of the water. All the species which you mention come from the Indo-Pacific area and therefore require an S.G. in the range of 1.018 to 1.022 at 80°F. to 75°F. A good easy to remember average is S.G. 1.020 at 78°F. for Indo-Pacific species.

Caribbean species on the other hand require a slightly denser sea-water, e.g. 1.025 at 78°F., whilst fishes and invertebrates from the Red Sea need saltier warmer water altogether—say S.G. 1.030 at 80°F.

Finally on this topic please remember that whilst Red Sea and Caribbean creatures will tolerate a slow acclimatisation down to Indo-Pacific salinities, I would not advise you to keep Indo-Pacific creatures at the high densities of the Red Sea. Such high salinities impose high burdens on the water control metabolism of Indo-Pacific fishes which they cannot cope with for extended periods of time.

(3) *Turning off the air supply.* This is never advisable in a marine aquarium because of the high oxygen requirements of marine-life and because of the danger of build-up of nitrogenous wastes. Although you don't mention the cause of this temporary problem, I imagine it is probably due to domestic building works or decoration, in which case I would delay the stocking of your aquarium until these works are completed.

KOI QUERIES

by Hilda Allen

The information you provided on a suitable water pump for my filtration system was very useful. After checking with a friend who is familiar with "electrics," but not with pumping water, he agreed with your comments on choice of electric motors. However, he seemed vague on the matter of "continuous operation" and I still do not know the true situation even after contacting one supplier, so can you offer any further advice?

This is a very involved subject and not easy to simplify. I hope you will appreciate that it is not possible to elaborate on all the aspects such as operating temperature, type of insulation, brush and bearing life etc. It must be accepted that very high speed pumps running at five to six thousand revolutions per minute and powered by series wound motors may have a relatively short life. Apart from being noisy, the motors are prone to overheating after a few hours and excessive wear of the brushes and commutator can be expected. Otherwise, the water pumps usually fitted to these motors are very efficient and valuable in emergencies or for pumping-out a pond.

The smaller, submersible pumps are not very efficient, not important in itself but whereas the motors may be classed as capable of continuous operation, the main problem is the life of the bearings.

This can vary from 3 months with the P.T.F.E. lined/wrapped bush to several years with the bronze or sintered type bushes.

Some pumps could be greatly improved by increasing the surface area of the bearings.

My own small pumps have been modified and now only require checking once a year. One transformer powered pump is now in its tenth year of continuous operation.

For what you may consider continuous operation and having need of a pump in the order of 1,000 to 2,000 gallons per hour output, you were wise to invest in a unit powered by the brushless type of induction motor. This runs at about 2,850 revs per minute and is normally capable of a long, trouble-free life.

The determining factor may be the life of the water pump seal and I would advise an examination at least once every year, at the same time the bearings of the motor may need lubrication, unless of the totally enclosed pre-packed type.

Makers instructions where given should always be followed:

The rating and duty of pumps can be questioned with the makers, and provided the motor will run for 24 hours per day with a rise in temperature of the windings not exceeding certain permissible figures, then it may be classed as continuously rated.

The total length of time it may run before overhaul is a matter of understanding and agreement between the maker and the user.

During last summer my Koi lost a certain amount of colour intensity and the red areas seemed most affected by the fading. Is this usual and if so is there anything one can do to prevent it?

You are quite right that colours, and particularly red, are prone to fading at higher temperatures. The reason is that during the summer the Koi are generally more active and eat and grow more rapidly. In the winter the body is firmer and the colour appears brighter and more stable. A good, intense red is one of the most difficult colours to achieve in breeding and unless this basic colour pigmentation is present it is well-nigh impossible to maintain a good red colour. It can happen that areas of red on the grade of small Koi imported in large numbers and sold at moderate prices may fade or even completely disappear as the fish grow. Commercially produced colour-foods from Japan are now available in this country but as yet I have no long-term experience of these. It normally takes two to three months before any benefit may be expected and colour improvements may be only temporary in accordance with the use of the food. A form of algae imported from Mexico and commonly known as Spirulina, is widely used in the preparation of colour foods. It has a very high protein value and was found to promote the growth of fish as well as to improve pigmentation.

The widespread use of products containing Spirulina over a long period, under different conditions, will enable us to determine its value for ourselves. It has been claimed that Spirulina regularly fed to Koi for three months will improve the red colour.

I have a large pond into which I have recently introduced twenty medium-sized Koi. The water is reasonably clear and I would like to know how I can establish a 'balanced' pond with the use of plants rather than filtration.

There is no quick, easy answer to your query I am afraid, especially as you appear to have made the mistake of introducing fish before any plants have had time to become established and useful.

There is nothing to prevent you from planting oxygenators, water-lilies, marginals or floating plants (such as duckweed or azolla) according to your pond size and waiting to see what happens. I am well aware that people do keep Koi in planted ponds but success depends on the size of pond and Koi. It must be understood that by adding planting-soil you will be feeding the water and helping it on its way to the inevitable "green" stage, plus the fact that most self-respecting Koi will make every effort to remove the soil from any container to the detriment of plant-life (and water).

This is fact, not fiction; carp are carp in any language, and carp are inveterate scavengers of any form of live food, however minute. An abundance of oxygenators is often a mixed blessing, Koi are most active when oxygen is plentiful and usually eat more in the evenings than in the mornings. The more they eat the more oxygen is needed, just when oxygenating plants reverse the process of producing oxygen and as darkness falls produce carbon dioxide leading to oxygen deficiency. Many Koi have died from suffocation as oxygen in the water becomes depleted by dawn. If Koi are observed mouthing at the water surface by early morning this is a sure sign of lack of oxygen. Hosed water must be sprayed over the pond immediately as first-aid and water aeration by pump seriously considered.

Larger numbers (or size) of fish contribute to oxygen deficiency and waste products produce gas to pollute the water further. I think most people will agree that a circulation of water by means of a pump is the surest way of providing a plentiful supply of oxygen, especially during sultry, summer nights.

Water plants are aesthetically pleasing and ideally no ponds should be without them but practical experience has demonstrated that in the relatively small volumes of water (for carp) most of us can provide in our gardens, then this ideal is hard to find. While talking about 'balanced' ponds it is equally important to consider the balance between clinically clean water and dirty, unhygienic water. Koi do not require crystal-clear water, in fact such conditions are totally alien to carp. On the other hand no fish can survive pollution and if we hope to see our Koi then the happy medium of reasonably clear water should be aimed for. This can be achieved by not overcrowding, partial water changes, filtration or providing shade from bright sunshine. Observa-

tion will tell if the Koi are healthy and this should be the prime consideration.

Can you tell me when my Koi will spawn, I have had them for two years and they seem to be in good condition; also how can you tell the difference between males and females?

I cannot tell you when your Koi will spawn as this will depend upon a number of factors. As the water temperature rises you may notice the Koi group together and an active male may chase or drive a female, this activity spreads and becomes more vigorous as an actual spawning approaches. Weather is an important factor and it may be July before conditions are right, assuming you have mature Koi of both sexes. There should be more males than females to ensure a good fertilisation which may be a problem in large volumes of water, but overcrowded fish seem reluctant to spawn. Female Koi are generally more rounded in appearance and as the eggs develop a thickening will be noticed in the ventral region. Males are usually a slender, cigar shape but it is not always easy to differentiate. I should not worry unduly because if you do not know the difference, the Koi certainly do! A natural, 'flock' spawning involving most of the Koi is usually a great delight to their owners. It is a sure sign that all is well within the pond, and there is great satisfaction in seeing Koi hatch out of eggs from one's own fish. When a spawning is completed as many eggs as possible should be transferred to a separate container for hatching before they are eaten by the adults. Eggs require more oxygen than fish and the water (no more than 10-12 inches deep) should be well aerated. Dependent upon temperature the eggs may take 3-6 days to hatch, a temperature of 70°F is ideal. My own Koi spawned in mid-May for the first time this year when we enjoyed a warm spell. This was earlier than usual, probably due to the severe winter and the fact that their normal cycle of hibernation in cold conditions had not been disrupted.

The small number of Koi raised from last year's spawning are now between 3-4 inches in length and should be in a pond by late May; they are sturdy little fish reared in cool conditions.

My pond, which is made of concrete, has a great deal of algae growing on the sides. Should this be removed or left alone?

Algae usually grows on pond walls and is not harmful, only if it becomes excessive need it be harvested from time to time, but do not scrape it off. Koi browse on this and usually keep it under control in warm weather, when it is teeming with live food. A healthy growth of algae is a good indication that the water does not contain excessive amounts of chlorine.

Commentary

by Roy Pinks

THERE HAS BEEN a lot of talk lately about the possibility of quarantining all imports of pond and aquarium fish, and no one who witnessed the worst manifestations of hole in the body disease in coldwater fish over a period of several years will need convincing that some form of control is necessary. It is necessary because the unknowing purchaser needs protection; it is necessary because the spread of disease to native species and to fish farms can result in serious losses as well as the growth of virulent local strains of the disease organisms; and it is also necessary because continued tolerance of obviously diseased stock is a disgrace to the trade and an insult to the client.

Waves of protest seem to have brought about some improvement during the past two seasons, so far as pond fish are concerned. My own observations indicated that in the case of tropical freshwater and marine fish, there were never quite the same difficulties, though this is not to say that all was perfect. Many imports were quite dreadful, and disease as such was not the primary blemish, though it often followed as a by-product of the shipment of degraded stock or the overcrowding of normally acceptable material.

This being so, just what is the purpose of imposing quarantine at the point of entry to the country, or at the point before stock is released for sale to the public? The answer here must relate to the diseases which one seeks to control, which in themselves must be related to the species of fish most likely to contract them. I have not heard of any definition of aims, but simply a broad statement that a period of quarantine should be applied across the whole spectrum. Nothing seems quite so absurd—this is control for control's sake, and those who advocate it may not realize that in delaying the release of fish they may in many cases be signing the death warrant of many thousands of specimens whose survival depends on proper and sympathetic acclimatization immediately on arrival in this country.

Some years ago quarantine controls were placed on imported pet birds, mainly to protect farm stock from diseases which were in any case regularly conveyed to this country by millions of migrant starlings and the like. One of the supposed advantages to the purchaser of the birds, after their release from quarantine, was that they would be fitter and in tip-top physical

condition. The practical effect has been a savage increase in price of these creatures, together with no improvement whatever in the across-the-counter condition of any of them. Quarantine accommodation, limited as it must be, forces the importer to cram as much as he can into the available space, which is hardly a good posture if it claimed that the aim of the exercise is enhanced health of the stock. In the case of fish, the physical challenges in the holding area are very real ones, and if they are not met the result will be not merely some loss of condition but some pretty devastating losses. Let us consider the case of two common ailments. White Spot disease, if noted on entry to the country, could be cleared up fairly quickly at a central holding or by the retailer or by the consumer. It is with us all the time, and the fact of having cleared it after import is absolutely no guarantee that it will not recur as soon as the fish are placed in the tank of the purchaser. This argues for no quarantine, because it achieves nothing. It is quite another matter for the retailer to pass clearly infected fish to the customer: this is absolutely wrong, because one does sometime get away with the transfer of tropicals without any outbreak whatever of this minor menace. The other fairly common nuisance is the Fish Louse which will be the first to welcome a quarantine period as therein it will be able to form an even closer relationship with its host. So we are left with the thought that if there has to be quarantine, it shall be for clearly defined and sensible purposes. But does this stand up to close examination?

Just suppose that a consignment of Shubunkins arrives riddled with warts and holes and sores. Do we keep these wretched fish for a month and then let the retailers take them over, or do we insist that the wholesaler cures them first? What real chance has anyone of accepting fish in the grip of serious disease and rendering them fit for sale within economic limits of a quarantine? Some disease is difficult to diagnose, and even when it has been isolated, different strains render a final cure a matter for conjecture rather than certainty.

With these thoughts in mind I wandered round local establishments to see what the new season's imports looked like; it had occurred to me that the threat of government measures often has greater impact than

their commission, and I must confess that I was most favourably impressed with what I saw. I was looking particularly at coldwater species, and I failed to note a single specimen of the many thousands on view which bore any signs of disease. The consignments had all arrived recently from the Far East, and the Japanese Shubunkins, in particular, were a sight for sore eyes. I noted, incidentally, the predominating light red patches on one variety which put one in mind of the Kohaku Koi, and which will undoubtedly challenge it in popularity for those with slender pocket books and pool accommodation too modest to suit the Rainbow Carp.

There were quite chubby specimens of Common Goldfish at about 35p, too, which price must give some encouragement to those who, like me, have suffered severe or total losses in outside pools during the recent arctic winter. My sampling was, admittedly, fairly localized, but had all these fish been put into quarantine, most aquarists looking at them would ask the question "What for?". And I would agree with them. Far less agreeable was the actual presentation of these fish to the public. In one case they were in outdoor quarters, accommodated in the now conventional fibreglass holding pools, some 10 feet long, 4 feet wide and 2 feet deep. There were smaller sizes, in proportion to the size and type of fish. In the other case there were quantities of 48 inch indoor glass tanks, each containing a huge complement of fish and heavily aerated. In the former case, open to the elements, the fish were alike as peas in a pod, and I would cheerfully have accepted any one for my money. In the case of those housed indoors and in aquaria there was a proportion of clearly wilting and physically wanting specimens which would never improve and will almost certainly die quite soon. They should on no account have been offered for sale to the public.

Now here we have a situation where, although there is no apparent disease (and I would rate the fish as "clean", anyway), there is a prime case for a calculated cull. No customer worthy of his salt is ever going to accept the poorer specimens. These are (or should be) clearly obvious to the retailer as rubbish, and they are equally obviously inimical to the continuing wellbeing of the rest of his stock if he continues to tolerate their presence. So many retailers follow this practice that I once again raise the issue as to whether, instead of sweeping regulations which might do more harm than good, it might not be better for an inspectorate to be created who would have the power to condemn either stock or accommodation or both, and to slap on a restraining order until things were put right. The justice of this would seem to be that the law would be applied to situations which genuinely called for action rather than to notional circumstances which the more shameless bureaucrats love to wallow in. The merit of a travelling inspectorate lies, too, in better communication between those who have to apply the law and those to whom it may have to be applied.

Such a solution to one of the running problems of fishkeeping could be extended to all classes and types of fish, both marine and freshwater, as well as coldwater and tropical. I am glad to note that marine imports seem to have improved in quality very considerably over the past few years, and this may in some way have resulted from my campaign against capture by drugs some years ago. Tropical freshwater fish, too, do seem to possess the patina of good upbringing by and large, but there are occasional quite serious lapses where grossly mis-shapen and grievously undernourished specimens are offered for sale. A vigilant and conscientious inspector would be able to remove the worst excesses by discussion and agreement rather than enforcement, thus ensuring some form of discipline across the hobby which none of the associations supposedly customer-orientated has ever managed to achieve.

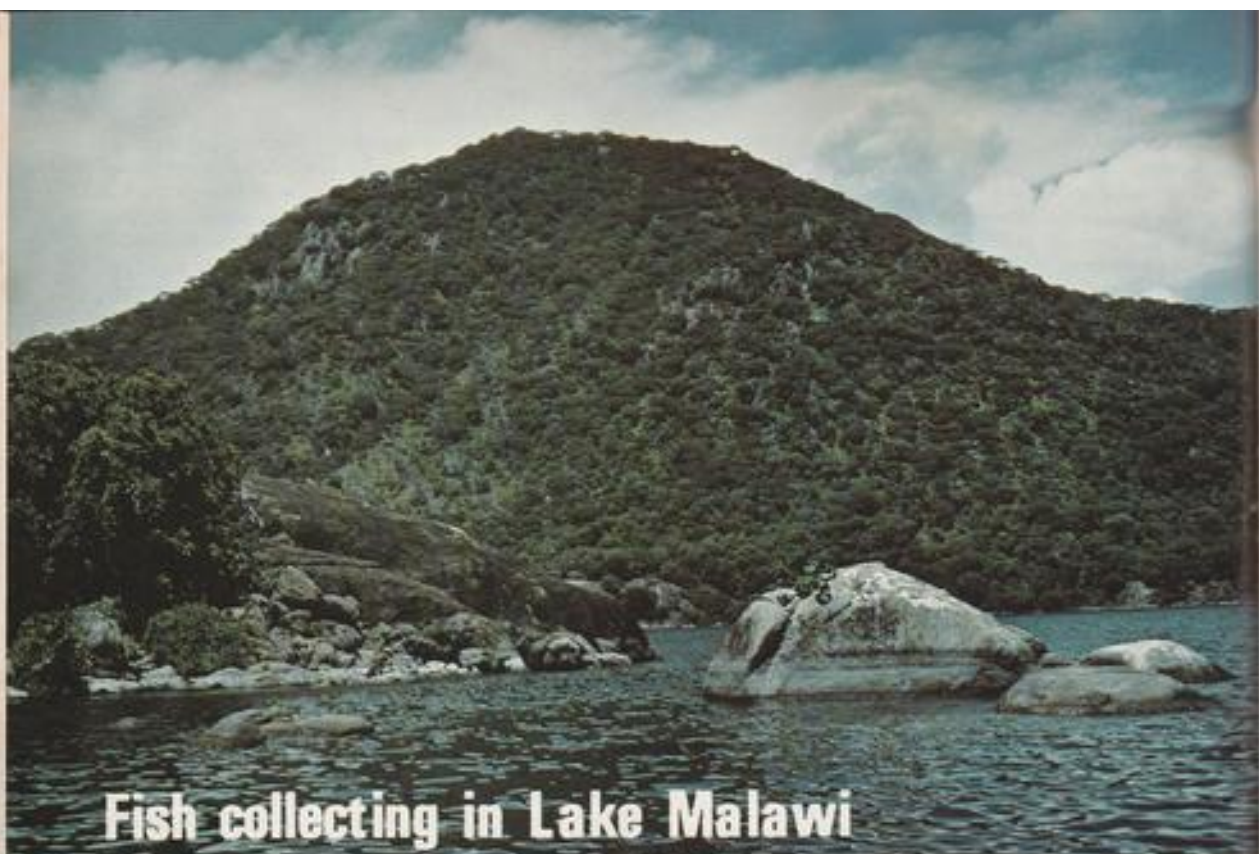
Postscript

The following appeared in my local horticultural society newsletter:

"The magazine *WHICH* is asking for help in collecting a panel of people who have a garden pond and who would be willing to help with some trials of chemicals and other methods of clearing algae. If you have the ability to help, please write to CONSUMERS' ASSOCIATION, 14 Buckingham Street, London WC 2N 6XA."

Whilst the "other methods" are not specified, I hope that all readers who share my repugnance of chemicals in any form in this situation will write to CA asking them to publish fully the argument for biological control of algae, and to issue heavy cautions to anyone using chemicals that they do so at their own considerable risk. I shall be writing to the Association pointing out that chemical applications, even if apparently successful, are not solutions, merely palliatives, and that most algae-ridden ponds are best treated by a combination of nature's way and a certain amount of patience. Anyone who adds chemicals to a pool devoid of fish is missing a whale of a chance, because a bag of *Daphnia* will usually clear all the free swimming algae and quickly provide him with a vast stock of this invaluable crustacean which he can either sell to the local shop or feed to his own fish.

Any truly successful—continuously successful—chemical treatment techniques would, of course, be read with interest, and I wonder whether any readers have progressed this far? I should certainly like to know of any cases where this happened, and why natural means were rejected. The usual controls are based on powerful oxidising agents which bring about a rapid decline in plant population, which in turn adversely affects the fish. When the cycle of disaster has turned past this point, all is lost and back comes the green water, to confound us yet again.



Fish collecting in Lake Malawi

Mbuna habitat—rocky shoreline and outcrops in Monkey Bay area

by G. R. Melhuish

HAVING kept Malawi cichlids from time to time I thought it fully warranted to undertake a collecting trip to one of the Rift Valley Lakes from which these cichlids are exported. My original intention was to go to Kasaba Bay, an area in the southernmost part of Lake Tanganyika and belonging to Zambia, but because of an outbreak of cholera during November/December, 1978 the area was declared off limits. The next alternative was Lake Malawi,

Labidochromis shiranus



which also happens to be within easy access and with good connecting flights from the Copperbelt Province where I live. To prepare myself for the trip I assembled the following equipment:

Monofilament nets, seine net made from archery netting, small oxygen cylinder, polystyrene boxes, plastic bags, fishing tackle, aerator including a small battery operated aerator, small photographic tank and other miscellaneous items. Another recommended item is any brand of mosquito repellent and also that prophylactic measures against malaria should be taken well in advance before undertaking such a trip. A similar procedure should be adopted if one should undertake a collecting trip to Lake Tanganyika.

Although hotels are fully booked up over the Christmas period, we were lucky enough to find accommodation at one of the hotels within close proximity to Monkey Bay. Before journeying up to the Lake an enjoyable Christmas was spent in Blantyre where I was fortunate in having the opportunity of meeting Mr. Fleet, the well known exporter of Lake Malawi cichlids. Journeying up to the Lake from Blantyre, a picturesque view of the countryside is presented with its hilly terrain and the Zomba plateau presenting a breathtaking view of the countryside with Lake Chilwa in the background.

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Further north the countryside flattens out and between Liwonde and Mangochi an abundance of temporary pools are to be found, some of which were the habitats of the elusive *Northobranchius* U-9 species. Unfortunately I failed to obtain specimens for the BKA much to my disappointment.

On our arrival at the hotel at dusk, I was immediately drawn to a rocky outcrop, rod and line in hand. The excitement of seeing and landing my first mbuna—*P. Tropheops* was exhilarating. Next to follow was a dominant male *P. tridentiger*. Dawn could not come early enough for me next morning and before breakfast we made a preliminary survey of the area fished the evening before. Many of the mbuna were seen grazing off a submerged rocky ledge leading out to a large boulder. After breakfast a monofilament net was placed to one side of the submerged rocky ledge and left in this position while I tried fishing for the mbuna using a No. 16 hook and very lightweight tackle with worm as bait. By this latter method numerous mbuna were caught including *Labidochromis shiranus*. The use of the monofilament net was not as fruitful, for apart from three dominant *P. tridentiger* males and a colourful *Labeo* species numerous *P. tropheops* were caught and these proved problematical in removing them from the monofilament nets which had a mesh size of 11.5mm knot and a lot of valuable fishing time was lost in this way. Repeated fishing in this area during our stay yielded no new mbuna species but I was very interested to find that one barb species namely *B. lineomaculatus* was frequently encountered in rocky locations of the Lake. This species is mainly found in tributary streams in Zambia and is never found in larger rivers or lakes. This has been my experience during my barb collecting trips. One also gets the false impression, as I certainly did, that most of the commonly known mbuna like *Melanochromis auratus*, *P. johanni* and *P. zebra* should be fairly widespread in their distribution, but these were certainly absent from the above location. On a subsequent visit to the Monkey Bay area where I was hosted by Dr. Lewis, I was able to catch *M. auratus*, *P. zebra*, *Melanochromis melanopterus* and an unknown *Haplochromis* species co-existing in a very restricted ecological niche. In the original rocky outcrop area the few dominant B/B morphs specimens seen were thought to be originally *P. zebra* but subsequent examination proved these to be made up of two distinct species namely *Petrotilapia tridentiger* and *Melanochromis brevis*—the main diagnostic feature being the protruding teeth of the latter species. A greater abundance of *Petrotilapia tridentiger* was to be found grazing off the sides of the large boulder and some exceedingly large specimens were to be seen. *Labeo-tropheus fuelleborni* were also seen but proved to be

July, 1979



Pseudotropheus tropheops



Haplochromis chrysonotus



Haplochromis sphaerodon

more difficult to catch, nothing would tempt them.

I was also interested to find out what species were to be caught from the open sandy beach areas which together with the rocky outcrops form a common feature along the shoreline. Here using a rod and line numerous *Haplochromis* specimens were caught comprising mainly *H. sphaerodon* and *H. taeneolatus* and strangely, with equal frequency, *P. tropheops* which I subsequently found to be a common feature of this species. I was very disappointed in not being able to catch *H. moorei*, a species which I knew before to be found in such locations. Fishing here was very productive averaging about 45 specimens per hour. A keep-net was installed in this location for the commonly caught species while our prized specimens were placed in a polystyrene box in the hotel bathroom, aerated, and with daily water changes.

A few boat excursions were made also in an attempt to collect any additional new species. The usual *Haplochromis* species were caught in an area heavily infested with reeds and rather than tempt providence too much a hasty retreat was made owing to the presence of hippos in the area. In the vicinity

of a rocky promontory about 10 metres from the shoreline, the beautiful *Haplochromis chrysonotus* was caught. These were shoaling fishes and feeders on zooplankton. However, they proved to be difficult to acclimatise in captivity even when kept in keep-nets and I was not able to bring any back alive to Zambia. Also caught in this area was a species belonging to the genus *Sarotherodon*. Although not suitable for aquarium keeping, it is a highly sought after edible fish and known locally as "Chambo" and tourists, myself included, will emphatically rate it as the best tasting fish available anywhere.

On our return to Blantyre we were hosted by Mr. and Mrs. Fleet and our sincere thanks go out to them. All my prized specimens were kept in one of his holding tanks, which in no way could compete with the species he exports, and which come from different locations of the lake. However, I did get one small consolation from Mr. Fleet in that my *M. auratus* specimens from the Monkey Bay area were more colourful. It should be stated that the aquarist world owes a great debt of gratitude to Mr. Fleet and Mr. Grant for making available these beautiful cichlids to hobbyists.

READER'S LETTER

Aggression

I feel bound to comment on an apparent anomaly which may well confuse your readers, and give the following note which you may feel is worth publishing:

My article "Aggressive Behaviour of Damselfish" (May 1979, pp. 34-35) describes observations on the intra- and inter-specific aggressive behaviour of a number of species. This work showed that aggression is shown at a fairly high frequency in a tank situation. The main results showed a frequency of 7 aggressive displays per minute, and 78% of this was interspecific.

In the same issue Graham Cox in answer to a reader's query (p. 30) describes three species of damselfish as 'non-aggressive.' These species include the Humbug Damselfish and the Electric-Blue Damselfish, both of which were involved in my study.

This apparent anomaly is further compounded by Graham Cox's book "Tropical Marine Aquaria" (Hamlyn) in which he describes the Humbug Damselfish

as 'one of the most aggressive members of a family noted for aggression.'

