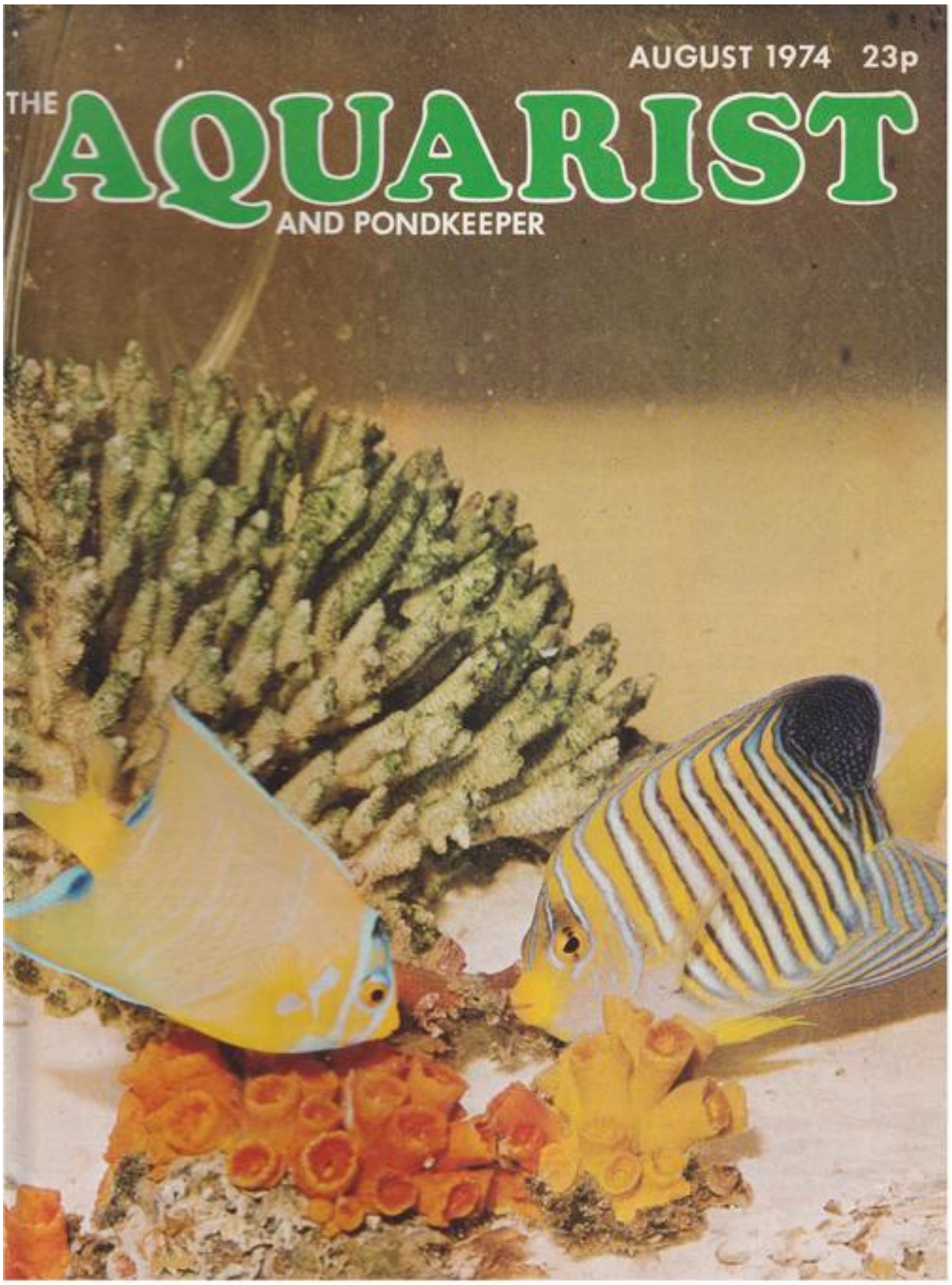
AUGUST 1974 23p

THE AQUARIST

AND PONDKEEPER



THE AQUARIST AND PONDKEEPER

The Aquatic Magazine with the Largest Circulation in Great Britain

Published Monthly 23p

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

Subscription Rates:
The Aquarist will be sent post free for one year to any address for £3·45. Half-yearly £1·72.