The solution to these contradictions, I would suggest, relates largely to the use of the word 'aggression.' Aggression does not necessarily involve physical attack. Aggressive displays are encompassed by the term aggression and these were the principal behaviours shown in my own studies, where biting and hence physical damage were rare occurrences. Thus although Humbug Damselfish in particular show a high level of aggression, they may only rarely inflict damage or cause distress to other damselfish of similar size, and in this sense only may they be described as 'non-aggressive'.

In terms of setting up a new marine aquarium, I would agree with Graham Cox that damselfish are the ideal first fish, and if there is plenty of cover any aggression shown is unlikely to be damaging. I have, in addition, found that two Electric-Blue Damselfish can live together quite amicably, although only one of a species is usually recommended. At present I have a tank (27 in.) with only two Electric-Blues and these spend most of their time very close to each other and virtually share the same 'home-base.'

Yours Sincerely,
C. J. LERWILL,
26 Chaplin Road,
East Bergholt,
Colchester, Essex
CO7 6SR.

Reptiles and Amphibians seen in Sardinia

by A. J. Mobbs

Sardinia, the second largest island in the Mediterranean, has few endemic amphibians and my wife and I did not see a single specimen during a two-week stay on the island in June, 1978. Early one morning we did hear tree frogs (*Hyla arborea sarda*) calling but were unable to actually locate any.

A tour representative mentioned that large numbers of newly metamorphosed frogs (or toads) were leaving a pool situated in the garden of a hotel in the centre of Alghero, but although I was promised some of these, nothing came of it and I was unable to ascertain which species the frogs (or toads) were.

The port of Alghero where we stayed, is included in the range of the European Leaf-toed Gecko (*Phyllodactylus europaeus*); but as the species is nocturnal and prefers to hide away under stones or the bark of dead trees rather than dwellings, I was not surprised when we were unable to locate any during our travels.

The Moorish Gecko (*Tarentola mauritanica*) was very much in evidence in and around Alghero. One particularly large specimen could be seen at almost any hour of the day either resting between its favourite rocks (which were at times washed by waves), or during quiet periods, basking in the open. In their book "Reptiles and Amphibians of Britain and Europe", Arnold and Burton mention that this species can measure as much as 15 cm overall length. This does appear somewhat large for a Moorish Gecko, but after seeing the exceptionally large specimen referred to above, I can

quite believe that certain specimens do attain such a size.

The beauty of Sardinia is often marred by the unbelievable amount of refuse one sees lying around. On the beach one finds broken bottles, tin cans and any amount of wrapping paper. What could be beautiful picnic areas are often spoiled by people (usually Italians) leaving their litter behind. I mention this because although it adds little to the beauty of the island, such litter does attract certain species of reptiles and can therefore prove most advantageous when one is hunting for such creatures. An old mattress which had been thrown on to a ledge some 50 yds from the shore along one of the stretches of beach near the centre of Alghero, proved a most excellent hunting place. The mattress could be seen from the pavement which divided the beach from the road and from a vantage point, we often saw Wall Lizards (*Podarcis sicula cettii*) (or Ruin Lizards as they are sometimes known), basking on the mattress. A day or so before leaving for home, I began to collect a few reptiles to bring back with me and upon investigating the mattress, I found underneath, two Ocellated Skinks (*Chalcides ocellatus tiligugu*), one medium sized Moorish Gecko, a pair of Wall Lizards and numerous large (5 cm) long-legged beetles (species unknown).

Ocellated Skinks were fairly numerous in and around the Alghero area and most of those we came across were found under pieces of plastic sheeting which had been



Tyrrhenian wall lizard (female)

left lying around on scrubland some 300 yds from the shoreline. Condensation was always present under this sheeting and as certain areas under the mattress were also permanently damp, it is possible this skink prefers slightly moist conditions.

Without doubt the most abundant species of lizard in the Alghero area is *P. sicula cettii*. Males of this species could be seen basking (or if one went too close, could be heard scuttling away to cover) all along the rocky areas of the seashore. This species is a vigorous and most opportune lizard and can be found everywhere other than the rockless sandy beaches. A pair lived in the town centre itself, making their home in a large urn planted with a free-growing succulent. I saw this pair many times when they were basking on the small lawned area surrounding the urn and did in fact attempt to capture them, but found them impossible to locate once they had hidden away in the stems of the plant. This lizard could also be found in large numbers on the scrubland situated some 300 yds from the beach, but does not appear to be present (in any great numbers) further inland; although we did capture a solitary male found hiding under the bark of a tree some half mile from the beach near to an inland waterway.

This lizard is also found on Corsica and during a visit to the fortress town of Bonifacio, we saw a male (rather tatty in appearance due to an imminent slough) running along the sea wall.

Sardinia wall lizard (female)



Male *P. sicula cettii* far outnumbered females, but this did not appear to be the case with the Tyrrhenian Wall Lizard (*P. s. tiliguerta*); in fact the three specimens we saw were all females. These were seen in the mountainous areas a few miles from Nuoro near the centre of the island. We had stopped for a barbecue in a large olive grove and after the feast, my wife and I took a stroll alongside a small stream to see what wildlife could be found. *Tiliguerta* appears to be far less timid than *sicula* and although I was not keen to capture any lizards at such an early stage of our holiday, I did touch these females with my hand and have no doubt that capture would have proved relatively easy.

As it turned out, these three females were the only ones of this particular species we were to see in the wild. We did bring back a male, but this lizard was found in a pet store where it was about to be used as snake food! Although the pet store proprietor knew no English and we knew no Italian, he did manage to impart that the lizard "could be found all over the walls of Alghero and was, in fact, *Lacerta viridis*" (both observations being totally incorrect!).

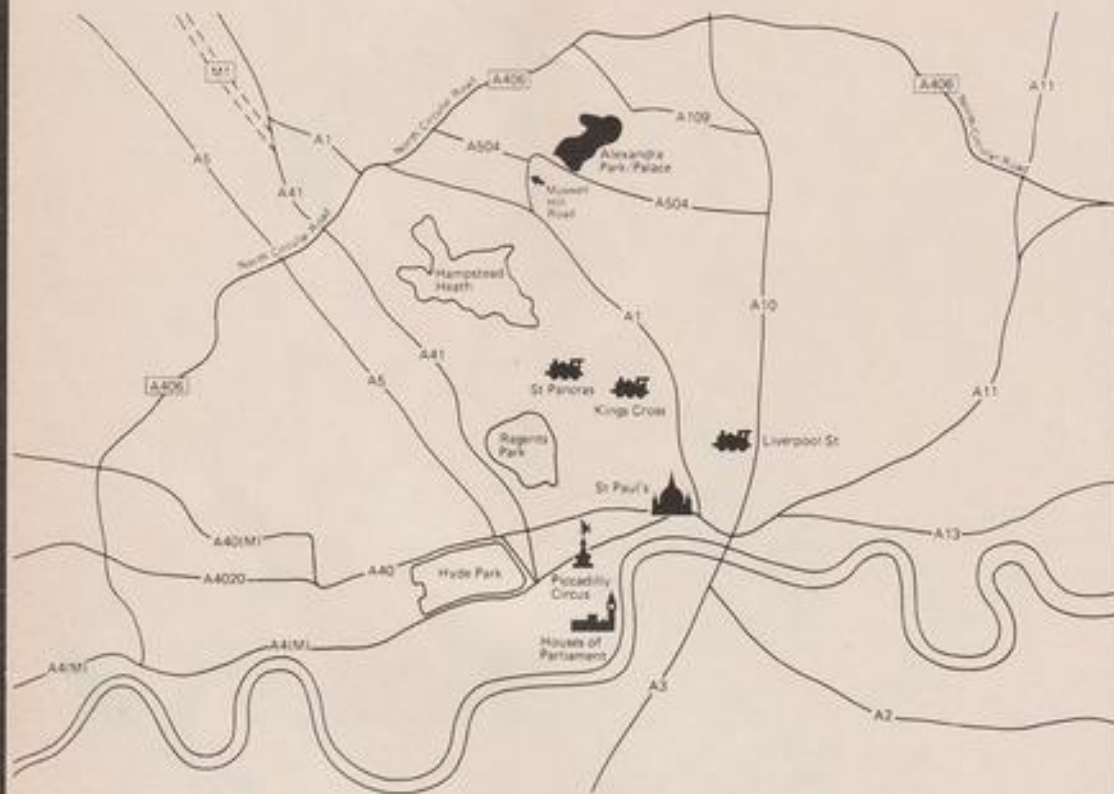
It has always been a minor ambition of mine to see a tortoise in the wild, but other than the pet owned by some people whose house was opposite the hotel in which we stayed, I did not see any tortoises at all. Seeing captive tortoises pottering about the gardens always makes me feel that such creatures are surely most vulnerable in the wild; yet they survive and if left alone by man, appear to have few enemies.

My wife and I had very much wanted to see snakes whilst in Sardinia. As it happened we did see one Western Whip Snake (*Coluber v. viridiflavus*), but this was from the coach as we travelled along a mountain road on the way to Nuoro. In the Alghero area, we found ten of these snakes along the roadsides; all had been killed by vehicles. To find ten in a relatively small area proved that there must have been a reasonable number about, but search as we may, we did not find a single live specimen.

In common with many herpetologists, I have a keen interest in certain insects and arachnids—especially the latter. I had promised to bring back an orb-weaving spider for a friend and managed to locate one young female *Argiope bruennichi* the day before we were due to leave for home. We were told that a scorpion had been seen on the hotel beach and a couple of days before we returned home, we made a concentrated search under small rocks along the shore. My wife found the first specimen and a further three were located in a very short space of time. A few hours before we left for the airport, another scorpion was found in almost the same area as we found the others. All these scorpions were found under rocks which were washed by waves at high tide. The scorpion found on Sardinia is rather small being some 2 cm in length. Two of the five we brought back have since given birth.

THE AQUARIST

HOW TO GET TO ALEXANDRA PALACE



Ample free parking in the grounds

BY TRAIN. From any of the Main line railway stations take the underground tube train to Finsbury Park from where bus number W3 runs to Alexandra Palace, or Piccadilly Underground line to Wood Green Station.

BY BUS. Routes to Finsbury Park, 4, 19, 29, 106, 168A, 221, 236, 253, 259, 279 from where bus number W3 runs to Alexandra Palace. Other routes to Wood Green are buses, W4, W6, 29, 123, 141, 221, 243, 298, 298A and Green Line Coach 715.

BY CAR. From North of London: Follow A1000 over the North Circular Road (A406), turn left into Fortis Green and Queen's Avenue. Turn left at the bottom of Muswell Hill into Alexandra Park. From South London: Take Stroud Green Road from Finsbury Park and follow road into Crouch Hill. Turn right at the bottom of Crouch Hill into Crouch End Broadway, then left into Park Road and Alexandra Park. From the West or East of London: Take the North Circular Road (A406) and follow directions as from the North of London.

EGGLAYING toothcarps, Cyprinodontidae Gunther 1866, comprise a ubiquitous family of fishes, better known to aquarists both in this country and in the U.S.A. as killifish. The name killifish apparently originates from the Dutch word for ditch and, if this is true, it adequately describes the typical habitat of fishes from this family. The range of this family is world wide throughout tropical areas and certain members of the family have also penetrated into the more temperate zones of North and South America and Southern Europe. Killifishes are not only confined to fresh water but can be found in the Mediterranean Sea (100% marine water) and all types of brackish waters. Water temperature does not deter this family of fishes either as some Desert Pupfish, *Cyprinodon diabolis*, inhabit hot springs up to 110 degrees Fahrenheit and some South American annual species, such as *Cynolebias whitei*, have been found in water that was iced over and must have been about 36 to 38 F. The tolerance of this family of fishes to the variations in the environment is one of the main reasons for its huge success as an evolutionary unit. The continuing effects of this tolerance are still very evident in today's strains and subspecies, many of which abound in Equatorial West Africa. The world wide range of this family is represented pictorially in diagram 1.

It is interesting to note that certain similarities between South American killies and African killies have been used as part of the evidence presented to support the theory of Continental Drift. The argument presented is that South America and Africa were once joined together and as a consequence, similarity in both flora and fauna between the two land masses is seen to support this argument.

As would be expected with such a large, diversified family, killifishes belong to a great number of different genera. At the last count there were some fifty-one genera and at least six hundred and fifty well defined species and subspecies. The whole group of fishes, egg-laying and livebearing toothcarps, present something of a problem for the taxonomist and this, in part, explains some of the reasons for the consistent alterations in the scientific names of many member species.

Generally speaking, killifishes are small, surface-feeding, egg laying, carp-like fish, closely related to and often living in close proximity with, livebearing species of toothcarps. The largest member of this family will rarely exceed five inches in length and the average size would be about three inches long. Sexual dimorphism, morphological variations between the male and female, is the rule in this family rather than the exception. Males are commonly more brightly coloured and better patterned than their female counterparts and they often show greater size and also more exotic fin and tail shapes. Females are usually smaller and a lot more drab in appearance. They rarely have fin or tail extensions and can be so similar, one species to another, that even the most experienced of killie keepers has been known

Killifish

Part 1

A general discussion

to confuse females of two different species, sometimes with quite spectacular results.

The body coloration of male killies is still somewhat of an enigma as in no way, can it be thought of as camouflage. Members of the genus *Aphyosemion* show very intense reds and yellows and must be easily observed by friend and foe alike. It is sometimes said that colour and pattern are used to distinguish one species or subspecies from another but this is far from a satisfactory explanation except, in the sense, that it helps aquarists to distinguish various species. Barriers to interspecific breeding have to be far more substantial and obvious than pattern and/or colour because hybridisation is a relatively easy process to practise with closely related species and, sometimes not so closely related species. Very often killies live in small pools and only one species is found in each pool. In situations such as these interspecific breeding could not be accomplished because of the geographical barriers and colour and pattern would matter very little indeed.

It is possible that male killifish use both colour and pattern, together with stance, in order to send messages to other members of the same species. By varying



Epiplatys macrostigma, a top-spawning species from the Congo

their position spatially, male killifish can hide or show off various colours and patterns which, in turn, would transmit such messages as "I am ready to fight" or "I am ready to spawn with you". This is all rather speculative at this point in time but until a better explanation becomes available it is the only logical theory left.

Unfortunately, from the point of view of the aquarist, male killifishes are inevitably ready to fight and, generally speaking, as soon as the young fish start to show colour and pattern aggression between the males begins. Fully mature males of this family are often very aggressive towards each other and as most species have an undefined breeding season this aggression continues almost unabated throughout adult life. Although fights to the death are very rare, aggression, amongst captive males, often leads to ripped and torn fins. In nature, of course, the beaten male will often show appeasement by turning tail and beating a hasty retreat but in the aquarium there is seldom room to do this and the beaten male is continuously attacked. Male killifish do not appear to be as territorial as males of other families of fish such as Cichlids and Anabantids, they simply seem to fight on sight whenever they happen to meet.

There are two very distinctive life cycles in evidence

amongst the various genera of this large family. The vast majority of the species are found to inhabit permanent waters and are said to have a normal life cycle composed of overlapping generations. Certain species, however, inhabit temporary or seasonal waters (waters that dry up for a certain length of time each year during the dry spell) and have a life cycle of non-overlapping generations. Species of the latter type are known as annuals and the following genera are all true representatives of this type:

Austrofundulus, *Cynolebias*, *Cynopoecilus*, *Northobanchius*, *Pterolebias* and *Rachovia*. Of these, only *Northobanchius* is an African representative, all the other genera being of South American origin. There are a few other species, not connected with the above genera, that are also true annuals. Four of the better known members are: *Aphyosemion sjoestedti*, *Aphyosemion gulare*, *Roloffia occidentalis* and *Roloffia toddi*. All these species are African and belong to the supergenus *Aphyosemion*. They tend to show that the dividing line between annuals and non-annuals is less distinctive in species originating from the Old World. As is to be expected, there are some semi-annual species such as *Aphyosemion fallax* and *Roloffia monroviae* included in this supergenus as well as the majority of species which are non-annual in breeding habit.

Annual fishes lay eggs in the mud of the pools in which they live during a short, hectic, breeding season. When the pools dry out during the hot or dry season the fish die but the eggs survive in a resting stage and hatch out at the start of the wet or cool season when the rains come and refill the pool. Diagram 2 should help to explain the life cycle of a typical annual species. Some species, such as *Aphyosemion gardneri*, show a tendency to produce resting stages in eggs under certain circumstances such as storage in damp moss. This demonstrates a strong connection between these species and the true annual species and shows that annualism is just one step further along the evolutionary road, nature's answer to a particular ecological niche.

Just as South America is rich in annual species, Africa is rich in the highly coloured non-annual species that are most sought after by the collectors of this family of fishes. One genus, *Aphyosemion*, provides a wealth of the most colourful species, one hundred and thirty-six in all and another genus, *Roloffia* (sometimes included with the genus *Aphyosemion*) provides a further thirty-two brightly coloured species. The genera *Aplocheilichthys* and *Epiplatys* are also found in Africa and both also contain many colourful species.

Asia boasts the genus *Aplocheilichthys* which includes the "panchax" species, *Aplocheilichthys blocki* (the Green Panchax), *A. dayi* (day's Panchax), and *A. panchax* (the Blue Panchax). All three of these species are often offered for sale by dealers and deserve a mention for this fact alone. Asia is also the home of another popular genus, that of the Medakas or *Oryzias*. Three species from this genus are regularly imported, they are the Celebes Medaka (*Oryzias celebensis*), the Japanese Medaka (*Oryzias latipes*) and the Java Medaka (*Oryzias javanicus*). All of these are mild mannered fishes and are some of the few members of the killifish family that can be kept in a community tank without any problems of aggression. Some authorities say that it is possible that the genus *Oryzias* should not be included in the family Cyprinodontidae, but these fish have been kept and classified as killifish for many years and it could take some time to accept such a change.

Coming closer to home, there are a small number of European killifish such as the Spanish Killifish (*Valencia hispanica*), the Spanish Minnow (*Aphanius iberus*) and the Banded Minnow (*Aphanius fasciatus*). Of these, the *Aphanius* species are found in coastal waters, waters that are often very brackish. *Aphanius iberus* is restricted to the Southern coasts of Spain and the coastal waters of Algeria, this giving a clear indication of the marine abilities of either the species or its immediate ancestors. *Aphanius fasciatus* is found in brackish waters around the coasts of most Mediterranean countries. It is possible, according to some ecologists, that *Valencia hispanica* (the Spanish Killifish) has now become extinct and, if this is the case, it will be the sad irreplaceable loss of yet another fish species.

In South America, once again, the huge genus

Rivulus provides the bulk of the non-annual killifishes. This genus contains some well coloured species such as *Rivulus holmiae* (the Buttercup Rivulus) and *Rivulus cylindraceus* (the Cuban Rivulus). This genus also contains a great oddity as well, namely the only fresh water fish species that is capable of true parthenogenesis (reproduction without a male partner). The species is *Rivulus marmoratus* and it is exclusively female. The species does not make use of the males of another species to instigate reproduction and only females of the species have ever been caught or bred.

In North America the two main genera are *Fundulus* and *Cyprinodon* but other minor genera are relatively common and include *Chriopeioides*, *Campbellolebias* and *Jordanella*. Although the genus *Jordanella* is only represented by one species, it is probably the most commonly kept species of killifish in today's aquariums; it is commonly known as the American Flagfish.

Having discussed the basic aspects of the killifish family in a general way it is now possible to proceed in a more specific manner and look into the various methods of breeding and keeping these fish in the aquarium. Of course, it would be absolutely impossible to examine this family species by species but because many related species are analogous to each other an examination of one such species would, in general, suffice for all others as well. The most convenient way to divide the family up is to use the geographical criteria and discuss Old World Killifishes (those species living in Africa, Asia and Southern Europe) and New World Killifishes (those species living in the American Continent). Consequently, my next article in this series will deal with the keeping and breeding of a few of the more common species of Old World Killifishes.

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Aphyosemion bualanum, an African non-annual from Nigeria



Coldwater jottings

by Frank W. Orme

SUNDAY, the 13th of May, opened to reveal a misty vista and somewhat cool temperature. Following my usual practice, a habit of many years, I made an early morning visit to the fish-house where I found the breeding pairs of lionheads and veiltails busily spawning in their respective tanks. In another tank the eggs of a previous spawning were in the process of hatching. What a start to the day. By 10 o'clock my daughter, together with her two young children, had arrived without warning to spend the day with us; the mist had dispersed, the sun shining brightly was quickly sending the temperature soaring—and I had promised to visit the British Koi-Keepers Society, who were holding their annual general meeting at the Botanical Gardens, in Birmingham.

Well, promises must be kept whenever possible, so by 12.30 p.m. the breeding fish had been separated from their eggs, the various fish-keeping chores attended to, and apologies made to my daughter and I was ready to depart for the venue.

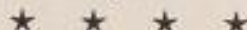
Arriving at the gardens, which had attracted quite a large number of visitors, I found the B.K.K.S., meeting to be held in the banquet hall. There I was welcomed by the society's public relations officer, Mrs. Gillian Minchin, whose husband, Dennis, and other officials were undertaking other duties near the entrance doors. There was sufficient time before the proceedings commenced, to have a few quick words with one or two old friends, such as life members Hilda and Eric Allen and the society chairman Roland Seal.

Shortly after 1.00 p.m. the chairman opened the meeting and welcomed the visiting members, who totalled 150 and had travelled from many parts of the country; he then gave a short, but very informative, lecture in which he described the good and bad points of various varieties of koi, which were projected from transparencies on to a screen. He gave the name of the variety and its correct pronunciation. The attentive attitude of the audience evidenced their interest in the subject and, quite obviously, found the topic most absorbing.

During the following business of the meeting the Editor of this magazine was again elected to honorary membership—an honour which has been accorded to him for some years. The Chairman also expressed the hope that, in the early future, the society would have a

B.K.K.S. section in almost every town rather than area sections as at present.

Having elected the committee for the coming year a tea-break was called—which, in the over-warm atmosphere of the hall, was most welcome. The latter half of the meeting was devoted to a film and slides of Japanese koi. All-in-all a most enjoyable afternoon in very pleasant surroundings.



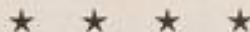
Recently I was in conversation with a man who was telling me of his mother's interest in gardening. Apparently she had persuaded him to build a concrete pool in her garden during last spring, but she could not keep fish alive in it for very long. My questioning revealed that the concrete had been soaked repeatedly to remove the dangerous free lime; a pH test, taken over three week-ends, had shown no increase in alkalinity and it was assumed to be safe. However, as an added precaution, the pool had then been allowed to thoroughly dry before being treated with two coats of a plastic paint—the paint had been obtained from a waterplant nursery.

The base was covered with washed aquarium gravel to a depth of around 6 inches, in fact the plants grew rampantly and would need drastic thinning, especially as the pool was only small. I asked what was meant by small. "Oh, something like 6 feet x 4 feet and a water depth of 1 foot deepening to 3 feet" was the reply.

There were no trees, of any sort, remotely near the pool, but there were a number of roses. Only common goldfish had been tried, and none had lived more than a week despite changing the water. "So, please, tell me what I'm doing wrong" he pleaded.

On the face of it there was nothing wrong, but, I wondered: roses and a mother who is a keen gardener—could that be the cause of the problem? Sure enough that was where the trouble lay. At least once a week the roses, and other plants, were sprayed with insecticide and, periodically, the ground dusted with an insect killer. I explained that it seemed fairly obvious that the insecticides were getting into the water and poisoning the fish. In fact I was surprised, in view of the care that had been shown in preparing the pool in the beginning, that the danger had not been realised before.

Another conversation involved a lady who kept koi in a densely planted large pond; the pond had so much plant-life that it was difficult to see any fish although the water was "perfectly clear—right to the bottom". She stated categorically that she did not believe in placing any fish in quarantine and had never lost any fishes. I remarked, with some disbelief, that I felt she had been very lucky. She then proceeded to explain that she thought her pond was too healthy for any disease to survive and that the natural conditions prevented any troubles arising. "In fact" she said, as though daring us to dispute, "I have even put fish into the pond that were infected with white-spot, and the fish has been cured very quickly without any other fish being infected." I could only think that this lady had been very fortunate, if what she claimed were true, and hope that she did not have a rude awakening at some future time. Her practices are not to be recommended for they are an open invitation for disaster to strike—even if she has been lucky up to now!



At this time of the year the novice fish breeder may well encounter some difficulty in providing sufficient food to satisfy the appetites of both young and adult fishes and more and more commercially prepared foods are likely to be utilized. Despite what others may think, I do not believe that it is good practice to rely entirely upon dried foods—excellent though many are.

Just as we prefer variety in our diet, so does a fish, beef steak served every day without exception would soon put us off our food. In the wild there is usually an abundance of different foods, both animal and vegetable, from which the fish can choose. However, in our tanks the fishes have to rely upon their owner to supply the change of diet. We must therefore go to a little trouble to supply their need by either collecting or breeding suitable live foods. In this way it becomes possible to provide a varied menu of dry and live foods to the ultimate benefit of the recipients. The following notes should provide sufficient guidance for even the most novice of fishkeepers, and provide material from which to select the live foods which the reader personally prefers as alternatives to a regular diet of dried foods.

Daphnia, "Water fleas"—crustaceans that may vary in colour, being green, red or black, depending upon the food they have ingested. By straining through various mesh size nets the *daphnia* can be graded to suit practically all ages of fish, but a word of caution: do not put an excess in the fry tank or the *daphnia* will compete for the dissolved oxygen and this will be akin to overcrowding.

If a stretch of water is found to contain *daphnia* make a few sweeps with a fine mesh net. This may possibly secure enough to provide several feeds. Transport the *daphnia* home in a covered bucket of water and upon arrival tip them gently into a white bowl; closely inspect the catch and remove any beetles, leeches and other

creature that is not a *daphnia* and does not fit the description of other live foods. Careful attention in this way will avoid introducing undesirables. Finally, net the *daphnia* and place them in clean water, making a last check to ensure that you have only clean *daphnia* for feeding to your fish.

Mosquito larvae. Often found in *daphnia* pools and rainwater butts, these are usually the larval stage of *Culex pipiens*. The adult lays blackish canoe-shaped egg-rafts upon the surface of still waters. Depending upon the temperature, these eggs hatch in 1 to 5 days. These insects are air breathers, air being taken in through the tail, and will be found hanging head down from the water surface. If disturbed they will immediately swim with a whipping motion deeper into the water only to return as their air supply runs out. Depending upon the size of the larvae they can be fed to fish in all stages of growth. An excellent food that will not deprive the fish tank of oxygen.

Bloodworms. Usually half an inch in length, these blood-red creatures swim with a figure of eight motion. They are the immature form of the midge *Chironomus*. Frequenting similar locations as *daphnia*, they spend much of their time in the bottom mud of ponds feeding upon decaying vegetation. During sunny periods they can sometimes be found swimming in fair numbers and can be netted. Possibly the easiest method of gathering bloodworms is to take up a quantity of the mud and place it in a bucket of water. Stir the mud and then pour off the worms when the detritus has settled, but before they have time to re-enter the muck. Strain through a net and swirl before placing in clean water. Bloodworms are excellent food for the larger fish, if you can obtain sufficient of them.

Glassworms. Glass-like transparent larvae of the plumed gnat (*Chaoborus*), which is sometimes found with *daphnia*. They live in similar conditions and grow to a length of three-quarters of an inch. When they are netted in quantity the net will appear to contain a mass of wriggling jelly. This food provides a welcome change of diet for the larger goldfish when other live foods are in short supply as it can often be netted in large amounts, from suitable waters, during the colder months of the year. Equipped with very powerful jaws the larvae are reputed to be able to eat fish eggs and small fry. I have witnessed the glassworm seizing a *daphnia* and would not therefore doubt its reputation.

Tubifex. Thread-like reddish worms that are related to the earthworm. The fouler the conditions the better this creature survives, and very large colonies of *tubifex* can often be found near to sewerage outfalls where they will form a waving mud-surface mass of rusty red threads. With heads buried in the mud they feed on the bacteria created by the sewerage, but will withdraw like a flash, if they are disturbed, into the mud. The fact that *tubifex* live in such filthy conditions has led to many arguments amongst aquarists as to the advisability of using them as a food.

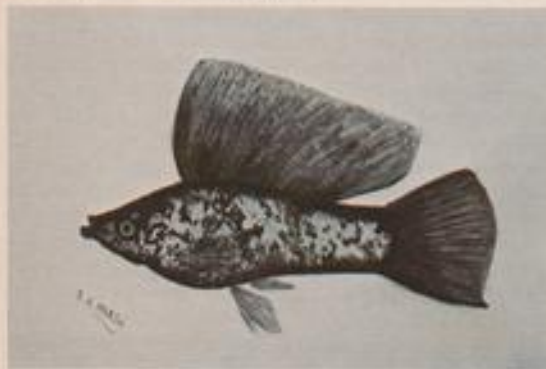
The Mollies (4)



The golden albino form of *Poecilia velifera*

WHAT A superb fish the Yucatan or Giant Sailfin Molly is! With his enormous dorsal fin and brilliant coloration he is truly the King of the Liverbearers. But, like the other members of his "family", he is fussy about water conditions and they need to be exactly right for this fellow.

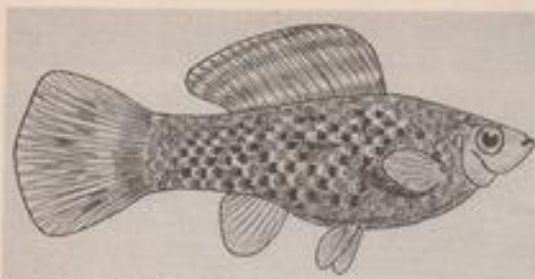
A beautiful marbled male sailfin



The King from Yucatan

As his name suggests he comes from the Yucatan peninsula in south eastern Mexico, mainly from the coastal area where he can be found in the estuaries, streams and lagoons. Most of the time he inhabits brackish waters, but some of them are to be found further inland in truly freshwater areas. However, as most come from the coastal area it goes without saying that they need salt in their aquariums if they are to prosper. Indeed in the aquarium they are very sensitive to water conditions and an excess of bacteria or a lowering of temperature much below 77 F will set them shaking from side to side with a condition known as the "shimmies".

They require large tanks and hate to be overcrowded so they are definitely not community fish. Frequently



Poecilia velifera (female)

partial water changes are a must and the topping-up water should be aged, contain the right amount of salt and be at exactly the right temperature. If these few simple rules are obeyed you will be rewarded by fish in perfect health that will often display for you—a sight not to be missed.

They are much more brightly coloured than the latipinna sailfin with the basic olive colour of the body overlaid by brilliant blue-green dots on the scales. These are interspersed by copper coloured stripes and three or four dark transverse bars in the belly region. The dorsal fin is very grand and begins just behind the head spreading over the caudal peduncle when at rest. In mature fish it can reach a height of 1½ in. and has numerous pale round spots which are edged in black. It carries an orange border and has 18 or 19 rays. The tail has an orange border, black markings and a small spike on the lower edge.

It is somewhat stouter in the body than latipinna and the throat and breast region are usually coloured a beautiful brassy yellow, although this colour will disappear if the fish is nervous or frightened.

There is more variety in the coloration of females than in the males varying from a plain bluish-grey with a few rows of dark dots to a more iridescent body colour with many rows of bright blue dots. Their dorsal fins are quite large but nowhere near as grand as the males' and are coloured with dark streaks. The other fins are colourless.

Many aquarists often wonder why the Yucatan Sailfin does not live long in their tanks. They have often spent well over £1 for a four-inch fish with a well developed dorsal fin and then find that after eight or nine months his colours have begun to fade and in another few months he is dead. This is because it takes between two and two and a half years to develop the sailfin so the fish is already quite old when it reaches the aquarium. If there is a female in his tank (and there usually is) he is spending all of his maturity in breeding and consequently using himself up pretty quickly. They have been known to live to about four years of age but such fish are exceptional.

When breeding the Yucatan Sailfin even more care must be undertaken with the water conditions. The tank should be very clean and should be separate from

the main one. Plenty of fine leaved plants should be introduced and aeration and filtration are essential. Good lighting ensures a good growth of algae and plenty of live food should be fed. If you are after large fish with good dorsals (eventually) then the ideal is to mate a virgin female with a male of about eighteen months that is showing good dorsal development.

After a pregnancy lasting two months or so the female will produce a brood of between 30 and 200 youngsters depending on her size, the quality of food and water conditions. Although the fry are quite large at birth being about half an inch long, they grow very slowly and need plenty of live food. Jacobs, in his book "Livebearing Aquarium Fishes", recommends that the water in the rearing tank should be only four to six inches deep to begin with, increasing the depth as the fry grow.

Any males which start to develop early should be culled and only ones which start developing their dorsal fins at eight months old or later are likely to produce real sails.

There are two albinistic forms of the Yucatan Sailfin as well as a black and marbled form. These are:

ALBINO—A very rare fish. The body is pale pink with a few red dots on the body becoming larger around the head making it look rather as if it had the measles. There is no other coloration present, and, of course, the eye is pink.

GOLD ALBINO—This is the fish usually sold as the gold or albino sailfin. The olive-green body colour has been replaced by golden yellow; the blue dots are still evident but all black pigment is missing so that the transverse bars are bluish instead of black. The eye is red. Females are usually plain gold although some do have an amount of blue spotting.

BLACK—The true black *Poecilia velifera* is another rare fish and most black sailfins sold are *P. latipinnas*. It is a sooty black all over including the eye apart from the edge to the dorsal fin which is either red or orange-brown. The female is all black with no coloured dorsal edge.

SPECKLED OR MARBLED—The name depends on the amount of black spots or blotches over the basic blue-green body. It is thought to have been developed from a black/blue green cross and this appears perfectly possible as wild specimens do occur.

LYRETAIL—Seen in all forms apart from the true albino to date although most of the fish concerned are probably hybrids between latipinna and velifera. Gold albinos are a rarity so far. Like the other lyretails from which it has been bred the upper and lower lobes of the caudal fin extend outwards in a curve to form the lyre. It shows quite an exceptional extension of the pectoral and pelvic fins as well as a certain amount of elongation of the dorsal. On some specimens the gonopodium is so be-feathered with fin extensions as to make further breeding impossible.

NEXT—Molly's country cousins.

Caring for your tortoise

by Dr. Christopher Andrews

IN MANY WAYS the tortoise is to the herpetologist what the goldfish is to the aquarist. Both make hardy long-lived pets, though they are both frequently (and one hopes inadvertently) mistreated by the people who keep them. As a result of this, of the many thousands of tortoises that are imported each year, only a few live longer than 12 months in this country. The purpose of this article is to outline the correct care of the pet tortoise.

Different species

Let us begin by considering the different species of tortoise that may be offered for sale in your local pet shop this spring and summer. We will exclude the exotic tropical tortoises, and concentrate on the more hardy European and North African varieties. The most common import is probably the Spur-thighed Tortoise (*Testudo graeca*). This species hails from North Africa and southern Spain, and may be distinguished (as suggested by its common name) by the presence of a large conical tubercle on the thigh of each rear leg, either side of the tail. Perhaps a more attractive species is the Greek or Hermann's Tortoise (*T. hermanni*). This tortoise comes from the European coasts of the Mediterranean, such as Italy, Sicily and Yugoslavia. The distinguishing feature of this species is a spur at the end of the tail (there are no tubercles on the thighs). From time to time, one or two other species may become available. The Marginated Tortoise (*T. marginata*) is rather similar in appearance to *T. hermanni*, but lacks a spur on the tail and tubercles on the thighs. In addition the scales of the forelegs of *T. marginata*

tend to be quite pronounced and (particularly in older specimens) the rear margins of the shell have a flattened, serrated edge. The Marginated Tortoise comes from Greece, Italy and perhaps Sardinia. A fourth species is Horsfield's Tortoise (*T. horsfieldi*), whose range extends from the shores of the Caspian Sea into India and Russia. Whilst it has a spur on the tail, it may be distinguished from *T. hermanni* by the presence of only four claws on each foot.

Choosing a Tortoise

At a first glance one tortoise may look very much like another. However, it is very important to choose a healthy individual, if it is to have a good chance of survival. Pick a tortoise that is active, with bright, clear eyes and no damage to the shell, legs or soft parts of the body. Try and choose a tortoise that is at least five inches long (shell length), as smaller individuals may be less hardy. It is always a good sign if you see the tortoise feeding, but beware of specimens with runny noses, and cloudy eyes. These may be suffering from a respiratory infection, which can be difficult to cure. You may distinguish between males and females by the concave *plastron* (underside of the shell) of the former, and the shorter tail of the latter. Both make equally good pets.

Enclosure

Unless your garden is walled it will be necessary to construct some sort of enclosure. It is wrong to drill the shell of a tortoise and tether it by a piece of string, and these reptiles should never be tied by one

of their rear legs. It is much better to let the tortoise have the run of a secure corner of the garden, covering several square feet. However, tortoises are great escape artists, adept at both climbing and burrowing. Smooth wooden boards (at least 18 inches high) that are partially buried into the ground may be adequate. Wire netting tends to make climbing easier for tortoises. Site the enclosure in a sunny part of the garden, that receives some shade from the mid-day sun. To provide shelter from inclement weather (and protection from the summer sun if natural shade is unavailable) a weatherproof box should be provided. Always make sure that the box is large enough for your tortoise, though the doorway should not be so large that it lets in driving rain, etc. Tortoises appreciate grass and soil, and so areas of both should be incorporated into the enclosure. Finally, a shallow dish of clean water must be provided and sunk to ground level. Tortoises like drinking and even the occasional bath. If you so wish a small rockery may be used to brighten up a tortoise pen. However, jagged rocks should not be used as they may damage the underside of your tortoise. Similarly, any plants or shrubs must be tortoise-proof, or at least non-poisonous!

Feeding

The above tortoises are largely (though not entirely) vegetarian. I have seen some specimens of *T. hermanni* actively seek out slugs when flat stones were overturned. However, to all intents and purposes, you can maintain a tortoise in good health by providing a good mixed diet of lettuce, soft cabbage leaves, dandelion, tomatoes, over-ripe fruit, bananas, etc. Occasionally, bread soaked in water (or milk) may be offered. Some of the above items may (at certain times of the year) prove rather expensive. Therefore it is a good idea to grow some of your own tortoise-fodder. A small patch of garden can easily produce enough lettuce to supply the needs of several tortoises at minimal cost.

Since tortoises (like all reptiles, amphibians and fish) are cold-blooded, their appetite will depend upon environmental temperatures. As autumn approaches and temperatures fall, their appetite will wane. During September-October each year it is a good idea to bring your tortoise into a frost-proof shed or garage each night. As temperatures continue to fall the tortoise will become less and less active until (often sometime in October) it may be packed away in a straw or paper filled box. Here the tortoise will safely hibernate until the following spring. The box should be stood in a cool, dry, frost-proof place (such as a garage) where temperatures do not fluctuate too much. Beware of inquisitive rats, that have been known to attack dormant tortoises.

During the early spring the hibernating tortoise

should be examined for signs of activity. Tortoises awake as temperatures begin to rise, which may consequently vary in onset from year to year. Once the tortoise has shown signs of activity, the eyes and nostrils should be bathed in warm water. For the first few weeks the tortoise should only be put out during the day, and returned to its box each night. The appetite will gradually increase, so it is unnecessary to worry if it does not come onto feed straight away. A bowl of clean water is often appreciated by some tortoises just out of hibernation.

Ailments

If properly cared for the tortoise makes a troublefree and long-lived pet. However, from time to time you may come across one or more of the following ailments. If ever you are unsure about the health or treatment of your tortoise you should consult a local veterinary surgeon.

Many newly imported tortoises often have cuts and abrasions. Wash the infected area well with clean, warm water and apply a safe antiseptic such as Listerine. Deep cuts or shell cracks may require veterinary attention. Sores and open wounds can attract the attention of blow-flies. These insects are attracted by the scent of the wound and lay their eggs therein. These hatch and the resulting maggots can eat deep into the flesh of the tortoise. Therefore wounds should be covered (or at least regularly cleaned) and a watch kept for adult blow-fly. Tortoises suffering from maggot attack may be difficult to successfully treat. Another common affliction of new imports are ticks. These external parasites (up to the size of a small pea) attach to the soft parts of the tortoise, where they feed on the host body fluids. Fortunately these pests are easily removed. Simply dab each tick with a little methylated spirit on a paint brush. This will cause the parasite to loosen its otherwise tenacious grip, and it may be swiftly removed with a pair of forceps. Apply a little antiseptic to the point of attachment as a precaution against infection. Ticks may be killed by dropping into boiling water. From time to time tortoises may pass large string-like worms (nematodes) in their faeces. If present in small numbers, these will probably not effect the health of the host unduly. Heavy infestations may be treated with one or two doses of cat wormer, but consult your local vet first. Although uncommon in adult tortoises, younger specimens may suffer from soft-shell. This is largely the result of insufficient calcium or vitamin D in the diet, and may be corrected by feeding powdered cuttlebone and/or cold liver oil with the food.

For further advice on tortoise care (or any aspect of fish keeping) write to Dr. Andrews at the Tetra Information Centre, 15 Newlay Lane Place, Leeds LS13 2BB.

From a Naturalist's Notebook

by Eric Hardy

"HEAD-STARTING" of turtles for release into the wild, and rearing crocodiles in zoos, are methods of conserving endangered reptiles practised in the U.S.A. and India. Swiss vets have a method of marking their reptiles to control the trade in them. Others study the control of amoebiasis, a disease from microscopic amoebae and helminth worm parasites. Reptiles which laid eggs or gave birth to young at London Zoo last year included red-sided garter and African house snakes, black mamba, long-nosed and Pope's pit-vipers, leopard gecko and Spanish terrapin. Sixty-three reptiles were born or hatched among its 348 species, and 90 amphibians among its 189 species. Its reptile house has a perspex chamber to raise or lower barometric pressure and air and water temperatures, simulate rainfall and control light when breeding amphibians.

Native fishes

The distribution of native fishes is not so invariable as to be unaffected by changes in their environment. Since disease killed off most of the perch in the River Dee in recent years, flounders, which had always been known to range so far up river as Eccleston, above Chester, are now present in unprecedented numbers. A new paperback edition of Christopher Lever's *Naturalised Animals of the British Isles* (Paladin, £2.95) lists 14 alien fishes which have been introduced and breed in mostly southern parts of the country. There are few freshwater communities into which a new species can be established without causing some major alteration in the balance of fauna, even if only from competition for food. As brook and rainbow-trout rarely breed here they are not expected to exterminate any natives. More serious effects have been the distribution from one part of the Isles to another like

dace and roach into the Irish Blackwater and barbel to the Severn. It would be safer to confine new introductions to fishless waters, like new reservoirs, and reintroduce declining fish like burbot to lost waters, if made suitable.

Aliens

The aliens in our midst range from Asian and grass carp to European and Channel catfish, orfe, American pumpkinseed in Crawley and Bridgwater pools, black bass, rock-bass and European pike-perch.

Feral goldfish are reported from the River Kennet to the Forth and Clyde canal, but it is difficult to find how long these have regenerated their stock in the wild. The book does not mention their long history in the warm waters of Lancashire mill lodges, now declining. Or former Thames Huchen (Danubian salmon) South-west Yorkshire (established before 1955), the Lancaster Canal and the Lancashire-Lakeland border can be added with the London area to the bitterling's haunts. Cichlids (*Tilapia zilli*) and guppies breed in the hot water of St. Helen's Canal at Church Street, guppies also in the Lea at Hackney.

Five alien reptiles have been established: the rescaled water-snake had a brief existence early this decade at Holme-upon-Spalding Moor, near York, while European pond-tortoises had their most successful colonisation at Woburn Park but generally a short career at several private lakes where they were introduced last century. The recent hard winter ended the feral life of several suburban common tortoises hibernating around garden rockeries. Wall-lizards have had spells of colonisation in the Isle of Wight and Devon, but I didn't see the colony of green lizards reputed to have succeeded in the Irish Burren in two visits in

different years, though it is native to the Channel Islands.

Amphibians

Six amphibians in the country comprise, as well as edible and marsh frogs, a New Forest colony of green tree-frogs in a Beaulieu Abbey pond, African clawed toads in ponds above the cliffs at Brook in the Isle of Wight and 3 colonies of midwife toads at Horton & Smart's old Bedford nursery, at Blackawton (Totnes) in Devon and near York. Although the experimental introduction of alpine newts into Wirral seems to have failed, they succeeded in a pond near an aquatic nursery at Newdigate in Surrey. These are all breeding species, not just liberations or escapees.

Pond-keepers soon realise that most water-plants grow quicker than land plants and propagate readily from bits and pieces torn off, as well as by seed. Many, like *Elodea*s, thrive without setting seed. Plants to avoid, segregate or to keep their roots in restricting containers made with cement or brick, include great spearwort which increases greatly by runners in the open pool unless confined in pockets or pots in 2 or 3 ins of water. *Nymphaea* water-lilies will choke a small pool after 3 or 4 years, unless removed from their planting crates after flowering and the strong crowns cut back. *Lagarosiphon major* and *Egeria densa* are as aggressive oxygenators as common Canadian pondweed, but they can be thinned out by twisting a stick handle among them, or flinging in a line with an old meat-hook or grapple to haul them out.

Rampant weeds

Be sure to restrain blue American pickerel weed if you have no water-voles to nibble them for you. Flat, green buttons of marsh-pennywort, miniature aloe-like water-solider, the yellow-button *Cotula coronopifolia*, *Azolla* water-fern, pink *Montia* (*Claytonia*) *sibirica* along the banks, terrestrial *Ludwigia*, water-violet (which is not a violet), water-plantains, marsh-arrowgrass, arrowhead, mare's tail whose long white runners take control under the mud passing through the root-growths of more choice plants, both loosestrifes (unrelated) which become rampant, willow-moss and creeping jenny which keeps on creeping, creeping, may all take over the pond if uncurbed.

Reed-mace (cat-tail, also misnamed bulrush) is increased by shallow water, making thick platforms as its prostrate stems extend 40 to 50 ft, and sending up stems every 5 or 6 ins to a height of 8 or 10 ft, ultimately producing a drier base which, in a large pond or lake, encourages *Salix* (sallows and willows) to thrive into a thicket. Fennel-leaved *Potamogeton* and the grass pondweed *P. obtusifolia* form dense masses like *Elodea*. Great hairy willowherb is almost as invasive as reed-mace. Trailing cup-flower, *Nierembergia*, roots like twitch, producing a continuous mass of bright green, round leaves from June to August with creamy white

cups in sunny places. The spreading roots of sweet flag, *Glyceria*, etc., are best planted in cement-lined holes of loam to check expansion.

Chemical control

Chemical control of waterweeds should be the last resort, especially where fish are kept. Any treatment (with dalapon, downon, etc., which are sap-conducted) is most effective with the young growth in late spring or early summer before full growth is attained, or a mass of dead vegetation may be left to foul the water. A larger and more harmful amount of chemical is required at the later period. Having cleared the weeds, do not be taken unawares by club-rushes, spike-rushes and wetland grasses quickly filling the gap. Rushes, like other plants, vary in reaction to herbicides according to species, and the efficiency of chemicals is varied by the composition of the water and the properties of the mud or silt bed. Excess, of course, produces side-effects.

Two per cent sodium chloride injected into roots with a pointed metal tube controlled reeds without being harmful to fish, it is reputed. 1 p.p.m. chlorine is near the toxic level for fish; fisheries use half this strength, but it doesn't kill all species of algae. Dalapon at 10-20 lb in at least 100 gals of water controlled reed-mace, rushes and sedges in up to 12 ins of water, with a second treatment the following year to check regrowth. Care should be taken though to avoid outfalls contaminating lower waters where cattle drink.

Sodium arsenite in amounts small enough to be harmless to fish has been used on hornwort and many *Potamogetons*. *Elodea* and stoneworts are most resistant. Unless fish are removed, hand-pulling and digging-out roots are a more laborious, but safer way. Drainage and liming control some marginal rushes and other weeds.

Common rushes like *conglomeratus* seed prolifically on acid soil, hard *inflexus* on basic clays. Their seeds may lay dormant for years. The former species seldom germinates without light and can be shaded out by more vigorous alternatives used to smother it. Most of their seeds germinate in spring rather than summer. Herbicides are much more effective if common soft *effusus* rushes are cut (even with a mower) 4 weeks before spraying. Some are more resistant to MCPA than to safer dalapon.

Diquat is effective at 1-3 p.p.m., a level said to be unharmed to fish. At 1 p.p.m. it destroyed an *Elodea canadensis* nuisance in a pond in a week. When herbicides destroy aquatic pondweeds they remove their photosynthesis and oxidation of dead plants follows, and fish may die from reduced oxygen. Some also kill pondsnails, resulting in a more profuse growth of plants these formally browsed upon.

WHAT IS YOUR OPINION?

by B. Whiteside, B.A., A.C.P.

Photographs by the Author



THE FIRST contributor to this month's feature is Miss C. Hyde, a reader who resides at 89 Wimbledon Park Road, Southfields, London SW18. She writes: "I am very fond of goldfish and have lost many as a result of fungus disease and tail rot. These are common ailments: I have even purchased fish with the disease; but experience has taught me to spot the signs, i.e. nibbled fins.

"I have a tank of reasonable size which once housed eight fish. All had the disease as it is very infectious, and they all looked a sorry sight. I took them to a vet and was told to bathe them in salt (?) for a few minutes daily. I feel this treatment is fatal. Yes, it does remove the fungus, but in the process a badly infected fish, with fungus round its gills—and it might be unseen—stands no chance: as the salt takes effect the fungus loosens round the gills and blocks them; result—death!

"The following is my method of effecting a cure. For five minutes twice daily, perhaps once in the morning and once at night, place the infected fish in a small net and hold the net under a cold water tap and let the water flow as fast as the tap allows. The fish may well object; but never mind. The fungus, under fast-flowing water, simply sheds off; it can't cling. Do this for about a week. Believe me, it works—and I have the living proof. In my tank now I have two perfectly healthy fish which both had this dreadful disease. One had virtually no tail at all; the other had half a dorsal fin. The other six died as a result of being bathed in salt. Rather than let the other two meet the same fate, and as a last resort, I started to treat them under the cold tap; and now both the tail and the fin have grown back to their original size by curing them with the very thing that fungus thrives in—water! I thought I'd write because I'm very proud of my two fish and thought, perhaps, you might be interested."

It's certainly an interesting method, Miss Hyde. I should think that one would need to be careful to ensure that a strong flow or jet of water did not damage a fish's gills; and that the temperature of the tap water was not vastly different to that of the water from which the fish had just been taken. Miss Hyde does not

make clear exactly how she used the salt to treat the fungus-infected fish that died; one assumes an appropriately strong solution of salt dissolved in water was used. If Miss Hyde's treatment works as well as she says, and does not cause the fish a lot of distress, I see no reason why it should not be tried. Recently I was discussing fish diseases with an aquarist friend and he made some comments that made me think about the cost of 'cures' and the cost of replacing a diseased fish. Frequently many of us guess at a fish disease and then treat the fish with an expensive 'cure,' the contents of which we do not even know. The reality of the situation is that it would often be cheaper to dispose of the ailing fish and buy a healthy replacement. A vet's fees, plus cost of medicine, would probably amount to more than the cost of most common tropical fish. Do you have any views on the topic in general? If so, please send me your opinion.

From 151 Lilac Court, Churchill Way, Salford, came the following information from Mr. Robert Hey: "Being new to the hobby of tropical fish keeping I have, until recently, used ordinary 40 watt household light bulbs to light up my 48 in. x 15 in. x 12 in. community tank. I used to think that these were sufficient until on the advice of my local aquarium shop I bought a 36 in. Gro-Lux fluorescent tube. Almost immediately the fish became brightly coloured, and they seemed to enjoy staying in the open on view. From now on it's tubes every time for me; and although plant life does not seem to have altered, the fish are happier and healthier. Some advice please: although my tank contains the usual livebearers—swordtails, guppies and mollies—only one swordtail has shown signs of producing young. In a breeding trap in fact it had only four. Any hints? Water is pH 7.0 and temperature 76°F. Other fish in the tank are small angels, zebras, harlequins and three fighters."

Certainly coloured lights—such as Gro-Lux—will affect the visible colours of aquarium fishes. The named type of fluorescent tube enhances reds and blues in such fishes as swordtails, neons and cardinals. Whether this is 'good' or 'bad' is a matter of opinion. I am not so keen on such exaggerated colours; but the

reality is that very few of us can arrange to illuminate our fish tanks with natural sunlight and few of the substitutes we use give natural colours, if we accept sunlight as the standard or norm. Do coloured lights affect the health and happiness of fishes? I wonder. It's a pity that the tube you are using has not improved the growth of your plants. Have you excluded all the household (tungsten) bulbs? I use tungsten bulbs alone or in combination with a fluorescent tube. I find that the combination of tungsten and fluorescent lighting seems to encourage better plant growth than either alone. I've tried white, warm white, Gro-Lux and True-Lite tubes in combination with tungsten. The latter combination appeared to encourage the best plant growth in the tank in which I tried it.