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. XXXIX No. 5, 1974

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

ABC
MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS

Contents

Our Cover

Holacanthus ciliaris and *Pygoplites diacanthus*

FEEDING KOI

by Witold Zaczeniuk

A LOT has been said and written on the subject of feeding Koi. In general there is the view that Koi can be fed on practically anything, for example, left-overs from the Koi keeper's table. The impression has already been made that Koi are a sort of dustbin for unwanted scraps of food, and in my view this is a misguided simplification of the matter, and a bit too amateurish. It is certain that Koi is the only all-rounder when it comes to feeding on natural food in the environment in which he lives.

In recent years a lot of work has been done by ichthyologists in this field, and some of them have arrived at startling conclusions, one of these being that feeding Koi on a dry food only can breed infertile spawners. Another point which is also a bit startling is that the constant changing of a Koi's diet, especially prior to spawning, can give similar results.

Before we get involved with the type of food which Koi should be fed we must know more about his digestive system. As I said in my first article (*Aquarist*, July, 1973), a Koi has no stomach, and food is digested with the help of enzymes in his intestines which are 2½ to 3 times longer than his body. A Koi which feeds mainly on vegetable matter through lack of shortage of plankton, usually has intestines lightly longer. During the winter the Koi's intestines shrink slightly because of his starvation period.

The whole problem of feeding Koi is similar in many ways to feeding a human being who, through misfortune, has had to have his stomach removed. Maybe this is a slight exaggeration, but nevertheless it helps me to make my point.

A strict diet must be observed at all times because the whole digestive system depends entirely on the action of the enzymes. It is certain that the amount of enzymes in a Koi's intestines depends on the amount and type of food taken by the Koi. His digestive system has the fantastic ability to utilise the enzymes of other animals on which he feeds. Supplimentation of the Koi's own enzymes from live food takes place all the time in a pond where there is a normal animal life. For that reason the Koi keeper should at all times aim at reaching and maintaining water conditions in his pond where normal life of vegetable and animal plankton is possible. The frequent dropping of a few garden worms or maggots into the pond will supplement possible shortages of live food in the pond, and no doubt can be nothing but beneficial to the Koi's well being. Apparently the higher water temperatures have no effect on the amount of enzymes present in the Koi's body, but it is said that at higher water temperatures the digestive action of certain enzymes is more rapid. Sometimes the difference of several degrees can shorten the digestion of food by half. This is the reason why a Koi can eat much more during hot days in June and July, and can actually refill his long intestines four times in 24 hours.

There are three basic types of food on which Koi feed:

1. The main or essential food which gives him growth and health.
2. Supplementary food which can be consumed only when essential food is not available to him in the required quantities.
3. Compulsory food which he has to eat when he is starving and has no choice.

It is also recognised that there are four stages in a Koi's life when his feeding is closely related to his development. After hatching there is a short period of a few days when new-born fry exist only on yolk. This is the time when his intestines are not yet connected to his mouth. After the yolk has been absorbed from the yolk-sack the fry feeds mainly on very small micro-organisms. The next stage is when the Koi feeds on plankton of many varieties and sizes. The last stage, and the most important one, is when the Koi, even young ones, settle down on food which is characteristic to the whole carp family—Cyprinidae.