However, I can grow perfectly good plants using only tungsten bulbs. The majority of the latter seem to be available locally only in pearl—as opposed to clear—types; but yesterday I found a pile of clear 40 watt. bulbs in my local Woolworth's store. I bought two of them to try a little experiment to see if a clear bulb or a pearl bulb encourages the better plant growth. Obviously I'll have to try to keep all other environmental factors equal. I'm still wondering why one of the bulbs cost 17p and the other 18p, because they were identical. Perhaps one was older stock and one newer. If your female swordtail was very young it is possible that she produced only four babies. It is more probable that she produced more than four but had eaten the others before you arrived on the scene. Some breeding traps are badly designed and newly-born fry, being unable to read, frequently fail to enter or stay in the area where the mother will be unable to eat them. Pregnant female livebearers can become upset when moved

from their normal tank and placed into the confines of some breeding traps; but, on the other hand, it's better for the beginner to save four babies than lose them all.

My thanks to Miss Sandra Haddock, of 14 Fereday Street, Princes End, Tipton, West Midlands, for sending me some photographs of her goldfish in their outdoor tank. Sandra writes: ". . . I have one shubunkin, two common goldfish and two comet goldfish that share a 3 ft. outdoor tank. It was not affected by the snow and frost because the tank was well covered with a plastic cover over the top, and the lid put down. I also had some floating objects to help keep the glass from cracking. When the lid was shut the tank was covered by a blanket—kindly

given by my sister. When the blanket was packed down it looked very snug; and on the few occasions that ice formed it was only thin ice on the top.

"During cold weather I stop feeding for a bit; but if it's nice outside I feed live food. All my fish have different preferences. The shubunkin—named Pinkie—likes *Daphnia*, bloodworms and earthworms, but will not take any kind of dry food; but the rest of the fish will take anything. I do not include gravel in my tank—which makes it easier to clean. My sister helps with any illnesses my fish may sometimes have. I have a separate tank for this in our room. We have one in there at present; he's called Jobie. He has suffered from white spot and tail rot; they have now cleared up. We use salt and cotton wool to swab the affected areas; then the fish is fed on live foods or a small pinch of dry food. We clean the tank and nets with Dettol.

"Some time ago you asked about the cultivation of live foods. I have a large plastic container beside

my outside tank. I usually use it to get rid of the water when I clean out my two 3 ft. tanks. The reason I did not notice the live food before was that the hole in the top of the container isn't very big. I put the tube into the container and this gets rid of the rubbish. I must have sucked up some bloodworms and *Daphnia* and they began to breed. They fed on plant leaves and algae and produced more; and I happened to notice them. I now have thousands of them. I hope you like my photographs."

Photographs one, two and three show some of my planted tanks. I should be pleased to receive letters, for future publication, from those who have noted that some plants thrive in the company of certain others; while some remain static, or disintegrate, in



tanks containing other specific plants. Obviously some plants thrive in soft, acidic water, while other prefer harder, alkaline conditions; and temperature and lighting also have their effects on plant growth.

Mr. A. J. Hewitt's home is at 174 Salisbury Road, Liverpool, and he writes about discus. "... My first experience with these so-called 'difficult' fish came when working—albeit part-time—in my local dealer's. He has six tanks of various sized and priced discus varying from browns to reds. I gradually became more interested in these fish, especially as it fell to me to feed and generally look after them. Eventually he felt that my work deserved some special reward; also he appeared to sell more discus when I was there. Anyway, he gave me two brown, 1½-2 in. discus; and followed these up the following week with two blue discus of roughly the same size.

"These had to fit into a community tank with two angelfish, four peppered *Corydoras*, two reticulated catfish, two *Calamoichthys calabaricus*, six serpaie

tetras, two paradise fish, three keyhole cichlids, two flag cichlids and a spiny catfish. Anyhow, despite all my fears the discus settled in well and were feeding heartily within two days of their introduction. This idyll was soon interrupted by the death of the larger brown, then 2½ in., and the smaller of the blues, 1½ in., both of which died of some malady which so far I have been unable to identify. This left the other two much healthier specimens to continue; and continue they did despite fin-nipping on a large scale carried out by a male jewel cichlid.

"At the beginning of February, however, the other brown died—possibly of internal parasites, although I am not sure. However, what is remarkable about this story is what has happened since then to the

remaining discus. At the beginning of last week (letter dated 9th April) the heater on my tank packed up and when I returned home I found the tank at 54°F. The discus, however, was nowhere to be seen. It limped its way forward later that evening and lay on the gravel and appeared to be at the end of its life. I left it in there with the forlorn hope that it would pick up. Lo and behold the following morning, as I went to turn on the lights, there was the familiar silhouette of the discus swimming as happily as ever; and that is the way he or she still is. I hope the tale has thrown some brighter light on what to many people is a fish only for rich men." (I found Mr. Hewitt's story interesting; but it would certainly not encourage me to attempt to keep discus in a community tank. I tried discus a number of times but none of them lived long enough for me to claim to have become anything more than an experienced and informed beginner. My biggest failure—it still sticks clearly in my mind!—was to buy a

healthy fish in Belfast and find that, despite careful packing and transportation, it was dead when I got it home—a distance of 25 miles. Of course, on the other hand, on one occasion—in the good old days when British Airways permitted such exploits—I transported four young discus home from London to Northern Ireland in a polythene bag inside my brief-case on my knee. The young fish survived, thrived and grew. Nowadays brief-cases and such like are not allowed in the cabin. After one's case has been searched and one has been frisked, one may have the luxury of a novel or a magazine—after it has been searched/examined. The frighteningly-high cost, allied with no in-flight meals or catering, appear to be some of the disadvantages of the Shuttle service



between Belfast/London/Belfast. Hopefully, in the near future, British Midland Airways may be allowed to compete on the Heathrow route and help to lower air fares. Perhaps some of the large firms could give us some indication about the current costs of transporting fishes by air. Have costs risen regularly, recently and steeply; or not? The 9.3% salary increase accepted by the largest teachers' union will not—even allowing for future comparability activities of whatever kind—enable me to flit about the U.K. like the last of the big spenders, or install a moderate marine aquarium in my dining room. When the remains of the first £6 reach me, after the tax man has taken his greater or lesser cut, I hope to have enough left to indulge myself in some new rubber/plastic suckers. Only one remains sticking in one of my tanks. Now I have a collection of floating and sunk glass thermometers, flapping thermostats and heaters, and wafting in and out tubes to and from my power filters. Perhaps some of my pupils could

recommend a particular brand of bubble gum or chewing gum!

Mr. Clive R. Hollin's letter reached me last year but it still makes interesting reading. Mr. Hollin, whose address is 606 High Road, Leytonstone, London E.11, mentions that his Java moss is thriving before going on to say: "... Like Mr. Alan Barnes (August 1978) I also have two male three-spot gouramies, *Trichogaster trichopterus* (given by a well-intentioned friend), in my community tank alongside barbs, guppies, swordtails and zebra fish. I also experienced the same problem as Mr. Barnes in that the larger of the two developed, after a short while, into a fearsome bully, ruling the tank with a fin of steel! Fortunately the smaller fish were well able

to avoid him when he was in a particularly bad mood but the smaller gourami was involved in several pitched battles—invariably coming off second best.

"I reasoned the cause of this friction might have been a problem of territoriality; so I re-planted the vegetation into two thick clumps, divided by a stout branch, at either end of the tank. Each gourami claimed one clump as his own and now, rather than fight, they glare balefully at each other along the length of the tank. Thus, I suggest, the altercation betwixt Mr. Barnes' gourami and Siamese fighting fish may well have been a battle for possession of a particularly-favoured piece of territory."

When writing a letter to this feature it would be helpful if you would write on only one side of each sheet of paper. Perhaps, in future, younger writers would be kind enough to put their age on their letters.

Tetra Technical Consultant, Dr. Christopher Andrews, sent me the following letter from the Tetra Information Centre, 15 Newlay Lane Place, Leeds,

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Yorkshire. "As usual I read with some interest the *W.Y.O.* feature in the May 1979 issue of *The Aquarist and Pondkeeper*. I hope that the following comments will be useful to fellow readers. With reference to hatching of brine shrimp (*Artemia*). I am sure that most aquarists are familiar with the basic methods. The eggs are hatched in about a 2% salt solution that is made up with aquarium salt from your local pet shop. High levels of chlorine in tap water may have an adverse effect on brine shrimp eggs; if you suspect a potential danger from chlorine, this may be offset by allowing the water to stand overnight with vigorous aeration. Much of the free chlorine will be driven off in this manner. Vigorous aeration is in fact very important for a successful hatch. Poor aeration will produce a reduced hatch, either as a result of oxygen shortage or because of a build-up of carbon dioxide. Brine shrimp eggs will hatch over a temperature range of something like 20-30°C. Temperature controls the speed of the hatch, though the optimum is about 24-25°C (at which temperature eggs will hatch after about 1-2 days). The pH of the culture water can have a dramatic effect on the hatching of brine shrimp eggs. A much better hatch is often obtained if the pH is maintained at about 8.0-8.2, by the addition (for example) of sodium carbonate.

"Several other factors may also affect the viability of the eggs. To begin with, 'good' and 'bad' batches occur, though the latter are relatively unusual. When collected the eggs are dried prior to storage. Although the eggs can be stored for some time in this condition, if they absorb moisture, as they may from the atmosphere, the subsequent hatch may be reduced. Therefore, it may not be such a saving for an aquarist to buy brine shrimp eggs in bulk if he or she cannot store them in a cool dry place; or if they are to be stored for periods in excess of one year. The best way to buy brine shrimp eggs in bulk is often to form a 'syndicate' and divide the bulk can up among several aquarists. One final tip: to remove hatched brine shrimp from the culture vessel simply turn off the aeration for a few minutes. The unhatched eggs (and egg shells) will either sink or float, leaving the tiny brine shrimp swimming in mid-water. Thus they can be easily siphoned out with a piece of air-line tubing.

"Whilst putting pen to paper, may I also comment on the use of rainwater to induce spawning in fish. A drop in water hardness is often very important in bringing some species of tropical fish into spawning condition. For example, a fall in hardness to 5°DH (along with a rise in temperature to about 28°C) has produced remarkable effects in inducing mature piranha to spawn. Dilution of aquarium water with clean rainwater can bring about a fall in hardness. Similarly, 'Blackwater Extract' can produce ideal water conditions for many species of aquarium

fish, and its blend of humic acids, vitamins and natural hormones has proved very useful in spawning (for example) certain characins."

Mrs. E. M. Bell is an O.A.P. who lives at 121 Manor Road, Caddington, Nr. Luton, Beds. Mrs. Bell, in thoughtful mood, kindly printed her letter and made my task much easier. She wrote the following: "I am an O.A.P. and was introduced to tropical fish keeping when my granddaughter decided to keep them some three years ago.

"We started off with a small tank; but soon changed to one each of 39 in. x 15 in. x 12 in. We learned slowly, I'm afraid, by trial and error, and now my tank is my pride and joy. It is full of strongly-growing plants and healthy fish, all, according to an aquarist who has kept fish for many years, in superb condition.

"My tank gives me a lot of real pleasure and one fish, a *Badis badis*, is so tame he will sit in my hand—in the water, of course—quite happily. I have cardinals, neons, three gouramies—one golden, one blue and one lace—various other tetras, and ruby, cherry and high-finned barbs. The latter are really beautiful; the male is a glistening copper colour and his mate golden. Two khuli loaches and a *Plecostomus punctatus* keep the gravel clean—as does a bronze *Corydoras*. *Ameca splendens* and *kribensis* have raised families.

"I have no U/G filter, only a plastic bucket; I have found that one bucket is sufficient. I cultivate white worms quite successfully; in fact, my fish get at least three meals of these each week. I hope this is of interest to you. There is so much more I could have told you—especially about my failure; but I know you prefer short letters. I have printed this so that you can read it more easily—I hope!" (Top marks for legibility, Mrs. Bell. Legible letters that are not too long stand the best chance of being included in *W.Y.O.* B.W.)

No. 26 Lord Derby Road, Gee Cross, Hyde, Cheshire, heads the following letter written by Mr. David E. Green. "One of the best of the *Cryptocoryne* plants must be *C. affinis*. Planted in about 3 in. of gravel it grows fairly rapidly with a minimum of light. As it is a strong-growing plant I push a few rabbit droppings among the roots to encourage it. It is also a good plant for receiving the spawn of angels; they seem to prefer it to pieces of slate etc.

"The two easiest live foods to cultivate must be micro worms and white worms. For micro worms I use the polystyrene trays from chip shops. For a growing medium I use medium oatmeal, pet shop quality being cheapest. Soak it well, add some dry brewers' yeast and a small portion of worms and by keeping several trays going in rotation you can have a permanent supply. Cover the trays with a piece of glass to keep in the moisture.

"For white worms I use a plastic seed tray filled

with garden-type peat kept fairly wet. Crush some cat biscuits—'Go-Cat' are best—and add worms; cover 'Go-Cat' with glass and the seed tray with hardboard to keep out the light. Keep the worms fairly wet—as opposed to what most of the books say. Feed the cat biscuits dry."

From No. 85 The Causeway, Steventon, Oxon, came the following letter, written in beautiful Italic script by Mr. David Gay. He says: "After nearly five years of keeping both coldwater and tropical fish, and reading *The Aquarist and Pondkeeper*, I feel moved to write to you about two things—U/G filtration and aquarist societies.

"For just over four years I have kept a community tropical fish tank, 24 in. × 15 in. × 12 in., with U/G filter, and had beautifully clear water, healthy fish and plants that were growing well indeed. During October 1978 I had a look at the frame of the tropical tank and had to take everything out of the aquarium because the plastic coating on the metal frame was splitting and the frame was going rusty, and something had to be done to prevent the situation from worsening. When I had everything out of the tank I inspected the framework—only to find that the rust was far more extensive than I had first thought. So, I decided to clean the aquarium up and put all the gravel, plants, fish etc. back in the aquarium *without*—one of my mad, forgetful moments!—the U/G filter. I have discovered to my cost that this was silly because not only is the water cloudy but there are also algae all over everything. All the plants have died and many of the fish have died—all in three-and-a-half months. As this was my first 'failure' I have not been put off.

"I enjoy reading your magazine very much indeed and read every copy from the very first advertisement right the way through to the last one (I certainly learn a lot from the advertisements). I also read 'News from Aquarists' Societies' and feel that I know many of the people mentioned within these pages very well indeed, even if it is only by name. Because of this I would like to see features covering some of the better known clubs or societies, and to see photographs of some members such as R. Kirkup (Novos) or Mr. and Mrs. Risbridger from the same society, or P. Norup, J. Menhennett etc. I think—certainly for me—this would bring that something extra into the magazine and make the news section 'come alive' with the additional information and pictures, as well as bring all the societies and members a little more publicity and closer together. What do other readers think?"

I must admit I do not read the 'News' section because I do not know any of the people named therein. Some photographs of those named, together with photographs of some of their best fish, would certainly add a touch of life to what is rather like a

telephone directory to those who do not know those named. What is your opinion?

Earlier this evening I visited the home of an aquarist friend, Mr. Cliff Perry, who recently moved from his former home into a new bungalow. Fortunately the fish in his large aquarium appear to be thriving, with the exception of swordtails. His tank houses several goldfish as well as a wide variety of tropicals. The item that really caught my eye was a dense thicket of *Cryptocoryne affinis*. The gravel was a bed of runners with new shoots appearing everywhere. Cliff told me that he had recently had to prune the *C. affinis* to help to check its growth. If I were asked I think I would nominate *C. affinis* as my favourite tropical aquarium plant. What is your favourite plant?

As always, the space allocated has been filled and a pile of unused letters remains for another occasion. I've found some of the above letters both interesting and thought-provoking and hope you have as well. Perhaps they will encourage you to write me a few lines for possible inclusion in a future edition of *The Aquarist and Pondkeeper*. The only qualifications required are the ability to write legibly and something interesting to say. This month's broad spectrum of opinions included those from a school-girl, those from an O.A.P., and those from a Doctor of Philosophy. Each person has taught us a little bit more about our hobby. And by the way, while I am talking about teaching, let me settle the minds of those parents who were concerned about some teachers working only a 25 hour week. I wish I knew some of them! I spend at least 33 hours in school each week and frequently have to prepare or mark work into the early hours of the morning (I was marking a last homework at 1.35 a.m. this morning; or, rather, yesterday morning since I note that the time is now 12.44 a.m. Those long holidays? I spent the early May bank holiday marking examination scripts; the late May bank holiday will be spent working on next year's timetable. Summer and Hallowe'en holidays enable me to work away at my school magazine. I need not continue. . . .

For a future edition please send me your opinions on any of the following: (a) propagating aquarium plants by different methods; (b) your pond in summer; (c) breeding unusual egg-layers; (d) sources of water for the aquarium; (e) treating aquarium water to adjust its chemical make-up; and (f) public aquariums you visit during your summer holidays. The latter topic foolishly assumes that a season called summer will exist this year. Tonight's late May frost warning caused me to rush out and close my greenhouse. I shall not be surprised if, in the morning, I find snow on the ground. May the sun shine on you and yours. I must exit here because Corra, my Scottish terrier, is demanding her late-night/early-morning walk round the garden.

The Aquarist & Pondkeeper
and
The Federation of British
Aquatic Societies
request the Pleasure of
Your company at the
Aquarist Fishkeeping Exhibition
Alexandra Palace, London N.22
13th-15th July 1979

THIS MONTH'S GREAT AQUATIC EVENT

The occasion will be the aquatic event of the year, and the ideal opportunity for anyone interested in the hobby to come along and see what it's all about. Everything you'd expect to be there will be there, plus a few more attractions as a bonus.

Keen-eyed exhibitors will already have noticed that there are no competitive Classes for marine fishes; however, saltwater fishes will *not* be missing from the Exhibition, neither will there be no means of finding out more about native or tropical marine fishes. The *British Marine Aquarists Association* will be staging an informative display Stand and members of the Association will be in attendance to answer your questions on this "newest" branch of fishkeeping. If you've often been tempted to try marines but not quite decided one way or another, a stop at the B.M.A.A. Stand can put you on the right road to success with experienced hints from the experts.

The *Piranha* has a reputation as a ferocious killer and you can get a close view of this species in a special display at the Exhibition; a number of these fishes will be in a 6ft x 2ft x 2ft tank (well roped-off from inquisitive juniors!) and although a shoal of full-grown specimens may not be practicable it is hoped to include one or two adults in tanks at each end of the large display tank to show just how large they can be. The rest we leave to your imagination!

Amongst the hundreds of fishes at the Show on the Sunday, you may recognise a famous face—that of Michael Fish, BBC T.V.'s Weatherman. He won't just be there looking at the Weather Loaches out of

professional interest—he'll be at the exhibition to present the Trophies to the owners of the winning entries.

As a break from fishes, don't forget to look in on the *Reptile and Amphibians*, another allied interest in the total aquatic scene—we mustn't forget the pondkeepers with their outdoor, waterside interests.

It's too late now for the organisers to do anything but hope that they've got all the planning right, but you can do your bit by coming along to enjoy a day with the fishkeepers. It is always a very good social occasion, and many old aquatic friendships will be renewed, some new "contacts" made; very few aquarists can resist a good natter anyway, whether it's on the merits of the Fishes, the products on the Trade Stands, the Society Tableaux or just the excitement of the London Show scene again.

Don't forget either to drop in at the two hosts' Stands, "*The Aquarist & Pondkeeper*" and "*The Federation of British Aquatic Societies*", they'll be pleased to meet you and to hear your comments on the Show. As the saying goes, "If you've had a good time, tell your friends; if you haven't, tell us!" Whatever your verdict, make sure it's based on *first-hand* experience. Remember the special discount offer on *advance* bookings of more than 20 tickets, why not organise a Club coach trip to the Show? Avoid the driving stresses, bring the rest of the family for a day out at Alexandra Palace, there'll be something of interest there for everyone. See you at the Fish-keeping Exhibition!



News from AQUARISTS' SOCIETIES

Monthly reports from Secretaries of aquarists societies for inclusion on this page should reach the Editor by 3rd of the month preceding the month of publication.

AT the April meeting of the **Coventry Pool & A.S.** Arthur Jarvis gave an excellent talk on The Balanced Aquarium, and afterwards Martyn Harvey took over on the subject of Plants.

Table Show Results: A.V. Louch: 1 and 2, R. Rice; A.V. Catfish: 1 and 2, R. Clewes; 3, R. Rice; 4, A. Simmons; A.V. Cichlid: 1 and 3, F. Hirst (Best in Show); 2, R. and Sue Bartlett; 4, R. Rice; A.V. Novice: 1 and 3, R. Rice; 2, R. Clewes; 4, A. Simmons.

Kettering A.S. held their annual open show on 8th April at the McKinley Theatre. There were 351 fish entries, 100 up on last year's show and over 500 of the general public attended, which is also encouraging. Results: B: 1, 2 and 3, A. and M. Crew (Wellingborough); 4, D. Cruikshank (Kingston); C: 1, T. A. Cruikshank (Kingston); 2, T. and F. Panther (Kettering); 3, M. and B. Coe (Wellingborough); 4, P. M. Lambert (Elpasa); D: 1 and 2, M. Laws (King's Lynn); 3, L. Godwin (Leicester New Park); 4, R. Shatford (Kettering); DA: 1, R. Elliot (Corby); 2, R. Green (Kettering); 3, A. and M. Crew (Wellingborough); 4, A. Adamson (Kettering); DB: 1, M. and B. Coe (Wellingborough); 2 and 4, R. Elliot (Corby); 3, T. and F. Panther (Kettering); DC: 1 and 2, N. Campbell (Corby); 3, Mr. and Mrs. Underwood (Unit 59); 4, H. Henderson (Corby); E: 1, G. Gallier (J.C.B.); 2, T. and F. Panther (Kettering); 3, W. Axon (Kettering); 4, J. Sievwright (Corby); BA: 1, A. Adamson (Kettering); 2 and 4, P. O'Brien (Corby); 3, Mr. and Mrs. Underwood (Unit 59); B: 1, W. Axon (Kettering); 2, A. and M. Crew (Wellingborough); 3 and 4, T. and F. Panther (Kettering); G: 1, P. M. Lambert (Elpasa); 2, C. Burton (J.C.B.); 3, J. Sievwright (Corby); 4, J. Short (Corby); H: 1 and 2, T. A. Cruikshank (Kingston); 3, L. R. Cromer; 4, J. Short (Corby); J: 1, E. Davies (Corby); 2, C. Burton (J.C.B.); 3, Mr. and Mrs. Underwood (Unit 59); 4, S. Smith (Rugby); K: 1 and 2, R. Elliot (Corby); 3, A. and M. Crew (Wellingborough); 4, P. O'Brien (Corby); L: 1, L. Godwin (Leicester New Park); 2, R. Elliot (Corby); 3, P. Hand (Corby); 4, W. Axon (Kettering); M: 1, R. Wilson (Corby); 2, T. A. Cruikshank (Kingston); 3, D. Hoskins (Leamington); 4, E. Davies (Corby); N: 1 and 4, R. Wilson (Corby); 2, D. Cruikshank (Kingston); 3, W. Axon (Kettering); Nb-m: 1 and 4, R. Green (Kettering); 2, E. Davies (Corby); 3, L. Godwin (Leicester New Park); O: 1, P. M. Lambert (Elpasa); 2 and 3, P. M. Lambert (Elpasa); 4, A. Hodges (Wellingborough); P: 1, R. Wilson (Corby); 2 and 3, P. M. Lambert (Elpasa); 4, T. and F. Panther (Kettering); R: 1, I. Lloyd (Kettering); 2, R. Vickers (Kettering); 3, D. McAllister (Kettering); 4, W. Axon (Kettering); S: 1, W. Axon (Kettering); 2, P. O'Brien (Corby); 3, Mr. and Mrs. Underwood (Unit 59); 4, F. Chapman (Elpasa); T: 1 and 2, D. Cruikshank (Kingston); 3, R. J. Walden (Peterborough); 4, R. Wilson (Corby); U: 1, D. M. Hoskins (Leamington); 2, I. Underwood (Unit 59); 3 and 4, J. R. Amos (Midland Gold-Fish Keepers); V: 1 and 3, J. R. Amos (Midland Gold-Fish Keepers); 2, L. Godwin (Midland Gold-Fish Keepers); 4, D. M. Hoskins (Leamington); W: 1, A. and M.

Crew (Wellingborough); 2, M. and B. Coe (Wellingborough); XBM: 1, E. Davies (Corby); 2, R. Elliot (Corby); 3, W. Axon (Kettering); 4, M. and B. Coe (Wellingborough); XOT: 1 and 2, R. Wilson (Corby); 3, R. Vickers (Kettering); 4, S. Vickers (Kettering); Q: 1, M. Craddock (Kettering); 2, R. Wilson (Corby); 3, B. E. Towler (King's Lynn); 4, W. Axon (Kettering); Best pairs, R. Green (Blue Car's); Best egglover, R. Cruikshank (Z. Boltonow); Best Cichlid, M. Laws (St. Casuarus); Best Catfish, D. Cruikshank (Corydoras Warr); Best in Show, M. Laws (St. Casuarus).

RESULTS of the York & D.A.S. Open Show held on 22nd April at Merton Livestock Centre: Guppies: 1, A. Cook (Hallcroft); 2, Mr. and Mrs. Garton (Hallcroft); 3, B. Banks (B.B.C. Thorne); Platies: 1, A. D. Fisher (Bradford); 2, Mr. and Mrs. Copley (Doncaster); 3, A. Marples (Sherwood); Swordtails: 1, S. Hall (Swillington); 2, M. Jordan (Bridlington); 3, M. Elliot (Bridlington); Mollies: 1, D. and W. Jordan (S. Humberside); 2, G. Hunt (Novo); 3, Mrs. M. Gray (Ind.); A.O.V. Live: 1, N. Walker (Grims and Clec.); 2, J. English (Throckley); 3, D. Wright (Caer Urf); Small Characins: 1, Mr. and Mrs. Hall (Novo); 2, R. and S. Cherryholme (Barnsley); 3, Mr. and Mrs. Forbes (Whitby); Large Characins: 1, D. Harris (Mexborough); 2, L. Ward (Bridlington); 3, Mr. and Mrs. Elliker (Scarborough); Rasbora: 1, Mr. and Mrs. R. Lake (S. Humberside); 2, Mr. and Mrs. K. Welsh (York); 3, Mr. and Mrs. Kirk (S. Humberside); Danios and Minnows: 1, Mr. and Mrs. Lake (S. Humberside); 2, Master R. Jackson (Sherwood); 3, Mr. and Mrs. Kirk (S. Humberside); Small Barbs: 1, M. Price (Castleford); 2, Mr. and Mrs. Elliker (Scarborough); 3, Mr. and Mrs. Kemp (Sheaf Valley); Large Barbs: 1, M. Jordan (Bridlington); 2, Mr. and Mrs. Kemp (Sheaf Valley); 3, A. Marples (Sherwood); Dwarf Cichlids: 1, M. Price (Castleford); 2, G. Mortimer (Brid.); 3, Mrs. M. Gray (Ind.); Large Cichlids: 1, G. Hunt (Novo); 2, Hollingworth (Sherwood); 3, R. Smith (York); Rift Valley: 1, Mr. Hollingworth (Sherwood); 2, M. Price (Castleford); 3, Mr. Rowley (Scarborough); Angels: 1, D. Harris (Mexborough); 2, J. Mansland (Barnsley); 3, A. and P. Barker (York); Fighters: 1, A. Cook (Hallcroft); 2, Mrs. B. Anderson (Ind.); 3, Mr. Hoose (Scarborough); Small Anabantids: 1, Mr. and Mrs. K. Welsh (York); 2, Mrs. M. Gray (Ind.); 3, Mr. and Mrs. Copley (Doncaster); Large Anabantids: 1, Pete and Sylvia (Brid.); 2, N. Walker (Grims and Clec.); 3, Mr. and Mrs. Copley (Doncaster); Aplocheilichthys: 1, Mr. and Mrs. Gower (Ind.); 2, D. Wright (Caer Urf.); 3, J. Ranson (Grims and Clec.); A.O.V. Toothcarp: 1, R. Brown (Morley); 2, B. Banks (B.B.C. Thorne); 3, J. English (Throckley); Loaches and Botias: 1, Mr. and Mrs. Riley (Leeds P.O.); 2, T. Holdsworth (South Leeds); 3, Mr. Askew (Ind.); Sharks and Foxes: 1, Mr. and Mrs. Elliker (Scarborough); 2, A. Cook (Hallcroft); 3, A. Shaw (York); Corydoras: 1, Mrs. Coxon (S. Humberside); 2, D. and W. Jordan (S. Humberside); 3, M. Price (Castleford); Brochis: 1, P. Fry (Tyne Tees); 2, Mr. and Mrs. J.

Riley (Leeds P.O.); 3, D. Wright (Caer Urf.); A.O.V. Catfish (Naked): 1, Mr. Fisher (Sherwood); 2, Mr. and Mrs. J. Riley (Leeds P.O.); 1, Mr. and Mrs. Milne (Doncaster); A.O.V. Catfish (Armoured): 1, Mr. and Mrs. Honnor (Doncaster); 2, Mr. and Mrs. K. Welsh (York); 3, T. Stanfield (Sherwood); Pairs (Egg): 1, Mr. and Mrs. Copley (Doncaster); 2, Mr. and Mrs. Lake (S. Humberside); 3, R. and S. Cherryholme (Barnsley); Pairs (Live): 1, T. and P. Bushfield (Barnsley); 2, N. Walker (Grims and Clec.); 3, J. English (Throckley); A.V. Female (Egg): 1, Mr. Hollingworth (Sherwood); 2, Mr. and Mrs. Chester (Retford); 3, R. and S. Cherryholme (Barnsley); A.V. Female (Live): 1 and 2, M. Jordan (Brid.); 3, T. and P. Bushfield (Barnsley); A.O.V. Tropical: 1, Pete and Sylvia (Brid.); 2, B. Haigh (I.B.M. Ind.); 3, Mr. and Mrs. Snowden (York); Junior A.V.: 1, Master M. Collier (Goole); 2, Master R. Jackson (Sherwood); 3, M. Walker (Hull); Breeders (Live A and B): 1, S. and K. Hatton (Barnsley); 2, B. Banks (B.B.C. Thorne); 3, T. and P. Bushfield (Barnsley); Breeders (Live C and D): 1, B. Banks (B.B.C. Thorne); 2, T. and P. Bushfield (Barnsley); 3, B. Banks (B.B.C. Thorne); Breeders (Egg A and B): 1, Mr. and Mrs. Gower (Ind.); 2, Mr. Harrison (Swillington); 3, B. Banks (B.B.C. Thorne); Breeders (Egg C and D): 1, B. Banks (B.B.C. Thorne); 2, G. Clarke (B.B.C. Thorne); 3, Mr. and Mrs. Chester (Retford); Common Goldfish and Comets: 1 and 2, E. and J. Morton (Hull); 3, K. Chapman (Mexborough); Fancy Goldfish: 1, K. and M. Wood (York); 2, M. Green (Ind.); 3, Mr. Slavin (Scarborough); A.O.V. Coldwater: 1, J. and M. Freer (Swillington); 2, Mr. and Mrs. Snowden (York); 3, D. and N. Jordan (S. Humberside); Best Fish in Show: R. Brown (Morley); Best Exhibit: B. Banks (B.B.C. Thorne); There were 650 entries.

RESULTS of the Halifax A.S. Open Spring Show: Guppy A.V.: 1, Mr. and Mrs. Stevenson (Osram); 2, Mr. and Mrs. Weaver (Leigh); 3, Mr. and Mrs. Clarke (North Stafford); Maculatus Variatus (Platy): 1, G. Lawless (Leigh); 2, Mr. and Mrs. Weaver (Leigh); 3, G. Wood (Halifax); Lantipinna Velfera (Molly): 1, G. Lawless (Leigh); 2 and 3, J. Roberts (Nelson); Swordtail A.V.: 1 and 3, Mrs. Murray (Halifax); 2, P. Smith (Aireborough); A.O.V. Livebearer: 1, Mr. and Mrs. North (Morecambe); 2, G. Wood (Halifax); 3, L. Gatenby (Bradford); Characins (Small): 1, Mr. and Mrs. Stevenson (Osram); 2, S. Wallis (Halifax); 3, L. Gatenby (Bradford); Characins (Large): 1, Mr. and Mrs. Stevenson (Osram); 2, J. Roberts (Nelson); 3, Mr. and Mrs. North (Morecambe); Barbs (Small): 1, Mr. and Mrs. Wallbank (Morecambe); 2, A. Dix (Runcorn); 3, F. S. and A. Hopwood (Blackburn); Barbs (Large): 1, 2 and 3, J. Roberts (Nelson); Rasbora, Danios and Minnows: 1, Mr. and Mrs. North (Morecambe); 2, Miss L. Mooreshead (Bedford); 3, Mr. and Mrs. Muckle (Runcorn); Sharks and Flying Foxes: 1, Mr. and Mrs. Stevenson (Osram); 2, Mr. and Mrs. Wallbank (Morecambe); 3, L. Kedman (Halifax); Fighters: 1, Mr. and Mrs. North (Morecambe); 2, G. Lawless (Leigh); 3, J. Shackleton (Halifax); Anabantids (Small): 1, S. Waterhouse (Leigh); 2, Miss L. Mooreshead (Bradford); 3, D. Swales (Halifax); Anabantids (Large): 1 and 2, Mr. and Mrs. Clarke (North Stafford); (Best Fish in Show); 3, Mr. and Mrs. P. Yates (Darwin); Corydoras: 1, Mr. and Mrs. Muckle (Runcorn); 2 and 3, Mr. and Mrs. Clarke (North Stafford); Catfish A.O.V.: 1, R. M. Clarke (Leeds); 2, Miss L. Mooreshead (Bradford); 3, K. Sutcliffe (Halifax); Loaches and Botias: 1, L. Gatenby (Bradford); 2, Mr. and Mrs. Muckle (Runcorn); 3, R. M. Clarke (Leeds); A.O.V. Cichlids (Small): 1, B. Stedman (Runcorn); 2, Mr. and Mrs. Stevenson (Osram); 3, J. Shedden (Holset); A.O.C. Cichlids (Large): 1, C. Chilvers (Ind.); 2, J. Shedden (Holset); 3, J. Shedden (Holset); Angels: 1, Mr. and Mrs. Yates (Darwin); 2, G. Lawless (Leigh); 3, S. Waterhouse (Leigh); Rift Valley Cichlids:

1, 2 and 3, R. Boothman (Halifax). Toothcarp (Bottom Spawners): 1 and 2, J. Roberts (Nelson); 3, H. Wilts (Halifax). Toothcarp (Top Spawners): 1, R. Scottock (B.K.A.); 2 and 3, J. Roberts (Nelson). A.O.V. Tropical: 1, 2 and 3, Mr. and Mrs. P. Yates (Darwin). Breeders (Livebearers, Small): 1, G. Lawless (Leigh); 2, Mr. and Mrs. Weaver (Leigh). Breeders (Livebearers Large): 1, J. Shackleton (Halifax). Pairs (Egglayers) True: 1, G. Lawless (Leigh); 2, G. Clapton (Ind.); 3, D. Shields (Halifax). Pairs (Livebearers) True: D. Shield (Halifax); 2, G. Lawless (Leigh); 3, S. Waterhouse (Leigh). A.O.V. Coldwater: 1 and 3, L. Redman (Halifax); 2, P. Swales (Halifax). A.V. Juniors: 1, R. Gattenby (Bradford); 2, G. Clapton (Ind.); 3, Miss L. Roberts (Nelson). A.V. Ladies: 1 and 3, Mrs. R. Mottershead (Bradford); 2, Mrs. Weaver (Leigh). A.O.V. Novice: 1, 2 and 3, E. Mottershead (Bradford). Furnished Jars/Tanks: 1, Mr. and Mrs. Stevenson (Osram); 2, P. Swales (Halifax).
Fifteen Societies with 162 entries took part.

RESULTS of Aireborough A.D.A.S. Mini Show on 11th April. Best in Show: 1, L. Chadwick (Swillington). Highest Pointed Society: (Swillington). Guppies: 1, Mr. and Mrs. Muzyka (Morley); 2, Mr. and Mrs. Riley (Leeds P.O.); 3, Mr. Swindale (Tower). A.O.V. Livebearers: 1, S. Hall (Swillington); 2, K. B. Agar (Aireborough); 3, M. Walker (Swillington). Breeders (Live): 1, M. Harrison (Swillington); 2, M. Walker (Swillington); 3, W. D. Curtis (Swillington). Breeders (Egg): 1, Mr. and Mrs. Chadwick (Castleford); 2, M. Walker (Swillington); 3, M. Harrison (Swillington). Fighters: 1 and 2, T. Harrison (Swillington); 3, M. Harrison (Swillington). Anabrids: 1, Mr. and Mrs. Riley (Leeds P.O.); 2 and 3, R. K. Shaw (Aireborough). Barbs: 1, Mr. and Mrs. Riley (Leeds P.O.); 2, P. D. Fisher (Bradford); 3, J. Dyson (Morley). Rasbora, Carps, Danos, and Minnows: 1, Mr. and Mrs. Riley (Leeds P.O.); 2, Mr. and Mrs. Muzyka (Morley); 3, T. Harrison (Swillington). Cichlids: 1, Mr. and Mrs. Muzyka (Morley); 2 and 3, T. Harrison (Swillington). Characins: 1, Master S. Stanfield (Bradford); 2 and 3, D. G. Grimes (Swillington). Sharks and Foxes: 1, Mr. and Mrs. Riley (Leeds P.O.); 2, T. Harrison (Swillington); 3, R. K. Shaw (Aireborough). Catfish and Loach: 1, Mr. T. Holdsworth (Leeds South); 2, Mr. and Mrs. Riley (Leeds P.O.); 3, L. L. Chadwick (Swillington). A.O.V. Egglayers: 1, L. L. Chadwick (Swillington); 2, W. D. Curtis (Swillington); 3, P. A. Fieldhouse (Aireborough). Goldwater: 1, A. D. Fisher (Bradford); 2, L. L. Chadwick (Swillington); 3, R. Stanfield (Bradford). A.V. Pairs: 1, K. B. Agar (Aireborough); 2, M. Harrison (Swillington); 3, Mr. and Mrs. Riley (Leeds P.O.). Junior: 1 and 3, Master J. Chadwick (Castleford); 2, Master J. Dawson (Morley). A.V. Novice: 1, Mrs. M. Chadwick (Swillington); 2, Master S. Stanfield (Bradford); 3, R. Kay (Morley).

RESULTS of the Southend Leigh & District A.S. open show on 28th April.—Class A a-b: S.L.A.D. Ag. A. Walker (E.L.A.P.A.). Ak: C. Chewright (S.L.A.D.). Bt: R. Neale (S.L.A.D.). Ba: J. Edwards (Thanet). Ca: G. Pryor (S.L.A.D.). Ca: I. Walker (Thanet). Cb: G. Stepnow (Romford). D: W. Hastings (S.E.L.). Da: R. Stanford (S.L.A.D.). Db: D. Haer (Witham). Dc: G. Stepnow (Romford). E: C. Osborne (S.E.L.). E: Ba: Mrs. A. Chapman (E.L.A.P.A.). E: B: R. and J. Bridle (Brighton). F: R. Roberts (B.K.A.). G: P. and M. Lambert (E.L.A.P.A.). H: M. Bourne (S.E.L.). J: J. Edwards (Thanet). K: P. Holding (Walthamstow). L: R. Thoday (Witham). M: C. Finnis (Strood). NB-M: C. Osborne (S.E.L.). NO-T: A. Cate (S.E.L.). O: P. and M. Lambert (E.L.A.P.A.). P: P. Holding (Walthamstow). Q: B. Meech (Witham). R: S. Buck (Romford). S: Mr. Wood (E.L.A.P.A.). T: C. Finnis (Strood). U: P. Mills (Walthamstow). V: S. Selwood

(N. Bury). W: J. London (S.L.A.D.). W: Mrs. S. Brown (E.L.A.P.A.). X: M. R. Roberts (B.K.A.). X: S: P. Brown (Medway). XI: G. Carpenter (Medway). Y: C. Braas (Peterborough). Z: P. Mills (Walthamstow). Za: C. Chewright (S.L.A.D.). B-M: M. Bourne (S.E.L.). O-T: A. Walker (E.L.A.P.A.). U-W: S. Booker (S.L.A.L.). Best Characin: G. Pryor (S.L.A.D.). Best Catfish: P. and M. Lambert (E.L.A.P.A.). Best Livebearer: C. Finnis (Strood). Best Goldwater: J. London (S.L.A.D.). Best Junior: M. Bourne (S.E.L.). Best Fish: D. Haer (Witham). Highest pointed exhibitor: M. Bourne (S.E.L.). Highest pointed society: (S.E.L.). Highest pointed Slides member: C. Chewright.

The Slides are grateful to all who exhibited or otherwise assisted in making the show a success.

RESULTS of the Stockton-on-Tees A.S. 14th open show held at Kites Hall, Stockton, on 15th April to F.B.A.S. show rules. Class RA: 1, L. Collins (S.T.A.S.); 2, L. Gray (Billingham); 3, N. McQuade (Redcar); 4, Mr. and Mrs. Embleton (Novos). B: 1, R. and D. Lunn (Redcar); 2, P. Wright (Caerulfa); 3, J. Middlemast (Ind.); 4, Mr. and Mrs. Forbes (Whitby). CA-B: 1, Mr. and Mrs. Hall (Novos); 2, Mr. and Mrs. Embleton (Novos); 3, Mr. and Mrs. Forbes (Whitby); 4, R. and D. Lunn (Redcar). CZ: 1, R. Atherton (Hartlepool); 2, Mr. and Mrs. Hall (Novos); 3, Mrs. Frane (Redcar); 4, Mrs. Ralph (Halfmoon). DA: 1, Aithwaite (Northalerton); 2, Mr. and Mrs. Summersale (Northalerton); 3, Mr. and Mrs. Wiley (Scarbro); 4, McQuade (Redcar). DB: 1, J. Middlemast (Ind.); 2, R. Gledhill (Redcar); 3, G. Orgill (New Buggin). DC: 1, J. King (Redcar); 2, Bloomfield (Coistons Dist); 3, J. King (Redcar); 4, Clarke (S.T.A.S.). EA: 1, Mr. and Mrs. Johnson (Stas); 2, P. Wright (Caerulfa); 3, D. Russell (Stanley); 4, Miss J. E. Short (Scarbro). E: 1, R. Atherton (Hartlepool); 2, J. Middlemast (Ind.); 3, J. King (Redcar); 4, R. and D. Lunn (Redcar). F: 1, Harrison (Ind.); 2, Mr. and Mrs. Knibbs (Stas); 3, Geldart (Billingham); 4, I. Elliott (Caerulfa). G: 1, Mr. and Mrs. Archibald (Ind.); 2, P. Wright (Caerulfa); 3, Mr. and Mrs. Knibbs (Stas); 4, Aithwaite (Halfmoon). H: 1, Mrs. Bradshaw (Redcar); 2, Mr. and Mrs. Forbes (Whitby); 3, Daley (Ind.); 4, P. Wright (Caerulfa). J: 1, Mr. and Mrs. Knibbs (Stas); 2, Mr. and Mrs. Archibald (Ind.); 3, L. Gray (Billingham); 4, D. Thackeray (Stas). K: 1, S. Jackson (Redcar); 2, Mr. and Mrs. Knibbs (Stas); 3, Mrs. Ralph (Halfmoon); 4, Mr. and Mrs. Wood (Stas). L: 1, Mr. and Mrs. Knibbs (Stas); 2, Binks (Billingham); 3, J. King (Redcar); 4, Gosland (Newton Aycliffe). MA: 1, L. Collins (Stas); 2, Aithwaite (Halfmoon); 3, Daley (Ind.); 4, K. Dadds (Bishop Auckland). M: 1, B. Haig (I.B.M. Ind.); 2, S. Smith (Hartlepool); 3, R. Kirkup (Novos); 4, Mr. and Mrs. Hall (Novos). N.B.M: 1, Mr. and Mrs. Wiley (Scarbro); 2, Harrison (Ind.); 3, Mr. and Mrs. Embleton (Novos); 4, Stockley (Ind.). NOT: 1, L. Collins (Stas); 2, B. Kennedy (Ind.); 3, Aithwaite (Halfmoon); 4, S. Burgess (Whitby). O: 1, P. Fry (Caerulfa); 2, R. Kirkup (P.G.A.); 3, Mr. and Mrs. J. Millwall (Stas); 4, P. Fry (Caerulfa). P: 1, Mr. and Mrs. Archibald (Ind.); Q: 1, Wheatley (Billingham); 2, D. Thackeray (Stas); 3, Mr. and Mrs. Knibbs (Stas); 4, Gledhill (Redcar). R: 1, R. Kirkup (Novos); 2, R. Kirkup (Novos); 3, D. Russell (Stanley); 4, Mrs. Frane (Redcar). S: 1, Hunt (Halfmoon); 2, A. Campbell (Mount Pleasant); 3, K. Dodd (Bishop Auckland); 4, S. Smith (Hartlepool). T: 1, Hunt (Halfmoon); 2, S. Burgess (Whitby); 3, Mr. and Mrs. Embleton (Novos); 4, R. Binks (Billingham). W: 1, D. Horsley (Whitby); 2, P. Riley (Stas); 3, R. and D. Lunn (Redcar); 4, P. Riley (Stas). XRM: 1, Mrs. Frane (Redcar); 2, Mr. and Mrs. Knibbs (Stas); 3, P. Riley (Stas); 4, K. Nunn (B.K.A.). XOT: 1, Geldart (Billingham); 2, Mr. and Mrs. Archibald (Ind.); 3, P. Wright (Caerulfa); 4, R. and D. Lunn (Redcar). Junior: 1, P. James (Northalerton); 2, I. Curry (Ind.);

3, L. Embleton (Novos); 4, B. Harker (Hartlepool). Best Egglayer: R. Atherton (Hartlepool). Best Livebearer: Hunt (Halfmoon). Best in show: R. Atherton (Hartlepool). F.B.A.S. Trophy Class Q: Wheatley (Billingham). Total No. of entries 397.

RESULTS of the Half Moon A.S. Open Show: Barbs: 1, 3 and 4, N. McQuade (Redcar); 2, L. Gray (Half Moon). Barbs: 1, M. Lister (Ind.); 2, N. Soppit (Houghton); 3, W. Smith (Redcar); 4, J. Middlemast (Ind.). Characins: 1, D. Russell (Stanley); 2, Mr. and Mrs. Embleton (Novo); 3, N. Soppit (Houghton); 4, G. Priest (Newbiggin). Characins: 1, J. P. Duffell (Redcar); 2, S. Burgess (Whitby); 3, R. D. Lunn (Redcar); 4, Mr. and Mrs. Forbes (Whitby). Characins: 1, Mr. and Mrs. Ralph (Half Moon); 2, L. Gray (Half Moon). Angels: 1, J. Aithwaite (Half Moon); 2 and 4, Mr. and Mrs. Wiley (Scarborough); 3, N. McQuade (Redcar). Cichlids: 1, D. Rodham (Middlebrough); 2, R. Gledhill (Redcar); 3, M. Drummond (Caer Urf); 4, W. Smith (Hartlepool). Hag. Derivatives: 1, Mr. and Mrs. Orton (Bythe); 2, T. Rowsey (Scarborough); 3 and 4, J. King (Redcar). Cichlids: 1, H. Garthwaite (Hartlepool); 2, D. Readman (Redcar); 3, J. Aithwaite (Half Moon); 4, C. Hallows (Ind.). Beta Splendens: 1, M. P. Wright (Caer Urf); 2, Mr. and Mrs. Orton (Bythe); 3, D. Russell (Stanley); 4, M. Kirk (Ind.). Labrynth: 1, H. Garthwaite (Hartlepool); 2, J. King (Redcar); 3, T. Wilson (Whitby); 4, R. D. Lunn (Redcar). E.L.T.C.: 1, D. Geldart (Ind.); 2, J. Geldart (Billingham); 3, M. Harrison (Ind.); 4, J. Riley (Stockton). Tropical Catfish: 1, A. Bebbington (Northumbria); 2, H. Garthwaite (Hartlepool); 3, L. Hunt (Half Moon); 4, M. P. Wright (Caer Urf). Corydoras Brochis: 1, S. Bradshaw (Redcar); 2, R. Lunn (Redcar); 3, A. Bebbington (Northumbria); 4, L. Leighton (Ind.). Rasbora: 1, K. Low (Redcar); 2, T. Smith (Hartlepool); 3, M. Lister (Ind.); 4, L. Gray (Half Moon). Danio W.C.M.M.: 1, S. Bradshaw (Redcar); 2, M. Binks (Billingham); 3, Mr. and Mrs. Knibbs (Stockton); 4, J. Nicholas (Redcar). Loach: 1, J. Geldart (Billingham); 2, P. Gosland (Ind.); 3, M. Long (Ind.); 4, B. Frost (Ind.). Labors: 1, J. Aithwaite (Half Moon); 2, Mrs. Frane (Redcar); 3, D. Smith (Caer Urf); 4, M. Smith (Redcar). A.O.S. Troop. Egglayer: 1, Mrs. Frane (Redcar); 2 and 3, C. Smith (Hartlepool); 4, K. Dalkin (Ind.). Br. Pairs (Livebearers): 1, M. P. Wright (Caer Urf); 2, I. Curry (Ind.); 3, M. Short (Scarborough); 4, S. Pringle (Berwick). Br. Pairs (Egglayers): 1, D. Smith (Caer Urf); 2, M. Millward (Stockton); 3, K. Ring (M. Pleasant); 4, Miss J. Short (Scarborough). Guppy: 1, Mrs. Frane (Redcar); 2 and 3, T. Smith (Hartlepool); 4, A. Dalkin (Ind.). Guppy (Female): 1, A. Bebbington (Northumbria); 2, M. Lister (Ind.); 3, Miss J. Short (Scarborough); 4, T. Askew (Ind.). Niph Helter: 1 and 3, D. Wheatley (Billingham); 2, Mr. and Mrs. Knibbs (Stockton); 4, R. Gledhill (Redcar). Platy: 1, S. Burgess (Whitby); 2, D. Russell (Stanley); 3 and 4, Mr. and Mrs. Johnson (Stockton). Molly: 1, P. Wright (Caer Urf); 2, T. Smith (Hartlepool); 3, J. Pringle (Berwick); 4, A. Campbell (Mt. Pleasant). A.O.S. Livebearer: 1, L. Hunt (Half Moon); 2, P. Wright (Caer Urf); 3, R. Gledhill (Redcar); 4, J. Aithwaite (Half Moon). Single Tail Goldfish: 1 and 3, K. Hickford (Stockton); 2, W. Smith (Redcar); 4, T. Smith (Hartlepool). Twin Tail Goldfish: 1, Mr. and Mrs. Orton (Bythe); 2, Mrs. Frane (Redcar). A.O.S. Coldwater: 1, D. Horsley (Whitby); 2, R. Riley (Stockton); 3, R. Lunn (Redcar); 4, B. Shackcloth (Half Moon). Breeders (Egglayer): 1, R. Riley (Stockton); 2, J. Geldart (Billingham); 3, R. Gledhill (Redcar); 4, L. Hunt (Half Moon). Breeders (Livebearer): 1, J. Geldart (Billingham); 2, J. Aithwaite (Half Moon); 3, L. Gray (Half Moon); 4, Mr. and Mrs. Embleton (Novos). Breeders (Guppy): 1, Mr. and Mrs. Embleton (Novos); 2, P. Fry (Caer Urf). Best fish in Show was a Polycentropus

abbreviata, entered by H. Garthwaite (Hartlepool).

The Half Moon A.S. would like to thank the F.I.A.S. judges—L. Collins, R. Atherton, J. Tate, D. Renton, G. Liddle, C. Inright, D. Keightley and B. Ritbridge.

AT the open show of the Nelson A.S. on 1st April there were 466 entries from 18 exhibiting societies. The judges were Messrs H. Cooper, B. Ward, P. Moorhouse and P. Bond. They awarded Best Fish in the Show to a Texas Cichlid owned by Mr. and Mrs. Underwood from Sandgrounders with 78 points. Results—

Section A Livebearers—Guppies: 1, A. Wilcox (Ind.); 2, M. Allison (Sandgrounders); 3, D. Francis (Merseyside). Swordtails: 1, Ian McCarthy (Skemersdale); 2, M. and J. Bradshaw (Longridge); 3, P. Howson (Skemersdale). Mollys: 1, B. and J. Dorham (Longridge); 2, G. Lawless (Leigh); 3, D. Francis (Merseyside). Platies: 1, P. Kenyon (Sandgrounders—Section Winner); 2, J. and B. McCarthy (St. Helen's); 3, B. Steadman (Runcorn). A.O.V.: 1, D. Francis (Merseyside); 2, J. Clark (Skemersdale); 3, P. J. Harwood (Darwen).