The amount of food which Koi can consume depends on many factors, but the main one is water temperature. Adult Koi eat the most at temperatures between 14 and 28°C, but the most extensive feeding is at temperatures between 23 and 28°C. It has been said that Koi can consume 4 to 5 per cent of their own body weight during 24 hours. In ideal conditions, depending on the temperatures and oxygen content of the water, healthy Koi can feed with

only short intervals during the day and night, with only a few hours break during the early hours of the morning. For this reason it has to be remembered that the ideal conditions for keeping Koi will be those which enable him to find 100 per cent natural food or essential food at any time in his environment. A drop in the amount of essential food by 50 per cent in the pond is not critical providing we can supplement his diet with secondary food, that is supplementary food in proper quantities and quality. To the category of supplementary foods belong all types of food which are given by the pondkeeper either in pellet form, top quality trout pellets, peas, maggots, or even garden worms, but these can only be given periodically, e.g., twice daily in the hot summer days. Supplementary foods, especially dried food, must be given only in small quantities, sufficient for the Koi to consume in 5 to 10 minutes. Uneaten food will soon decompose causing pollution, and a significant drop in the oxygen content of the water.

In recent years ichthyologists have been studying the importance of food which is in every pond in a form of dissolved organic matters which can be absorbed by fish through the gills and skin through osmosis. However, this type of food which can get into the fish's body is really of little value, and cannot be regarded as being very important. No doubt it can prolong the life of the fish during starvation, but cannot be considered as essential in the fish's metabolism. Fish belong to well advanced water animals having well developed digestive systems, and also for this reason alone absorption of dissolved organic matter could not be regarded too seriously.

From the point of view of the Koi keeper I think we should concentrate on the second category of foods, i.e., supplementary foods which we can, and usually must, feed to Koi when we find that the pond has a deficiency of the essential or main natural foods. All the supplementary foods are, to start with, foreign to Koi but he is a very adaptable fish in his feeding habits and can therefore be easily introduced to a diet previously unknown to him. Sometimes a short starvation period of a couple of days can force him to take something different for a change. The starvation method is already widely used in the hand-feeding of Koi. Of course this will only work if the Koi is starving because there is a shortage of natural food in the pond.

The choice of foods for supplementary diet is very wide, and can be made by the individual Koi keeper according to his pocket and his particular situation.

In general one has to look for a food which is essentially chemically similar to the natural food in the pond, therefore the food must contain a good percentage of easily digestible protein, some fats and carbohydrates together with other ingredients like vitamins and minerals.

My own first choice is peas, whose nutritional value is approximately 5-7. That is to say that for 5 to 7 lbs. of peas consumed by any Koi, I can expect in the summer for him to gain one pound in weight. Peas contain a very high percentage of digestive protein, carbohydrates, vitamins A and B, and mineral matters essential for the development of bones. Germinated barley, which has similar nutritional value can also be used.

Garden worms and maggots have very good nutritional value of 2-3 and are given to my fish at least twice a week, and especially when my store of peas is short and I have to supplement their diet with food at a low nutritional value, e.g., boiled potatoes—unsalted—nutritional value 20-30. I think one could occasionally try feeding Koi on a really good quality trout pellet as a follow-up if a live food has been given. At all costs old, bone dry stale food must be avoided.

In recent months I have been feeding my young, six month fry (3¼—6½ in. in length) on minced boiled lamb's liver. Care must be taken not to give them too much, as all animal protein left uneaten soon pollutes the water. Bemax is also a very good food for young Koi having a N.V. of 7-8, but my fish prefer peas or even boiled potatoes.

I have already made several pronouncements indicating my reluctance in accepting feeding Koi exclusively on dry pellets, including those pond pellets which float on the surface of the water. There are several reasons for this, but the main one is that insufficient information is available as to the nutritional value of the contents of this type of food. Surely what is good for trout is not necessarily suitable for Koi. A trout has a stomach, and therefore has a completely different way of digesting food. A trout also has a different feeding habit to that of Koi. My method of feeding Koi is very similar to the way Carp have been fed on the Continent for the last two hundred years, before anybody knew anything about pellets. With the present situation, both in losses of Koi, and finding replacements for the lost fish, I am very reluctant to do any experimenting with the food which is at present available on the market. Actually my experiments some five years ago cost me more money through losses of fish than I care to admit. I do rather stick to my ways of feeding, which I have found in the last three years give me very good results.