Section B Anabantids—Fighting: 1, J. Haley (Darwen); 2, C. and M. Wadman (Darwen); 3, H. Fichter (Skemersdale). Small: 1, D. Charlton (Merseyside); 2, S. Waterhouse (Leigh); 3, Mr. and Mrs. Underwood (Sandgrounders). Large: 1, Mr. and Mrs. Underwood (Sandgrounders—Section Winner); 2, Mr. and Mrs. P. Yates (Darwen); 3, Mr. and Mrs. Baldwin (Sandgrounders).

Section C Characins—Small: 1 and 2, Mr. and Mrs. Underwood (Sandgrounders); 3, Ian McCarthy (Skemersdale). Large: 1, L. Groves (Sandgrounders—Section Winner); 2 and 3, Mr. and Mrs. B. Walsh (Darwen).

Section D Scavengers—Corydoras and Brochis: 1, B. and J. Durham (Longridge); 2, Mr. and Mrs. Muckle (Runcorn); 3, Mr. and Mrs. Underwood (Sandgrounders). A.O.V. Catfish: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2, P. J. Harwood (Darwen); 3, R. Hodge (Sandgrounders). Loaches: 1, Mr. and Mrs. Underwood (Sandgrounders—Section Winner); 2, B. and J. Durham (Longridge); 3, Ian McCarthy (Skemersdale). Sharks and Foxes: 1, N. Stevenson (Osram); 2, Mr. and Mrs. Baldwin (Sandgrounders); 3, B. Frost (Blackpool).

Section E—Rasboras: 1, J. Corbett (Merseyside); 2, C. and M. Wadman (Darwen); 3, Mr. and Mrs. Underwood (Sandgrounders). Danios and Minnows: 1, J. Doody (Darwen); 2, M. Allison (Sandgrounders); 3, Mrs. M. Walker (Merseyside). Toothcarps: 1, J. Roberts (Nelson—Section Winner); 2, R. I. Payne (Merseyside); 3, D. Charlton (Merseyside).

Section F Barbs—Small: 1, Mr. and Mrs. Underwood (Sandgrounders); 2, Mr. and Mrs. Mulla (Merseyside); 3, R. Boardman (Leigh). Large: 1, R. Hodge (Sandgrounders—Section Winner); 2, Mr. and Mrs. P. Yates (Darwen); 3, J. Roberts (Nelson).

Section G Cichlids—Angels: 1, A. C. Martin (Skemersdale); 2, Mr. and Mrs. Hughes (Darwen); 3, Mr. and Mrs. P. Yates (Darwen). Dwarf: 1, B. Wilson (Skemersdale); 2, Mrs. M. Walker (Merseyside); 3, J. Corbett (Merseyside). Rift Valley: 1, Mr. and Mrs. Iddon (Sandgrounders); 2, B. Wilson (Skemersdale); 3, Mr. and Mrs. Iddon (Sandgrounders). A.O.V.: 1, 2 and 3, Mr. and Mrs. Underwood (Sandgrounders—Section Winner).

Section H A.O.V. Tropical: 1 and 3, Mr. and Mrs. Baldwin (Sandgrounders—Section Winner and 54); 2, G. Lawless (Leigh).

Section I Coldwater—Common Goldfish: 1, B. Frost (Blackpool); 2, C. Walbank (Accrington). Single Tail Fancy: 1, Mr. and Mrs. Brianman (Osram); 2, Mr. Downey (Sandgrounders); 3, A. Radcliffe (Nelson). Twin Tail Fancy: 1, C. Walbank (Accrington). A.O.V. Coldwater: 1, Mr. and Mrs. Brianman (Osram—Section Winner); 2, B. Steadman (Runcorn); 3, C. Walbank (Accrington).

Section J Pairs—Livebearers: 1, D. Francis (Merseyside—Section Winner); 2, M. Allison (Sandgrounders); 3, J. Doody (Darwen). Egglayers: 1, Mr. Godhard (Macclesfield); 2, Mr. and Mrs. Underwood (Sandgrounders); 3, G. Lawless (Leigh).

Section K Breeders—Livebearers 1-10: 1, Mr. and Mrs. B. Walsh (Darwen); 2, G. Lawless (Leigh); 3, J. Corbett (Merseyside). Live 11-20: 1, Mr. and Mrs. Baldwin (Sandgrounders—Section Winner); 2, Mr. and Mrs. Haas (Runcorn); 3, J. Corbett (Merseyside). Egglayers 1-10: 1, K. Brand (Darwen); 2, A. Lyons (Longridge); 3, Mr. and Mrs. Iddon (Sandgrounders). Egg 11-20: 1 and 2, P. Summers (Skemersdale).

Section L Juniors—Livebearer: 1, Master K. Corbett (Merseyside); 2, M. and J. Bradshaw (Longridge); 3, Miss L. Roberts (Nelson). Egglayer: 1, M. B. Roswell (Independent—Section Winner); 2, Miss J. Baldwin (Sandgrounders); 3, M. B. Roswell (Independent).

Section M Ladies A.V.—1, Mr. and Mrs. Baldwin (Sandgrounders—Section Winner); 2, Mrs. M. Walker (Merseyside); 3, Mrs. S. Underwood (Sandgrounders).

THE first Open Show organised by the Midlands Aquatic Study Group was a resounding success, with 492 entries being benchd by members from 27 different societies. Best Fish in Show was a *Balonox bilineatus* (Class T) owned by I. Fuller (M.A.S.G.), who also won the F.I.A.S. Championship plaque for Class C with a *Hemigrammus bifasciatus*. The award for the best exhibit by a junior went to Michael Bourne (S.E.L.A.S.), for his *Corydoras rabaus*.

Results: Class Ag. Miniature Aquarium: 1, T. Waller (E.L.A.P.A.); 2, A. Waller (E.L.A.P.A.); 3, A. P. Lynas (M.A.S.G.); 4, A. P. Parsons (Malvern). B. Barbs: 1 and 2, M. Clayton (J.C.B.A.S.); 3, Mr. and Mrs. Brook (S.E.L.A.S.); 4, A. P. Lynas (M.A.S.G.). Ha. Barbs: 1, Mr. and Mrs. Darbey (M.A.S.G.); 2, W. Hastings (S.E.L.A.S.); 3 and 4, P. and M. Lambert (E.L.A.P.A.). C. Characins: 1 and 2, I. Fuller (M.A.S.G.); 4, C. White (Rugby). Mrs. Darbey (M.A.S.G.); 4, C. White (Rugby). Ch. Characins: 1, I. Fuller (M.A.S.G.); 2, C. Burton (M.A.S.G.); 3, Mr. and Mrs. Short (Nuneaton); 4, N. Cox (Kidderminster). Ch. Characins: 1, A. P. Lynas (M.A.S.G.); 2, A. Luckman (Tamworth); 3, F. and S. Whitehouse (Wolverhampton); 4, P. Moye (Houghton Regis). D. Cichlids: 1, W. Hastings (S.E.L.A.S.); 2, P. and M. Lambert (E.L.A.P.S.); 3, A. P. Lynas (M.A.S.G.); 4, J. Payne (S.E.L.A.S.). Da. Cichlids: 1 and 2, S. J. Smith (Rugby); 3, D. Hutchinson (Kidderminster); 4, S. J. Smith (Rugby). Db. Cichlids: 1, T. Cruikshank (Kingston); 2, M. Bourne (S.E.L.A.S.); 3, A. Luckman (Tamworth); 4, Mr. and Mrs. Brook (S.E.L.A.S.). Dc. Cichlids: 1 and 2, N. F. Campbell (Corby); 3, P. and S. Whitehouse (Wolverhampton); 4, N. F. Campbell (Corby). E. Anabantids: 1, Mr. and Mrs. Clarke (North Staffs); 2, Mr. and Mrs. Howell (Sherwood); 3, G. Gallier (M.A.S.G.). Ea. Anabantids: 1, I. Fuller (M.A.S.G.); 2, Mr. and Mrs. Darbey (M.A.S.G.); 3, K. Swan (M.A.S.G.); 4, M. Kirkham (M.A.S.G.). Eb. Anabantids: 1, M. Bourne (S.E.L.A.S.); 2, N. Cox (Kidderminster); 3, M. Twinberrow (Malvern); 4, J. V. Walton (Malvern). F. Killifish: 1, F. and S. Whitehouse (Wolverhampton); 2, A. P. Parsons (Malvern); 3, Mr. Johnson (S.E.L.A.S.); 4, I. Fuller (M.A.S.G.). G. A.O.S. Catfish: 1, J. Smith (Darlaston); 2, E. Traut (Cannock); 3, P. Thorpe (C.A.G.B.); 4, J. V. Walton (Malvern). Ga. A.O.S. Catfish: 1 and 2, P. and M. Lambert (E.L.A.P.A.); 3, J. T. (Rugby); 4, J. V. Walton (Malvern). H. Corydoras: 1, M. Bourne (S.E.L.A.S.); 2, Mr. and Mrs. Darbey (M.A.S.G.); 3, P. Moye (Houghton Regis); 4, T. Cruikshank (Kingston). Ha. Brochis: 1 and 3, F. and S. Whitehouse (Wolverhampton); 2, Mr. and Mrs. Brook (S.E.L.A.S.); 4, I. Fuller (M.A.S.G.). J. Rasboras: 1, I. Fuller (M.A.S.G.); 2 and 3, W. Hastings (S.E.L.A.S.); 4, M. Bourne (S.E.L.A.S.). K. Danios and W.C.M.M.: 1, J. G. Wilson

(Unattached); 2, F. and S. Whitehouse (Wolverhampton); 3, G. Gallier (M.A.S.G.); 4, J. V. Walton (Malvern). L. Loaches: 1, Mr. and Mrs. Short (Nuneaton); 2, R. and J. Williams (Unattached); 3, W. Hastings (S.E.L.A.S.); 4, Mr. and Mrs. Darbey (M.A.S.G.). M. A.O.S. Egglayers: 1, P. and S. Whitehouse (Wolverhampton); 2, N. Cox (Kidderminster); 3, A. P. Lynas (M.A.S.G.); 4, D. Kidd (Wolverhampton). Ma. Labors: 1, M. Bourne (S.E.L.A.S.); 2, A. P. Parsons (Malvern); 3, W. Hastings (S.E.L.A.S.); 4, L. Linton (Stafford). N. b-m. Egglayer Pairs: 1, W. Hastings (S.E.L.A.S.); 2, T. Waller (E.L.A.P.A.); 3, Carrier Shaw (Wolverhampton); 4, R. Wilson (Corby). N. out Livebearer Pairs: 1, A. Howard (Kidderminster); 2 and 4, R. Wilson (Corby); 3, T. Fuller (M.A.S.G.). O. Male guppies: 1 and 3, Fry and Wright (Caer Urf); 2, P. and M. Lambert (E.L.A.P.A.); 4, W. Hastings (S.E.L.A.S.). P. Female guppies: 1 and 4, A. P. Parsons (Malvern); 2, J. V. Walton (Malvern); 3, I. Payne (S.E.L.A.S.). Q. Swordtails: 1, I. Fuller (M.A.S.G.); 2, Mr. and Mrs. Brook (S.E.L.A.S.); 3, R. Wilson (Corby); 4, A. P. Parsons (Malvern). R. Platies: 1, Fry and Wright (Caer Urf); 2, N. Cox (Kidderminster); 3, Mr. and Mrs. Clarke (North Staffs); 4, I. Fuller (M.A.S.G.). S. Mollys: 1, M. Bourne (S.E.L.A.S.); 2, Mr. and Mrs. Short (Nuneaton); 3, J. Payne (S.E.L.A.S.); 4, W. Hastings (S.E.L.A.S.). T. A.O.S. Livebearer: 1, I. Fuller (M.A.S.G.); 2, Fry and Wright (Caer Urf); 3, R. Wilson (Corby); 4, A. P. Parsons (Malvern). U. Single tail goldfish: 1 and 3, Mrs. S. Brown (E.L.A.P.A.); 2, D. Hutchinson (Kidderminster); 4, P. Parsons (Malvern). V. Twin tail Goldfish: 1 and 2, D. Hutchinson (Kidderminster); 3, F. and S. Whitehouse (Wolverhampton); 4, M. Kirkham (M.A.S.G.). W. A.O.S. Coldwater: 1 and 4, Mrs. S. Brown (E.L.A.P.A.); 2, A. P. Parsons (Malvern); 3, Mr. and Mrs. Short (Nuneaton). Za. Rooted plants: 1, P. Parsons (Malvern); 2, M. Kirkham (M.A.S.G.); 3, A. Waller (E.L.A.P.A.). Zb. Cuttings: 1, T. Waller (E.L.A.P.A.). Zc. Floating plants: 1, M. Kirkham (M.A.S.G.); 2, T. Waller (E.L.A.P.A.).

DESPITE the weather the 6th annual open show of Malvern and District A.S. produced yet another record entry of exhibits. The public attendance also doubled the previous best.

The Best Fish in Show was judged to be a *Heterandria bioculata*, owned by Mr. A. Howard, of Kidderminster, and Mr. Alain Parsons, of Malvern, with an enormous 36 exhibits won the Malvern trophy for obtaining the most points. The club trophy was won by the hosts Malvern, and Kidderminster Aquarist Society came second.

Results: Guppies (Male): 1, 3 and 4, N. Cox (Kidderminster); 2, S. Hiddle (Evesham). Guppies (Female): 1, S. Hiddle (Evesham); 2, J. P. Thorpe (Deison); 3, D. Hutchinson (Kidderminster); 4, N. Wallace (Selective). Swords: 1, P. Willis (Merthyr); 2, P. R. Fitchett (Naifea); 3, A. P. Parsons (Malvern); 4, N. Boot (Leicester). Platies: 1, D. Kenwood (Naifea); 2, J. T. F. Mayle (F.G.A.); 3, E. Morgan (Merthyr); 4, L. Littleton (Bristol). Mollys: 1, S. Marzel (Selective); 2, J. T. F. Mayle (F.G.A.); 3, E. M. Thornton (Evesham); 4, N. Wallace (Selective). A.O.V. Livebearers: 1 and 3, A. Howard (Kidderminster); 2, A. P. Parsons (Malvern); 4, G. Emptage (Cheltenham). H. M. and C.: 1, D. Williams (Malvern); 2, J. T. F. Mayle (F.G.A.); 3, M. Twinberrow (Malvern); 4, D. Sullivan (Selective). A.O.V. Characins: 1, N. Cox (Kidderminster); 2, I. A. M. Fuller (Midland A.S.G.); 3, P. Parsons (Malvern); 4, P. R. Fitchett (Naifea). Rasboras, Danios and W.C.M.M.: 1, D. Williams (Malvern); 2, J. Frearson (Leicester); 3, J. V. Walton (Malvern); 4, D. Sullivan (Selective). Dwarf Cichlids: 1, P. R. Fitchett (Naifea); 2, A. P. Parsons (Malvern); 3, S. Walters (Naifea); 2, M. Twinberrow (Malvern); 3, D. Hutchinson (Kidderminster); 4, P. R. Fitchett (Naifea). A.O.V. Cichlids: 1, P. R.

Fitchett (Nailsea); 2, S. Biddle (Evesham); 3, A. P. Lynas (Midland A.S.G.); 4, J. Frearson (Leicester). Sharks: 1, S. Biddle (Evesham); 2, A. P. Parsons (Malvern); 3, D. Williams (Malvern); 4, R. E. C. Weston (Leicester). Loaches and Bettas: 1, D. Williams (Malvern); 2, E. M. Thornton (Evesham); 3, A. Phillips (Trehomas); 4, A. P. Lynas (Midland A.S.G.). Fighters: 1, P. H. Mason (Trehomas). A.O.V. Anabantids: 1, G. Ross; 2, D. Sullivan (Selective); 3, J. V. Walton (Malvern); 4, S. Biddle (Evesham). Killifish: 1, A. M. Fuller (Midlands A.S.G.); 2, S. Peyton (Leicester); 3, S. Peyton (Leicester); 4, R. Wall, Corydoras and Brochis: 1, I. A. M. Fuller (Midlands A.S.G.); 2, P. Parsons (Malvern); 3, D. Williams (Malvern); 4, J. V. Walton (Malvern). A.O.V. Cate: 1 and 2, J. P. Thorpe (Delson); 3, L. Perks; 4, J. V. Walton (Malvern). Barbs up to 3 in.: 1, S. Biddle (Evesham); 2, P. Willis (Merthyr); 3, A. P. Lynas (Midlands A.S.G.); 4, D. Kenwood (Nailsea). Barbs over 3 in.: 1, G. Emptage (Cheltenham); 2, J. Frearson (Leicester); 3, D. R. Goll (Evesham); 4, D. Kenwood (Nailsea). A.O.V. Egglayers: 1, J. V. Walton (Malvern); 2, J. V. Walton (Malvern); 3, D. Williams (Malvern); 4, J. P. Thorpe (Delson). Pairs of Egglayers: 1, N. Wallage (Selective); 2, D. Sullivan (Selective); 3, J. V. Walton (Malvern); 4, P. Willis (Merthyr). Pairs of Livebearers: 1, N. Binding (Cheltenham); 2 and 4, D. Kenwood (Nailsea); 3, A. Howard (Kidderminster). Teams of four young egg layers: 1 and 4, J. Overton (Mid. Trop. A.); 2, J. T. F. Mayle (F.G.A.); 3, I. Sear. Teams of four young livebearers: 1 and 2, D. Kenwood (Nailsea); 3, J. T. F. Mayle (F.G.A.); 4, A. Howard (Kidderminster). Single tailed Goldfish: 1, P. Parsons (Malvern); 2, G. Emptage (Cheltenham); 3 and 4, D. Hutchinson (Kidderminster). Multi-tailed Goldfish: 1, 2 and 4, D. Hutchinson (Kidderminster); 3, M. Twinberrow (Malvern). A.O.V. Pond or River: 1, P. Parsons (Malvern); 2, A. P. Parsons (Malvern); 3, E. M. Thornton (Evesham); 4, D. Sullivan (Selective). Furnished 7 lb. Sweet Jar: 1, P. Parsons (Malvern); 2, 3 and 4, A. P. Parsons (Malvern).

Hyde A.S. held their 10th annual open show on Easter Sunday at the Hattersley Community Centre, Hattersley Road East, Hattersley, Hyde, Cheshire. It was very well supported with a total of 653 entries from 31 societies. Thanks to the F.N.A.S. judges, Gaye life aquatics, and all the other people who helped to organise and run the show. Results:

Guppies: 1, Mr. and Mrs. Stevenson (Ostram); 2, D. Barrett (B.B.C. Thorn); 3, M. Allinson (Sandgrounders). Platies: 1, Mr. and Mrs. Clarke (North Staffs.); 2, Mr. and Mrs. Copley (Doncaster); 3, Mrs. H. Blades (Fishkeepers). Swordtails: 1, J. Doody (Darwen); 2, I. McCarthy (Skelmersdale); 3, Mrs. H. Blades (Fishkeepers). Mollys: 1, Mr. and Mrs. Iddon (Sandgrounders); 2, T. L. Penney (St. Helens); 3, G. Lawless (Leigh). A.O.V. Livebearers: 1, D. Francis (Merseyside); 2, D. Barrett (B.B.C. Thorn); 3, G. Lawless (Leigh). Small Barbs: 1, Mr. and Mrs. Waller (Cheltenham); 2, B. W. Carter (St. Helens); 3, Mr. and Mrs. Daines (Doncaster). Large Barbs: 1, Mr. R. Hodge (Sandgrounders); 2, Mr. and Mrs. Kemp (Sheaf Valley); 3, T. and J. Selby (Wybeshaw). Small Characins: 1, 2 and 3, Mr. and Mrs. Underwood (Sandgrounders). Large Characins: 1 and 3, Mr. and Mrs. Underwood (Sandgrounders); 2, J. Haley (Darwen). Fighters: 1 and 3, J. Haley (Darwen); 2, H. Buckley (Fishkeepers). Small Anabantids: 1, Mr. and Mrs. Underwood (Sandgrounders); 2, Mr. and Mrs. Copley (Doncaster); 3, M. M. Rimmer (Sandgrounders). Large Anabantids: 1, Mr. and Mrs. Copley (Doncaster); 2, Mr. and Mrs. Underwood (Sandgrounders); 3, A. Hamlett (Northwich). Angels: 1, J. Wooliam (North Staffs.); 2, K. Buckley (Bridgewater); 3, Mrs. H. Blades (Fishkeepers). Rift Valley: 1, Mr. Lacey (Fishkeepers); 2, B. Wilson (Skelmersdale); 3, A. Hollingsworth (Sherwood).

Small Cichlids: 1, A. Hollingsworth (Sherwood); 2, Mr. and Mrs. Underwood (Sandgrounders); 3, J. Corbett (Merseyside). Large Cichlids: 1 and 2, Mr. and Mrs. Underwood (Sandgrounders); 3, J. Haley (Darwen). Corydoras Catfish: 1, Mr. and Mrs. Goddard (Macclesfield); 2, I. McCarthy (Skelmersdale); 3, Mr. and Mrs. Underwood (Sandgrounders). Loaches: 1, Mr. and Mrs. Underwood (Sandgrounders); 2, Mr. and Mrs. Brannan (Ostram); 3, Mr. and Mrs. J. Riley (Leeds P.O.). A.O.V. Catfish: 1, Mr. and Mrs. Underwood (Sandgrounders); 2, K. Fisher (Sherwood); 3, J. B. McCarthy (St. Helens). Killifish: 1 and 2, K. Buckley (Bridgewater); 3, B. Banks (B.B.C. Thorn). Sharks and Flying Foams: 1, R. Tomkinson (Glossop); 2, Mr. and Mrs. Stevenson (Ostram); 3, Mr. Lacey (Fishkeepers). Rasboras: 1, Mr. and Mrs. Underwood (Sandgrounders); 2, Mr. and Mrs. J. Riley (Leeds P.O.); 3, B. Wilson (Skelmersdale). Danios and Minnows: 1, Mr. and Mrs. Stevenson (Ostram); 2, M. Allinson (Sandgrounders); 3, J. Doody (Darwen). A.O.V. Tropical: 1, P. H. Batchlor (Loyne); 2, Master P. Kenyon (Sandgrounders); 3, Mr. and Mrs. Clarke (North Staffs.). A.V. Marine: 1, J. and B. McCarthy (St. Helens); 2 and 3, R. Bloomfield (Heywood). Pairs Livebearers: 1, D. Francis (Merseyside); 2, A. Unsworth (St. Helens); 3, B. Sadler (North Staffs.). Pairs Egglayers: 1, G. Lawless (Leigh); 2, Mr. and Mrs. Underwood (Sandgrounders); 3, D. Hulic (Oldham). Breeders, Livebearers: 1, Mr. and Mrs. Baldwin (Sandgrounders); 2 and 3, B. Banks (B.B.C. Thorn). Breeders, Egglayers: 1, D. Barrett (B.B.C. Thorn); 2, K. Brand (Darwen); 3, B. Banks (B.B.C. Thorn). Breeders, Egglayers: 1, Mr. and Mrs. Copley (Doncaster); 2 and 3, B. Banks (B.B.C. Thorn). Juniors Livebearers: 1, Master K. Corbett (Merseyside); 2, Miss D. McCarthy (St. Helens); 3, G. Lawless (Leigh). Junior Egglayers: 1, Master K. Corbett (Merseyside); 2, G. Lawless (Leigh); 3, P. and I. Iddon (Sandgrounders). Mini Jars: 1, 2 and 3, Mr. and Mrs. Stevenson (Ostram). Common and Comet: 1, Mr. and Mrs. Waller (Cheltenham); 2, B. Frost (Blackpool); 3, D. Cavill (Doncaster). Orandas: 1 and 2, Lord and Gregory (N.G.P.S.); 3, J. Martin Gregory (N.G.P.S.). Shubunkins: 1, Mr. and Mrs. Brannan (Ostram); 2, Mr. Downey (Sandgrounders); 3, Mr. and Mrs. Waller (Cheltenham). Veilfish and Fantails: 1, Mr. and Mrs. Muckle (Runcorn); 2, K. Aldred (Hyde); 3, Mr. and Mrs. Waller (Cheltenham). Fancy: 1, Lord and Gregory (N.G.P.S.); 2, Mr. and Mrs. Harvey (Sandgrounders); 3, Mr. and Mrs. Toyne (Sheaf Valley). A.O.V. Coldwater: 1, Lord and Gregory (N.G.P.S.); 2, D. Harvey (Sandgrounders); 3, B. Frost (Blackpool). Coldwater Breeders: 1, Mr. and Mrs. Waller (Cheltenham).

THE North Bucks A.S. held their third meeting since formation with an increased membership. Sixteen fish were benched for the first round of the "Irvine Trophy" and they were judged by Mr. John Chalmers of "Hobby Fish Farm." Results: 1, *Apistogramma ornatum*; 2, *Corydora melanosticta*; 3, *Apistogramma nana*; 4, *Betta bicolor*. The guest speaker for the evening was Mr. Dick Mills.

The Society meets 1st Tuesday of every month, at 8 o'clock, at the small meeting place, Stacey Buskes, Milton Keynes, all new members readily welcome.

The Committee consists of: chairman, Jim Irvine; vice-chairman and public relations, Mike Hands; secretary Carol Stone; treasurer, Helen Morton; show secretary, Bert Ankin; junior rep., Brian King.

For information regarding the club contact Mike Hands (Tel: Milton Keynes 315195.)

AT the meeting of the Mid-Sussex A.S. held at the "Fox and Hounds," Haywards Heath on 10th May, Mr. Burtles welcomed Mr. Breeze from the Sussex Nature Trust,

who gave an interesting talk and slide show on "Plant Life."

The monthly '50 club' draw then took place, the prizes being won by Chris Corbin, Tony Short and Yvonne Perrin.

The table show results were as follows: Rasboras: 1 and 2, P. Levine; 3, B. Slade; 4, L. Pinney. Labyrinth: 1 and 3, P. Levine; 2, L. Pinney; 4, R. and T. Tester. Best Junior, I. Gullen. Danios and W.C.M.M.: 1 and 3, L. Pinney; 2, J. Birch; 4, J. Maddocks. Best Junior, G. Yule. Thanks to Mr. T. Ramshaw of Brighton & Southern A.S. for judging the show.

Meetings are held at Ockley Lodge, Keymer on the second Thursday of each month. Further details from the Secretary, Mr. J. Birch, 11a Sandrocks Way, Haywards Heath (Phone H. Heath 50585).

AT a recent meeting of the Hoylake A.S. held a highly successful auction of surplus equipment, fish and plants. The bidding was competitive and friendly, and a most enjoyable evening was had.

Meetings of the society, are held on the 2nd and 4th Tuesdays of the month. Starting at 8 p.m. in the "Coach and Horses" Hotel, Moreton, Merseyside. New members and visitors are always welcome.

AT the April meeting of Malvern & D.A.S. they played hosts to Cheltenham A.S. in a six a side match. The visitors won the table show by 978 points to 914. However, Malvern did manage to gain victory in the quiz organised to entertain the meeting during judging. The months table show was won by G. Baker, with a Golden Molly. New members are always welcome on the first Monday of each month at St. Joseph's Hall, Newtown Road, Malvern.

THE Catfish Association Great Britain open show this year moved to a larger venue, and a far seeing decision it turned out to be, as the entries increased for the fourth year in a row. This year's entries topped 300, and 289 of these were benched. This number broke down as follows: Class G-2 (Large Catfish), 147; Class H (Corydoras, Brochis), 118; Class N (Pairs), 18; Class X (Breeders), 6. In the 289 exhibits there were 107 different species of Catfish.

The judging time of almost four hours proved the quality of the exhibits, and the lucky competitors whose fish the judges put in a position to collect one or two of the associations excellent trophies, stayed on with other interested aquarists as the show took on an international flavour.

Many distinguished members of the aquatic hobby have presented the awards at the C.A.G.B. open show, but none have travelled as far as this year's award presenter, Shmuel Shahar, from Israel, and they thank 'Sam' for his kindness.

Results: Bagridae (The Ian Cup): 1, Janet Waller (BGAS); 2, B. Ribbrigder (CAGB); P. Liddiard (CAGB); 4, C. and J. Rumby (Gt. Yarmouth). Callichthyidae (P & D Trophy): 1, M. Goss (Riverside); 2, H. G. R. Johnson; 3, T. and T. Rushbrooke (Reading); 4, B. Price (Tonbridge). Clariidae (Carman Trophy): 1, P. Miller (CAGB); 2, Mr. and Mrs. Brook (SELAS); 3, F. May (CAGB); 4, M. and T. Darbey (MASG). Doradidae (J. C. Trophy): 1 and 2, Janet Boskes (CAGB); 3, N. Gallop (CAGB); 4, C. and J. Rumby (Gt. Yarmouth). Loricariidae (Chairman's Cup): 1, P. and M. Lambert (ELAPA); 2, Janet Waller (B.G.A.S.); 3, A. Ashwin (Riverside); 4, W. F. Sutton (CAGB). Mochokidae (Committee Cup): 1, Diane Raggert (CAGB); 2, Janet Boskes (CAGB); 3, E. and B. Lough (KDAS); 4, Diane Raggert (CAGB). Pimelodontoideae (Irene Martin Trophy): 1, D. Sands (Amerham); 2, M. Collins (Stood); 3, W. F. Sutton (CAGB); 4, Janet Boskes (CAGB). Schilbiidae and

Siluridae and Con Ted Cup): 1 and 2, I. Wood (ELAPA); 3, G. Owen (Orpington); 4, and Harlow AQ Supplies Trophy, Mr. and Mrs. Brook (SELAS). A.O.S. Catfish (Gorden Howes Trophy): 1, M. Geach; 2, J. P. Thorpe (CAGB); 3, C. Parnell (Hastings); 4, P. Rushbrooke (Reading). Brochis (Bounty Cup): 1, C. Sykes (CAGB); 2, J. Carpenter (Hounslow); 3, Mr. and Mrs. Brook (SELAS); 4, I. Wood (ELAPA). Corydoras 57mm and under (Southview Trophy): 1, P. Rushbrooke (Reading); 2, B. Hastings (SELAS); 3 and 4, C. Sykes (CAGB). Corydoras over 57 mm (May Trophy): 1, C. Sykes (CAGB); 2 and 4, D. Sands (Amersham); 3, J. Edwards (Thames). Corydoras 'types' (Brian Barrett Trophy): 1, P. Rushbrooke (Reading); 2 and 3, P. Fry; 4, A. Ashwin (Riverside). Corydoras, not on size sheet (Mandy Trophy): 1, C. Sykes (CAGB); 2, Beet and Woodward (Bexleyheath); 3, J. Carpenter (CAGB); 4, T. and T. Rushbrooke (Reading). A.O.S. Catfish Pairs (Old Nev's Trophy): 1, B. Hastings (SELAS); 2, M. Collins (Strood); 3, B. Simpson (CAGB); 4, J. V. Payne (SELAS). Corydoras and Brochis Pairs (Five Nev's Trophy): 1 and 4, J. Carpenter (Hounslow); 2, D. Sands (Amersham); 3, Janet Walker (BGAS). A.O.S. Catfish Breeders (Frank Tomkins Trophy): 1 and 4, P. and V. Miller (CAGB); 2, D. Allison (Hendon); 3, Judith Owen (Orpington). Corydoras and Brochis - Breeders (Hendon Trophy): 1, C. Sykes (CAGB); 2, B. Rusbridge (CAGB). Special Class (Dusty Trophy): 1, Janet Boakes (CAGB); 2, J. P. Thorpe (CAGB); 3, J. Carpenter (Hounslow); 4, D. Blundell (Abingdon). Gerry Biggs Trophy for Best Pair of Fish: J. Carpenter, Ivy Brown Trophy for Best A.O.S. Catfish: Janet Boakes, Cruickshank Trophy for Best Corydoras or Brochis: C. Sykes, May Sutcliffe Trophy for Best Breeder's Team: C. Sykes, Show Secretary's Choice Trophy: P. Rushbrooke, J. Carney Trophy for Best Fish over 12 in.: Janet Boakes, D. King Trophy for Best Fish in Show: C. Sykes (Corydoras melanostris).

IN an interesting and varied programme at their May meeting, the 41 members of the **Catfish Association Great Britain** present saw a slide lecture "Loricarid species with preferred habitats and foods, etc.", followed by a spectacular cine-film on the breeding and raising of "Ristoricaria Fallax". These two items were presented by David Allison. During the interval some fine catfish specimens were auctioned and later another cine-film was shown. This was a personal account of a fish catching trip to South America by Peter Penfold, of Coral Bazaar. Peter could not get to the meeting, but another member was able to narrate the story.

Meetings are held bi-monthly at York Hall Library, Wye Street, London, SW11. All members and guests welcome. Next meeting Monday 9th July, 8.00 prompt, David Sands on "Corydoras, Brochis and Aspidoras."

Barry A.S. was first founded in 1956 and is therefore one of the oldest in South Wales. During the first few years it gathered a following of fifty to sixty members. It was the first club to hold a three-day show in Wales.

From 1968 the club saw its lean years. The membership dropped and the club disappeared from the record books. Then in 1972 with a few stalwart members it re-emerged, only to dwindle again and finally close its books in 1975.

However, the light has been seen again, and it is re-opening its doors to all fishkeepers. The club appeals for the return of any cups, plaques, records, etc. which readers may know about.

Any Society or individual wishing to establish communications with Barry A.S. should contact S. A. Jenkins at 43 Norwood Crescent, Barry. Everyone will be made welcome.

AT the Northern Goldfish and Pondkeepers Society meeting in May a new

secretary was elected. The retiring secretary, Mr. David Lord, was warmly thanked for the good job he had done throughout 1979. Taking up his new post is Mr. Peter Lane, 7, Alderbank close, Kearsley, Nr. Manchester. Mr. Brian Rothwell gave a talk on line breeding and members enjoyed one of Mr. Rothwell's excellent films taken in his fish house.

A 'FISH QUIZ' was featured at the May meeting of the **Evesham Fishkeepers' Society**. The table show covered two classes. Results: Barbs: 1 and 4 and Trophy winner, S. Biddle; 2, D. R. Goll; 3, Mrs. E. Thornton. A.V. Livebearers: 1, M. Barnett; 2 and 4, Mrs. L. Wright; 3, S. Biddle.

The society meets on the first Wednesday of every month at 8.00 p.m. at the Hampton Scout Hut, Pershore Road, Evesham, Worcs. Visitors and new members welcomed. Secretary, Mr. Michael Barnett, 14 Meadow Road, South Littleton, Nr. Evesham, Worcs. (Tel: Evesham 830034).

RESULTS of the 2nd Show of the season of the **Midland Aquarist League**, held at Lillingdon Community Centre, Leamington Spa, on 20th May.

Botias and Loaches: 1, G. Hemmings (Nuneaton); 2, P. Stoodly (Leamington); 3, J. Shaw (Wolverhampton); 4, Mr. and Mrs. Underwood (Unit 59). Dwarf Cichlids: 1, Mr. and Mrs. Maxfield (Leamington); 2, R. Elliott (Corby); 3, K. Pichers (Wolverhampton); 4, Mr. and Mrs. Cox (Nuneaton). Rift Valley Cichlids: 1, S.H.R. (Nuneaton); 2 and 3, F. and S. Whitehouse (Wolverhampton); 4, M. Burridge (Leamington). A.O.V. Cichlids: 1, D. Kidd (Wolverhampton); 2, R. Elliott (Corby); 3, F. and S. Whitehouse (Wolverhampton); 4, B. Pyfe (Leamington). Corydoras Catfish: 1 (Best Fish in Show), F. and S. Whitehouse (Wolverhampton); 2, Mr. and Mrs. Sheer and family (Nuneaton); 3, M. Burridge (Leamington); 4, R. Elliott (Corby). A.O.V. Catfish: 1, F. and S. Whitehouse (Wolverhampton); 2, K. and M. Whittingham (Wolverhampton); 3, J. and M. Rule (Rugby); 4, N. Campbell (Corby).

Positions after the second show:

	1st	2nd	Total
Wolverhampton A.S.	21	44	65
Corby & D.A.S.	36	24	62
Leamington & D.A.S.	24	29	53
Nuneaton A.S.	18	30	48
Coventry Pool & A.S.	26	17	43
Unit 59	21	19	40
Loughborough & D.A.S.	24	10	34
Rugby Fishkeepers	15	16	31

Individual leaders—Sharing 1st place, and 15 points ahead of the nearest challenger: R. Elliott (Corby) and F. and S. Whitehouse (Wolverhampton) 22 pts. each.

Yeovil & District A.S. 12th open show winners: Barbs: 1 and 2, D. Kenwood (Nailsea); 3, J. Varnell (Plymouth); 4, R. Bond (Yeovil). Characins: 1, R. Luscombe (Plymouth); 2, P. Cooke (Plymouth); 3, P. Fitchett (Nailsea); 4, Mrs. O. Lofthouse (Torbay). Cichlids: 1, Mrs. O. Lofthouse; 2, P. Fitchett; 3, J. Varnell; 4, Mrs. J. Freke. Dwarf Cichlids: 1, P. Fitchett; 2, G. Lofthouse (Torbay); 3, A. McKinley (Plymouth). Rift Valley Cichlids: 1, P. Fitchett; 2, Mrs. J. Freke; 3 and 4, A. Marlborough (Taunton). Labryrinths: 1, J. Tucker (Plymouth); 2 and 4, J. Tozer (Plymouth); 3, T. Perry (Yeovil). Killies: 1, Mrs. B. Scates (BKA); 2, N. Derrick (Dorchester); 3, J. Rundle (Plymouth); 4, T. Perry, Tropical Catfish: 1, R. Cooper (Taunton); 2, P. Johnson (Yeovil); 3, Mrs. F. Johnson (Yeovil); 4, D. Ricardo (Yeovil). Corydoras and Brochis: 1, D. Kenwood; 2, T. Perry; 3, J. Tozer; 4, J. Hookway (Taunton). Rabbits: 1, G. Lofthouse; 2, J. Nutbeam (Plymouth); 3, J. Varnell; 4, Miss

J. Rundle (Plymouth). Danios and WGMAE: 1, R. Luscombe; 2, J. Varnell; 3, J. Rundle; 4, R. Tucker (Plymouth). Loaches: 1 and 3, J. Paul (Biscombe); 2, A. McKinley; 4, M. Treat (Taunton). A.O.V. (Begglayers): 1, N. Devine (Plymouth); 2, R. Luscombe; 3, P. Fitchett; 4, T. Stanton (Taunton). Pairs (Begglayers): 1, D. Kenwood; 2, P. Fitchett; 3, Mrs. O. Lofthouse; 4, R. Luscombe. Guppy (Male): 1, N. Devine; 2, T. Stanton; 3 and 4, J. Hookway (Taunton). Guppy (Female): 1, T. Stanton; 2 and 3, P. Cooke; 4, J. Hookway. Swordtails: 1, H. Gartrell (Chard); 2, T. Stanton; 3, P. Fitchett; 4, Mrs. O. Lofthouse. Platies: 1, D. Kenwood; 2, J. Hookway; 3, D. Winslow (Taunton); 4, J. Varnell. Mollies: 1 and 2, D. Winslow; 3, M. Treat; 4, T. Stanton. AOS Livebearers: 1, 3 and 4, D. Kenwood; 2, J. Bennett (Trowbridge). Breeders (Begglayers): 1, N. Devine; 2, P. Fitchett; 3 and 4, T. Perry. Breeders (Livebearers): 1 and 3, D. Kenwood; 2, P. Cooke; 4, J. Rundle. Common Goldfish: 1 and 3, J. Axe (Yeovil); 2 and 4, Miss J. Rundle. London Shubunkins: 1, 2 and 3, J. Axe. Bristol Shubunkins: 1, 2 and 4, S. Langdon (Yeovil); 3, Miss J. Rundle. Twinstail Goldfish with Dorsal: 1 and 2, J. Axe; 3, W. Gadd (Bristol); 4, J. Varnell. Twinstail Goldfish without Dorsal: 1 and 2, J. Axe; 3, W. Holland (Nailsea). A.O.S. Goldwater: 1, 2, 3 and 4, J. Axe. Hi Gee Koi Leather and Mirror Carps: 1 and 3, J. Axe; 2, S. Beck (BKA Bristol); 4, A. McKinley. Breeders (Goldwater): 1, S. Langdon. Plants: 1, A. Marlborough; 2, T. Perry; 3, T. Stanton. Aquarist Gold Pin, Best Fish in Show and Best Coldwater: J. Axe. Best Tropical: J. Paul. Best Junior Entry: Miss J. Rundle. FBAS Championship Trophy X-1: D. Kenwood.

Trowbridge & District, Wilts. A.S. held an open show on 19th May. There were 215 entries of a high standard.

Best Fish in Show was a Barb (Barbus rhomboidalis) owned by Mr. A. Chaplin, who also won best Tropical. Best Coldwater Fish was awarded to Mr. J. Axe. In the afternoon the public were allowed in and over a hundred visitors arrived.

Results of the Classes: B: 1 and 2, A. Chaplin; 3 and 4, Mr. and Mrs. Curtis. Ba: 1, F. May; 2, T. Burvill. Ca: 1, A. Chaplin; 2, M. Patrick; 3, T. Frazer; 4, S. Manuel. Cb: 1 and 2, A. Chaplin; 3, W. Burton; 4, J. Bennett. C: 1 and 2, T. Burvill; 3, A. Chaplin; 4, P. Fitchett. Da: 1, A. Chaplin; 2, Mr. and Mrs. Prall; 3, Mrs. S. Watton. Db: 1, W. Burton; 2, M. Patrick; 3, P. Fitchett; 4, P. Wallage. Dc: 1, P. Fitchett; 2, F. May; 3, R. Stallwood; 4, R. Thomas. Dd: 1, 3 and 4, F. May; 2, Mr. Fitchett. E: 1, A. Chaplin; 2, W. Burton. Ea: 3, M. A. Stallwood; 4, W. Burton; 3, R. Menbennett. F: 1 and 2, P. Wallage; 3, R. Thomas; 4, R. Collier. G: 1, A. Chaplin; 2, W. Burton; 3, P. Fitchett; 4, J. Bennett. H: 1, W. Burton; 2, Mr. and Mrs. Curtis; 3, S. Manuel; 4, Mr. and Mrs. Prall. J: 1, T. Burvill; 2, M. Patrick; 3, T. Frazer. K: 1, T. Frazer; 2, Mr. and Mrs. Curtis; 3, G. Westbrook. L: 1 and 2, R. Collier; 3, R. Patrick. M: 1, T. Bucket; 2, P. Wallage; 3, Mr. and Mrs. Curtis; 4, P. Fitchett. N: 1, A. Chaplin; 2 and 3, M. Stallwood; 4, P. Wallage. O: 1, R. Hollins; 2, Andrew May; 3 and 4, G. Westbrook. P: 1 and 4, W. Holland; 2, G. Westbrook; 3, P. Wallage. Q: 1, G. Stallwood; 2 and 4, R. Collier; 3, J. Bennett. R: 1, Mr. and Mrs. Curtis; 2, M. Patrick; 3, S. Manuel; 4, P. Wallage. S: 1, K. Owen; 2, S. Manuel; 3, R. and Mrs. Prall; 4, W. Burton. T: T. Burvill; 2, J. Bennett; 3, T. Frazer; 4, Rachael Grist. Ta: 1, M. Patrick; 2, R. L. Menbennett. Vad: 1, W. Burton; 2, R. T. Stafford; 3, J. Axe; 4, L. Menbennett. Ubc: 1, 2 and 3, L. Menbennett; 4, J. Axe. V: 1, 2 and 3, J. Axe; 4, L. Menbennett. W: 1 and 4, J. Axe; 2 and 3, K. Owen. Xbm: 1, P. Fitchett; 2, R. Thomas; 3, F. May; 4, P. Wallage. Xot: 1, T. Frazer; 2, S. Manuel; 3 and 4, P. Wallage.

Port Talbot A.S. open show results: Ad: 1, R. and C. Morgan (MYR); Ba: 1, J. Edwards (LMR); 2 and 3, Mr. and Mrs. M. Price (PT); B: 1, Don Kenwood (NS); 2, P. Dunn (PT); 3, Mr. and Mrs. M. Price (PT); 4, D. Kenwood (NS); C: 1, B. Thomas (TT); 2, Mr. and Mrs. P. R. Fitchett (NS); 3, A. Taylor (ATY); 4, C. Richards (SDY); Ca: 1 and 4, T. Rees (PT); 2, J. Egan (PT); 3, B. Witteridge (SDY); D: 1, Mr. and Mrs. P. R. Fitchett (NS); 2, B. A. Taylor (ATY); 3, I. Morris (PT); 4, J. Egan (PT); Da: 1, A. E. B. Fouracre (PT); 2, Mr. and Mrs. M. Price (PT); 3, Mrs. S. Walters (NS); 4, S. J. Boston (PT); Db: 1, C. Richards (SDY); 2, Mr. and Mrs. P. R. Fitchett (NS); 3, A. S. Thomas; 4, J. Egan (PT); Dc: 1, Mr. and Mrs. P. R. Fitchett (NS); 2, A. S. Thomas; 3, R. Thomas (PRES); E: 1, C. Richards (SDY); 2, A. S. Thomas; 3, N. Wallage (SAS); 4, M. J. Bowyer (ATY); Ea: 1, P. H. Mason (TT); 2, C. J. Davies (PT); 3, D. C. Davies (ADR); 4, R. Perkins (PT); F: 1, B. Witteridge (SDY); 2, C. E. Morrison (PT); 3, R. Thomas (PRES); 4, M. J. Bowyer (ATY); G: 1, 2 and 3, C. Richards (SDY); 4, M. L. Perks (MLN); H: 1 and 4, D. C. Davies (ADR); 2, D. Kenwood (NS); 3, C. Richards (SDY); J: 1 and 4, B. Witteridge (SDY); 2, J. Egan (PT); 3, P. Dunn (PT); K: 1 and 2, J. Edwards (LMR); 3, B. Witteridge (SDY); 4, B. Perkins (PT); L: 1, 3 and 4, C. Richards (SDY); 2, J. Edwards (LMR); M: 1, J. Edwards (LMR); 2 and 4, B. Witteridge (SDY); 3, C. Richards (SDY); N: 1, C. Richards (SDY); 2, 3 and 4, H. Dibble (NS); O: 1 and F.B.A.S. Award; C. Richards (SDY); 2 and 3, N. C. Hoed (MYR); 4, S. J. Boston (PT); P: 1, Mrs. M. Holland (NS); 2 and 3, N. Wallage (SAS); 4, J. Egan (PT); Q: 1, C. Richards (SDY); 2, R. Perkins (PT); 3, R. Fitchett (NS); 4, R. B. Mayhew (THN); R: 1 and 4, J. Egan (PT); 2, E. Morgan (MYR); 3, D. Kenwood (NS); S: 1 and 2, S. Manuel (SAS); 3, S. Sullivan (SAS); 4, A. Phillips (TT); T: 1, D. Kenwood (NS); 2, C. Richards (SDY); 3 and 4, H. Dibble (NS); U: 1 and 2, C. Rupert (PT); 3 and 4, A. E. B. Fouracre (PT); V: 1 and 2, D. J. Jackson (SLY); 3 and 4, C. Rupert (PT); W: 1, C. Rupert (PT); 2, C. Morrison (PT); 3, N. Wallage (SAS); 4, S. Sullivan (SAS); XBM: 1, N. Wallage (SAS); 2, P. Willis (MYR); 3, I. Morris (PT); 4, R. Thomas (PRES); Xot: 1, 3 and 4, I. Dibble (NS); 2, S. Manuel (SAS); Bny: 1, Miss F. Willis (MYR); 2, P. Wallage (SAS); 3, C. Morris (PT); 4, J. Arnold (PT); Oty: 1 and 4, J. Arnold (PT); 2, Miss F. Willis (MYR); 3, P. Wallage (SAS).

Abbreviations: ADR—Aberdare A.S.; ATY—Aberystwyth A.S.; MLN—Malvern A.S.; PRES—Prescell A.S.; LMR—Llanrwst Major A.S.; MYR—Merthyr A.S.; SES—Selective A.S.; SDY—Sudbury A.S.; SLY—Salisbury A.S.; NS—Nailsea A.S.; TT—Tretthomas A.S.; THN—Thornon A.S.; PT—Port Talbot.

Best Fish in Show: B. callipterus, Class B, Don Kenwood (Nailsea). Best (Junior) Fish in Show: Corydoras elegans, Class Bny, Miss Fara Willis (Merthyr). Best Visiting Club: Sudbury. Highest Individual Points: C. Richards (Sudbury).

Caer Urfia A.S. First Annual open show results: Class Ba, Barbs: 1, A. Spencer (Caer Urfia); 2, Mr. and Mrs. Ribridge (Caer Urfia); 3, M. McQuade (Redcar); 4, C. Hutton (Priory). B, Barbs: 1, 3 and 4, Mr. and Mrs. Ribridge (Caer Urfia); 2, Y. Patterson (Gala-shield). Ca, Characins: 1, N. Soppit (Houghton Le Spring); 2, P. Wright (Caer Urfia); 3, Mr. Sayers (Stanley); 4, M. Gummings (Caer Urfia). Cb, Characins: 1, Mr. and Mrs. Ribridge (Caer Urfia); 2, R. Kirkup (Mount Pleasant); 3, M. and L. Ruffel (South Shields); 4, H. Blackburn (Throckley). C, Characins: 1, Mr. and Mrs. Ribridge (Caer Urfia); 2, Mr. and Mrs. Ralphs (Newton Aycliffe); 3, M. Swinney (Caer Urfia); 4, I. Elliott (Caer Urfia). Da, Cichlids: 1, M. McQuade (Redcar); 2, R. Neworthy (Northumbria); 3, Mr. and Mrs. Embleton (Novos); 4, I. Grey (South Shields). Db, Cichlids: 1, H. Lake (Stanley); 2, N.

Hynd (Dalkeith); 3, D. Hulme (Mount Pleasant); 4, C. Gledhill (Redcar). Dc, Cichlids: 1, Mr. Gowland (Newton Aycliffe); 2, J. King (Redcar); 3, C. Gledhill (Redcar); 4, Mr. Summerscale (Northallerton). D, Cichlids: 1, G. Hunt (Novos); 2, J. Cross (Novos); 3, R. Nessworthy (Northumbria); 4, H. Lake (Stanley). Betta Splendens: 1 and 2, M. Lister (Stanley); 3, Mr. and Mrs. Embleton (Novos); 4, P. Wright (Caer Urfia). Labryrinth: 1, P. Moye (Houghton Regis); 2, I. Grey (South Shields); 3, J. Middlemist (Independent); 4, A. King (Caer Urfia). Fc, E.L.T.C.: 1, I. Elliott (Caer Urfia); 2, H. Lake (Stanley); 3, P. Wright (Caer Urfia); 4, P. Fry (Caer Urfia). B, E.L.T.C.: 1, J. English (Throckley); 2, I. Elliott (Caer Urfia); 3, Mr. and Mrs. Hall (Novos); 4, R. Kirkup (Mount Pleasant). Ga, Tropical Catfish: 1, Mr. Lothian (Wallsend); 2, L. Askew (South Shields); 3, A. Spencer (Caer Urfia); 4, P. Moye (Houghton Regis). T, Stenfield (Sherwood); 2, A. Bebbington (Northumbria); 3, P. Moye (Houghton Regis); 4, Mr. and Mrs. Haswell (South Shields). Corydoras and Brochis: 1, 2 and 3, P. Moye (Houghton Regis); 4, E. Harrison (Independent). Rasbora: 1, L. Grey (Billingham); 2, P. Caddle (Novos); 3 and 4, Mr. and Mrs. Ribridge (Caer Urfia). Danios and W.C.M.M.: 1, Mr. Milborn (Hyth); 2, H. Lake (Stanley); 3, N. Hynd (Dalkeith); 4, Mr. and Mrs. Ribridge (Caer Urfia). Loach: 1, M. and L. Ruffel (South Shields); 2, J. King (Redcar); 3, K. Dobbie (Priory); 4, Mr. Gowland (Newton Aycliffe). Labro: 1, I. Grey (South Shields); 2, J. Cross (Novos); 3, D. Smith (Caer Urfia); 4, K. Sawyer (B.A.S.S.). A.O.V. (Egglayer): 1, S. Smith (Northumbria); 2, P. Moye (Houghton Regis); 3, R. Kirkup (Mount Pleasant); 4, R. Garthwaite (Hartlepool). Pairs (Egglayers): 1, J. English (Throckley); 2, S. Smith (Northumbria); 3, Mr. and Mrs. Ralphs (Newton Aycliffe); 4, Mr. McKay (South Shields). Pairs (Livebearer): 1, D. Hulme (Mount Pleasant); 2, J. English (Throckley); 3, Mr. and Mrs. Pringle (Amble); 4, G. Leary (Novos). Oh, Guppy (Male): 1, P. Fry (Caer Urfia); 2, Mr. and Mrs. Embleton (Novos); 3, Mr. and Mrs. Embleton (Novos); 4, D. Smith (Caer Urfia). Or, Guppy (Male): 1, J. Chisholm (Pancy Guppy Ass.); 2, P. Fry (Caer Urfia); 3, G. Leary (Novos); 4, K. Ring (Mount Pleasant). Guppy (Female): 1, G. Hunt (Novos); 2, S. Lindley (Stanley); 3, P. Fry (Caer Urfia); 4, M. Hellington (Northumbria). Xiph. Helleri: 1, R. Neworthy (Northumbria); 2, I. Lakey (Throckley); 3, W. Walton (Priory); 4, C. Hutton (Priory). Platy: 1, W. Chambers (Independent); 2, J. Cross (Novos); 3, P. Wright (Caer Urfia); 4, D. Rustie (Stanley). Molly: 1, P. Wright (Caer Urfia); 2, A. Campbell (Mount Pleasant); 3, A. Campbell (Mount Pleasant); 4, T. Cole (Newbiggin). A.O.V. (Livebearer): 1, P. Wright (Caer Urfia); 2, C. Mischelle (South Shields); 3, J. English (Throckley); 4, H. Blackburn (Throckley). Single tail Goldfish: 1, L. Askew (South Shields); 2, Mr. Lothian (Wallsend); 3 and 4, D. Hulme (Mount Pleasant). Twin tail Goldfish: 1, Mr. Lothian (Wallsend); 2, K. Oxley (B.A.S.S.); 3, Mr. and Mrs. Leaf (Caer Urfia); 4, Mr. Lothian (Wallsend). A.O.V. Goldwater: 1, G. Hunt (Novos); 2, Mr. and Mrs. Ribridge (Caer Urfia); 3, S. Smith (Northumbria); 4, J. Gallagher (Caer Urfia). Breeders (Egglayers): 1, H. Lake (Stanley); 2, P. Moye (Houghton Regis); 3, M. James (Northallerton); 4, R. Nessworthy (Northumbria). Breeders, Guppy: 1, Mr. and Mrs. Embleton (Novos); 2, Mr. and Mrs. Ribridge (Caer Urfia); 3, P. Fry (Caer Urfia); 4, H. Lake (Stanley). Breeders (Livebearer): 1, R. Kirkup (Mount Pleasant); 2 and 3, P. Wright (Caer Urfia); 4, L. Grey (Billingham).

Members of 26 societies and also independent exhibitors entered along with Caer Urfia members to bench 503 entries. Best Fish in Show was won by S. Smith (Northumbria). Best Exhibitor was won by Mr. and Mrs. Ribridge (Caer Urfia). Judges were: C. Enright, K. Low, R. Atherton, G. Liddle, L. Collins, K. Greenley, C. Buck, R. White, I. Fuller, D. Rennon, R. Hill. Presentation

of cards and trophies was made by Councillor Mrs. L. Jordison.

Portsmouth A.S. members enjoyed the knowledge of fewer outside speakers than usual for the first quarter of the year's programme, chiefly because of the exceptionally severe winter. They relied more on 'local talent' with Jack Stillwell giving a good talk on livebearers; John Howard lecturing on amphibians and Wally Ryder talking on the subject of goldwater fishes, using slides.

The A.G.M. with little change in the lineup of officers with Jack Stillwell, chairman; Win Ryder, treasurer; Dudley Forse, exhibition manager; Wally Ryder, table-show secretary and vice-chairman; John Howard, editor; Joyce Stillwell, social secretary; Colin Forse, librarian; Ian Walker, assistant table-show secretary; Stephen Morris, junior representative; J. Sykes and Adrian Page, hosts and Vernon Hunt, secretary, "Caeglas," 120 London Road, Witley, Nr. Portsmouth, Hants. PO7 5EW.

The first table-show of the year was judged by Mr. G. Barkham of Petersfield. Results: Swordtails: 1, 3 and 4, E. Binstead; 2, D. Forse. Female Guppies: 1, 2, 3 and 4, E. Binstead. Male Guppies: 1 and 2, D. Forse; 3, D. Whicher; 4, E. Binstead. Plaies: 1, 2, 3 and 4, E. Binstead. Mollies: 1, D. Forse; 2 and 3, E. Binstead. A.O.S. Livebearer: 1, E. Binstead. Best fish in show: D. Forse, with a molly.

THE Brighton and Southern A.S. held two meetings during April. The results of the table shows were: C: 1, Mr. and Mrs. Ramshaw; 2, Sharon Smith; 3 and 4, Mr. and Mrs. Sayers; Ca: 1 and 3, Mr. and Mrs. Ramshaw; 2, Sharon Smith; 4, R. Hard; E: 1, Mr. and Mrs. Ramshaw; 2, R. Hard; 3 and 4, Mr. and Mrs. Bridle. Ea: 1, 2 and 3, S. Woller. The classes were judged by Cyril West.

The following results are from the second leg of the Novice Trophy which was judged by Tom Ramshaw; 1, N. Woller; 2, Mick Collins; 3 and 4, S. Schofield. Information about the club can be obtained from Hon. Secretary, Tom Ramshaw (tel: Shoreham 82630).

New Forest A.S. held their April meeting at the Community Centre, Lymington, when their guests were the Totton Association of Fish Hobbyists. A successful Quiz was held, also a very unusual table-show for members' worst fish. Both the Quiz and the table-show were won by Totton Club and both clubs agreed that it had proved a very entertaining evening.

The New Forest Aquarists usual table-show produced the following results: Fighters: 1, T. Kirby; 2, P. Norup; Barbs: 1, R. Travers; Characins: 1, P. Norup; 2, 3 and 4, T. Kirby. They were judged by Mr. Les James of Bourne-mouth A.S. New members are welcome at meetings on the third Monday every month.

THE Wycombe Marsh A.S. meet on alternate Mondays at 8.30 p.m. in the Games Room of "The Swan," Abbey Barn Road, High Wycombe. Visitors and junior members are welcome at meetings. So far this year they have had a splendid programme on judging and A.O.S. Livebearers. Also they have had Mr. Trevor Butler talking on Aquascapes, Mr. Ron Foster on Plants, and Mr. Dick Mills on Angels.

Future meetings are as follows: 11th June, Dr. David Ford speaking on Development of Aquarian Food. 25th June, Mr. Mervyn Strange, on Livebearers. 9th July: 50/50 Auction.

The Secretary, Mr. Mike Fox, 24 Kelvin Close, High Wycombe, Bucks. (Tel: H.W. 38823).

AT the A.G.M. of the **Hastings & St. Leonards A.S.**, the following were elected to hold office for 1979: chairman, C. Waddell; vice-chairman, P. Martin; secretary, C. Pannell; treasurer, J. Pannell. Meetings held at 'Frimley', 64 London Road, St. Leonards, Sussex. All correspondence to secretary, Mr. C. Pannell, 9 Edwin Road, Hastings, Sussex.

The Association of Midland Goldfish Keepers enjoyed a very good meeting on 18th March, when they saw an excellent film about fancy goldfish. It had been produced by Mr. T. J. Sutton and covered the care, conditioning, breeding and raising of goldfish in the extensive fish houses which he and his father own. Mr. 'Tommy' Sutton senior gave a first class commentary and answered the members' many questions in great detail. Details of the society and details of future meetings can be obtained from the secretary, Mrs. J. Aron, 31 Greenview Drive, Kingsley, Northampton NN2 7LA.

A NEW Society has been formed in Scarborough called **Scarborough Fishkeeping Society**, and meets 2nd and 4th Mondays of each month at the Talbot Hotel, Queen Street. All new members will be made very welcome. The chairman is Mr. D. Willey, 165 Glidercliffe and the secretary, Mr. J. W. Short, 17 Cross Street.

THE May meeting of the **Weymouth A.S.** was very well attended and all thoroughly enjoyed a talk on Tropical Fish Breeding by Stan Langdon, of the Yeovil A.S., a marvellous speaker who had the attention of novice and expert alike. Over the years Stan has proved to be a good friend of the Weymouth Club.

They have booked a coach to the Fish Keeping Exhibition at Alexandra Palace, and are all looking forward to a good day out when they will have the chance to see some special fish and meet old friends.

The Weymouth Club welcomes new members. If you are interested in joining a good club why not ring Colin Stratford on Weymouth 785 784573 for further details.

THE **New Forest A.S.** held their A.G.M. in May at their usual venue, Lymington Community Centre. The officers elected; secretary, R. Travers; chairman, Gerry Edwards; vice-chairman, P. Norup; treasurer, J. Jeffery; show secretary, P. Wheeler.

The results of the Home Furnished Aquaria Competition were: 1, P. Norup; 2, B. Down. The F.R.A.S. judge for the evening was Dave Jennings, of Havant A.S. who also donated a raffle prize. Tropical Points Trophy: 1 and 2, T. Kirby; 3, P. Norup; 4, R. Menhennett. Coldwater Points Trophy: 1, L. Menhennett; 2, R. Travers. Championship Trophy: 1, T. Kirby; 2, R. Travers; 3, R. Menhennett. Championship Coldwater: 1, 2, 3 and 4, L. Menhennett. Breeders' Cup: 1 and 2, P. Norup.

In his report the Secretary said they were looking for more new members. He was sure there were many fishkeepers in the Forest area who did not know the Society existed. The Treasurer stated the financial position was sound. The Show Secretary hoped more members would put entries in their monthly table shows.

New members will always be welcome at the meetings, which take place on the third Monday of every month at 7.45 p.m.

FORMER Show Secretary of **Torbay A.S.**, Mrs. Jean Griffiths, due to ill health, had to give up the post eighteen months ago, but

hoped to still "get around." However, she has not been able to do so, and she wishes to convey her regards to all her friends in the South West. "On behalf of this Society we would like to express our thanks to her for all she did for us, both within the club and in our open shows, also in representing us at all the others she attended," writes Hon. Secretary F. J. Denning. The present Show Secretary is Mr. F. Orsman, 75 Home Park, Ashburton, Devon.

AT the A.G.M. of **Delson A.S.**, affiliation was changed from M.A.A.S. to F.B.A.S. Committee elected: chairman, E. Davies; treasurer, K. Stanton; P.R.O., R. Edge; secretary, R. Miles; show secretary, P. Thorpe. Meetings are held on the third Tuesday of each month at Edge Aquatics, High Street, Bromsgrove.

H. C. B. THOMAS gave members of **Bristol A.S.**, a background to the history of the Bristol Shows. Subsequent to a discussion on spawning media, Mr. R. King, produced the ultimate, a brick! But a brick covered with Orfe eggs.

Tableshow results Bristol Shubunkins: 1, P. Norman; 2, J. Whiting; 3, T. Ball; 4, J. Day. Moors: 1, J. Day; 2 and 3, W. Gadd; 4, R. Pincock. Orandas: 1 and 2, J. Day; 3 and 4, S. Howells. The Ball and Whiting Trophy for the Best Coloured Bristol Shubunkin was won by Terry Ball.

AT the last meeting of **Beldon Aquarist Society** they were entertained by Mr. Goe Laddie with some slides on big fish. Member's had a chance to see 'Ceasar', Sybil Hedges beautiful Snakehead, which has now gone to rest.

The Chairman is going to donate a Trophy to the speaker they most enjoy in the year.

CHANGE OF NAME

The **Privateers A.S.** will now be known as the **Shipley Aquarist Society**. It now holds open meetings on the first Thursday of every month at the Civil Service Club, Hirst Lane, Shipley, West Yorkshire, at 8.00 p.m. The Secretary is Mr. E. Bowers, 128 Main Street, Addingham, Ilkley, West Yorks.

SECRETARY CHANGE

Basingstoke & District A.S.: Mr. John Hill, 129 Gainsborough Road, Black Dam, Basingstoke, Hants.

AQUARIST CALENDAR

1st July: Kings Lynn A.S. open show at the Coes Exchange, Tuesday Market Place, Kings Lynn.
1st July: Chard and District A.S. 5th annual open show at Purnham School, Chard, Somerset. Details from A. Griffin, 24 Thornton Road, Yeovil, Somerset (Tel: Yeovil 23231). Show schedules end of April.

1st July: Sherwood A.S. open show and auction, St. Margaret's Hall, Holbeck, nr. Worksop. Further details from M. Hollingsworth, 9 Vespar Court, Forest Town, Mansfield, Notts.

1st July: Midland Koi Association 4th national open show at the Baginton Village Hall, Baginton, Coventry Pre-entry forms from the secretary, Mr. M. K. A. Cauter, 8 Swinborne Road, Mill Hill East, Hinkley, Leics. (Tel: Hinkley 30145).

7th July: Nailsea and District A.S. open show at Community Centre, Clevedon. Schedules from P. Fitchett, 2 Woodland Road, Nailsea, Bristol, Avon (Tel: Nailsea 3096).

8th July: Lytham A.S. Annual Open Show at Lytham Baths, Dicconson Terrace, Lytham, Lancs. Schedules from Show Secretary, Mr. Peter Ham, 1 Wyndene Grove, Freckleton, Preston, Lancs. (Tel: Freckleton 633182).

8th July: Scarborough & District A.S. open show at the Park Community Centre, Ferry Road, Scarborough, South Humberside. Also bring and buy sale. Benching 12.00-2.00 p.m.

8th July: Novos 1st open show at Heaton School, Newton Road, Byker, Newcastle (new date).

13th, 14th, 15th July: The Aquarist Fishkeeping Exhibition, Alexandra Palace, London. Schedules from L. Brazier, F.B.A.S. Show Secretary, 66 Ormesby Way, Kenyon, Middlesex.

14th-15th July: Roanford and Becontree A.S. open show (Dagenham Town Show), Central Park, Dagenham. Schedules (May) from Gerry Steptow, 35 Coniston Way, Elm Park, Hornchurch, Essex (Tel: Hornchurch 44057).

15th July: Scarborough A.D.A.S. open show at Gladstone Road Junior School, Woolee Street, Scarborough. Schedules (March) from J. F. Richardson, 5 Keld Garth, Pickering, N. Yorks. VO18 8DG. Tel: 73964.

15th July: Sandgrounders A.S. open show at Meads Cap School, Meads Cap Road, Southport. 30 major trophies. Schedules later from Mr. B. Baldwin, 10 Olive Grove, Southport.

21st July: Goldfish Society of Great Britain general meeting at Coway Hall, Red Lion Square, Holborn, London.

22nd July: Gosport & District A.S. open show. Schedules from Mr. G. Arnold, 83 Quinford Avenue, Portchester, Hants.

24th July: South Elmhall and District A.S. open mini show at the Railway Hotel, South Elmhall, Nr. Pontefract. Benching 7-8 p.m. Schedules from Secretary Mr. F. Arnold, 26 Newland Avenue, Gidworth, Barnsley, South Yorks. (Tel: Bily 711676) or the Show Secretary, Mr. C. Backhouse, 11 Northfield Street, South Kirby, Nr. Pontefract. (Tel: S. Ilmsall 46672).

27th July: South Humberside A.S. open show at the Memorial Hall, Cleethorpes.

28th July: Dorchester Tropical Fish Society open show at Hardy's School, South Court Avenue, Dorchester.

28th July: Runcorn A.S. open show at St. Edwards Church Hall, Ivy Street, Runcorn, Cheshire.

3rd-4th August: Hull A.S. show in conjunction with the Agricultural Show at the East Park, Holderness Road, Hull.

3rd, 4th, 5th August: Three-Rivers Aquarist Fish Keeping Exhibition in the Crowtree Leisure Centre, Crowtree Road, Sunderland. Further details from the show manager, Mr. G. Liddle, 19 Parniston Ave., Newcastle-upon-Tyne.

4th August: Northern Goldfish and Pondkeepers Society hold their 3rd Coldwater fish show at the Sports Centre, Silverwell Street, Bolton, Lancashire. Schedules from Mr. B. Rothwell, 4 Whalley Road, Hale, Cheshire. (061-980 8801).

5th August: Oldham and District A.S. annual open show, Wernish Park, Oldham. Tropical, marine and coldwater sections. Schedules from P. Harris, 21 Richardson Road, Eccles, Nr. Manchester (Tel: 061-707-1395).

5th August: Blackpool and Fylde Aquarium Society annual open show at St. Kenigerns Hall, Newton Drive. Address of the Show Secretary is Mrs. D. Moseley, Flat 80, Forshaw Avenue, Grange Park, Blackpool (tel: Blackpool 36456).

5th August: Koi East Anglia Section of the British Koi-Keepers Society open show at Waveney Fish Farm, Diss, Norfolk. For details: Mr. G. L. Wright, 47 Laburnum Close, Bradwell, Norfolk. (Tel: 0493 68234).

6th-11th August: Portsmouth A.S. annual exhibition at the Wesley Central Hall, Fratton Road, Portsmouth. Tropical and coldwater fish, local marine life, local and North American fish, reptiles, amphibians, furnished aquaria and sea shells.

8th-11th August: Irish Federation of Aquarists Societies show in the Wellington Hall, Central Belfast.

12th August: Hastings and St. Leonards Aquarium Society open show at the Youth Centre, Station Road, Bechill-on-Sea.

12th August: Grimby and Cleethorpes A.S. open show at the Memorial Hall, Cleethorpes. Benching 12.2 p.m.

19th August: South East London A.S. 4th open show at 141, Greenwich High Road, S.E.10. Contact: Mr. S. Jeffrey, 207, Sibthorpe Road, London S.E.12.

19th August: Longridge and District A.S. open show at the Civic Hall, Willows Park Lane, Longridge, Nr. Preston, Lancs. Schedules from Mr. A. Lyons, 52 Hesketh Street, Ashton, Preston, Lancs.

25th, 26th, 27th August: Leamington and District A.S. exhibition, including an open aquarium contest, at the Royal Pump Rooms Annex, Leamington Spa. Further details from show secretary, M. Burrage, Flat 1, 36 Warwick New Road, Leamington Spa, Warwickshire.

26th August: Long Eaton A.S. open show at Gregorys Rose Gardens, Toton, Details from R. West, 137 Longmoor Road, Long Eaton, Notts.

26th August: Delson A.S. open show. Schedules from Secretary Mr. R. A. Miles, 11 Highfield Road, Bromsgrove, Worcestershire, or Show Secretary Mr. P. Thorpe, 18 Wesley Walk, Bromsgrove, Worcestershire.

27th August: Yorkshire Koi Society open show at their 1st Yorkshire Koi Festival, at Harewood House, Nr. Leeds. Information on schedules, trade stands, etc., from Stuart Best, 20 Oakwood Road East, Rotherham.

27th August: Petersfield and District A.S. 2nd open show at the Town Hall, Heath Road, Petersfield, Hants. Schedules from Show Secretary, G. Stacey, 6 Highfield Road, Petersfield, Hants.

27th-28th August: Gt. Yarmouth and District A.S. Exhibition 99 at Hopson Village Hall (on A12 between Gt. Yarmouth and Lowestoft). Tropical and coldwater fish plus society tables.

2nd September: Bethnal Green A.S. open show.

2nd September: Castleford A.S. open show at the Civic Centre, Ferrybridge Road, Castleford. Schedules from Secretary B. Stanfill, 4 Milnes Grove, Airedale, Castleford WF10 3EZ (Phone: 559615).

7th September: Scunthorpe & District A.S. mini show at the Brown Cow Hotel, High Street, Ashby, Nr. Scunthorpe. Benching 7.30-8.00 p.m. Also bring and buy sale.

8th September: Bristol A.S. jubilee open coldwater show at St. Ambrose Church Hall, Srexford Road, Whitshall, Bristol 5. Schedules from Mr. W. G. Ham, 18 Imperial Road, Bristol BS14 9ED. (Tel: 0272-776924).

8th September: Bethnal Green A.S. open show at Bethnal Green Institute, 229 Bethnal Green Road, London E.2. (Re-arranged date).

8th September: Kingston & District A.S. open show at Raynes Park Methodist Church Hall, S.W.20. Details from E. Lough (01-390 4138).

9th September: David Brown A.S. open show at David Brown Tractors Sports and Social Club, Meltham Hall, Huddersfield Road, Meltham. Details from Mr. Les Hardy, 19 Fairies Cottages, Taylor Hill, Huddersfield (Tel: Huddersfield 663401).

9th September: Evesham Fishkeepers Society 2nd open show at Evesham High School, Four Pools Road, Evesham, Worcs. Schedules later from E. M. Thornton, 41 Crooks Lane, Studley, Worcs (Phone: Studley 7125).

9th September: Huddersfield Tropical Fish Society open show at Slathwaine Civic Hall. Show secretary: Mr. D. Hill, 30 Calandine Avenue, Salendine Nook, Huddersfield (Tel: Hudds. 659977).

9th September: Evesham Fishkeepers' Society open show.

9th September: Koi 79. The British Koi-Keepers Society fourth national open Koi show, Tanton Park, Knutsford, Cheshire. Membership details from Mr. M. Wainman, 165 Woodside Road, Amersham, Bucks. HP6 NR.

9th September: Novo's Tropical Fish Club open show at Heaton School, Newton Road, Byker, N.C. Further details from Mr. P. Caddle, 47 South Street, Deckham, Gateshead, NE8 2BD.

9th September: Middlesbrough A.S. open show.

9th September: Bridgewater A.S. annual open show at St. George's Community Centre, Kenyon Way, Little Hulton, Manchester. Details from Show Secretary, M. Burgoyne, 15 Pansy Road, Farnworth, Bolton, Lancs.

9th September: Wellingborough and District A.S. show at the Victoria School, Mill Road, Wellingborough. Show Secretary Mick Cox, 20 Salisbury Street, Kettering.

9th September: Zenith A.S. (Scunthorpe) open show at Charter Hall, Scunthorpe. Judging to Y.A.A.S. standards and rules. Benching 12.2 p.m. Schedules from T. Robinson, 87 Shipton Road, Scunthorpe DN16 3HJ (Tel: Scun. 58540).

9th September: Koi 79 British Koi-Keepers Society fourth national open Koi show at Tanton Park, Knutsford, Cheshire. Details from Show Chairman, Mr. P. Waddington, 1 Avon Drive, Bury, Lancs. (Tel: 061 794 3191).

9th September: Coventry Pool and Aquarium Society open show at St. Christophers School, Allesley, Coventry. Details from Show Secretary, R. A. Clewes, 46 Lyttleton Road, Warwick. (Tel: Warwick 498238).

9th September: Midland Aquarist League open show and inter-society show at St. Christophers Junior School, Windford, Allesley, Coventry. Benching 12.2 p.m. Schedules from F. Underwood, 10 Hyde Road, Kenilworth CV8 2PD. (Tel: 59280).

12th September: Aveborough and District A.S. mini show and auction, at Greensacre Hall, Rawdon.

15th September: Hounslow and District A.S. open show at Hounslow Youth Centre, Cecil Road, Hounslow, Middlesex. Schedules and run on from Show Secretary, Mr. T. Bolingbroke, 2 Holmwood Close, Addlestone, Surrey. (Weybridge 54976).

16th September: Wythenshawe & District A.S. open show.

16th September: Leamington and District A.S. open show at Trinity Hall, Trinity Street, Leamington Spa. Schedules from M. Burrage, Flat 1, 36 Warwick New Road, Leamington Spa, Warwickshire.

23rd September: Chesterfield & District A.S. open show at Clay Cross Social Centre. Schedules mid-May. Details from Mr. L. Waller, 79 West Street, Eckington, nr. Sheffield (Tel: Eckington 2531 or Chesterfield 36546).

23rd September: Whitby & District A.S. open show at the Spa Pavilion, Whitby. Schedules from show secretary, Mr. D. Forber, 12 Lockton Road, Whitby.

23rd September: Hoylake A.S. open show at the Y.M.C.A. Hoylake. Show manager, Mr. D. Laking, 82, Slingsby Drive, Upton Birkenhead (Tel: 051-677 8297).

23rd Sept: Chesterfield A.D.A.S. open show, change of venue. Now at the Chesterfield Transport Dept. Employees' Social Club, Stonegravel Depot, Sheffield Road, Chesterfield. One mile north of Chesterfield on the A61. Benching 12.2 p.m. Schedules from Mr. L. Waller, 79 West Street, Eckington, Nr. Sheffield. (Tel: Eckington 2531 or Chesterfield 36546).

30th Sept: North Wills A.S. open show at the Mechanics Institute. Details from Show Secretary, Mr. B. Taylor, 7 Ridgeway Road, Straton, Swindon. (Tel: 0793-824114).

30th September: North Wills A.S. open show. **30th September:** Bexleyheath and District A.S. open show at the T.A.V.R. Centre, Watling Street, Bexleyheath, Kent. Schedules from Show Secretary, N. M. Raven, 39 Mount Pleasant Road, Lewisham SE13 6RD. (Tel: 01-690 2954).

5th October: Scunthorpe & District A.S. bring and buy sale at the Brown Cow Hotel, High Street, Ashby, Nr. Scunthorpe.

6th October: The British Aquarists' Study Society annual general meeting, followed, at 2 p.m. in the Meeting Rooms of the Zoological Society of London, Regents Park, N.W.1 by the Annual Conference. Membership details from the Secretary, Michael Shadrack, 61 St. Barbabas Road, Woodford Green, Essex.

6th October: Merthyr A.S. 4th open show. **7th October:** Wolverhampton A.S. open show at the Orley Community Centre, Marsh Lane, Wolverhampton. Benching 12.2 p.m.

7th October: Louth and District A.S. open show.

7th October: Newbury and District A.S. 7th open show at the Corn Exchange, Newbury. Details from Mrs. S. Ganning, 6 South End, Thatcham, Berks. (Tel: Thatcham 64254).

13th October: East London Aquarists and Pondkeepers Association annual open show.

14th October: Darwen A.S. second open show at the Darwin Library Theatre. Schedules available later from Show Secretary, Mr. B. Walsh, 9 Marsh Terrace, Darwen, Lancs.

28th October: Midland Aquarist League open show and inter-society show, incorporating 1st award winners classes, at Hill Street Youth Centre, Rugby. Schedules from F. Underwood, 10 Hyde Road, Kenilworth CV8 2PD (Tel: 59280).

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