All that I have said on the subject of supplementary foods applies in general to adult Koi. The feeding of Koi fry up to six months old is a completely different subject.

WHAT IS YOUR OPINION?

by B. Whiteside, B.A.

Photographs by the Author

BREEDING THE NEON, the subject of Mr. V. Knight's letter in the May edition, has brought a strongly worded reply from Mr. I. D. Taylor, of 1 Ashgate Rise, Raw Gap, Knaresborough, Yorkshire HG5 0HZ. He writes: "After reading the letter from Mr. V. Knight . . . I felt I had to put pen to paper and write to you. I have been getting 'The Aquarist and Pondkeeper' regularly since the early 1960s and in all that time I have never read such a load of utter rubbish as Mr. Knight's letter. Granted, everyone is entitled to his or her own opinion; but when it comes to breeding a difficult species of fish successfully—which in my opinion Mr. Knight *hasn't* done—I believe a successful breeding is when you have bred a particular species and reared at least 70% of the fry to maturity. Yet Mr. Knight seems to be praising himself for managing to get just two of the fry free swimming. Passing on success stories to other people is what this hobby is all about. As you mentioned in reply to Mr. Knight, if people kept everything to themselves there wouldn't be the books or magazines on the market that there are. I would like to ask Mr. Knight, through your column, why he buys 'The Aquarist and Pondkeeper'? My bet is that he buys it for the information that it contains, the same as I do. I would just like to finish off by saying that I hope you published this letter as I feel very strongly about this subject!" (Would any other readers care to express opinions or take sides? I'd be pleased to hear from you. I would like to remind readers that I do not necessarily agree with the views expressed by correspondents in this feature.)

Mr. S. Fox's home is at 126 West Farm Avenue, Longbenton, Newcastle upon Tyne NE12 8RU, and he writes in reply to Mr. S. Wolstenholme's letter in the May edition. Mr. Fox says: "The fact that Mr. Wolstenholme has been successful in keeping some species of aquatic plants in aquaria in which he has especially created abnormally hard water conditions to accommodate his African cichlids does not invalidate the advice given in the January edition that it is inadvisable to put calcium carbonate into *normal* aquaria. In his letter Mr. Wolstenholme incorrectly assumes that soft water conditions were recommended for healthy plant growth; on the contrary, soft water was not mentioned in the previous correspondence.

"While I cannot agree that Mr. Wolstenholme has provided ideal conditions for some of his plants *on a long term basis*—e.g. Java moss, *Aponogeton* species and, to a lesser degree, *Cryptocoryne wendtii*—I do concede that whenever the question arises as to what constitutes an ideal environment for each species of aquatic plant, one will always hear or read many diverse opinions. The present trend seems to be one of increasing interest in specialising in a particular 'group' or species of fish—e.g. killifish, catfish, African cichlids. The specialist fish keepers recognise that each species of fish has its own particular characteristics and requires specialised environmental conditions which specialists take great care to provide. Yet there are a number of aquarists who seem somewhat reluctant to wholly accept the fact that aquatic plants require, or should receive, a corresponding amount of understanding and attention. Some fishes seem to get 'lost' as the hobby of fish keeping progresses. I wonder what happened to a fish that possesses an unobtrusive beauty of its own, especially when swimming in a shoal, namely *Moenkhausia dichroura?*" (I wonder if Mr. Fox means *Moenkhausia dichouri?* Hervey and Hems, in their latest book "Freshwater Aquarium Fishes", state that this species comes from Paraguay and reaches a length of about 3 in. I must admit that I don't know the fish by name.)

Several other correspondents, who have been in the hobby for a good many years, have also mentioned the fact that certain species of fishes, popular some years ago, have become very rare or have virtually disappeared from the scene altogether. Mr. B. Leighton, of 138 Ramsgate Road, Broadstairs, Kent CT10 2ER, writes: "I have seen neither bloodfins nor Belgian flag tetras since the early 60s. The celebes rainbow I have not seen since before 1961 and last recall seeing it in a dealer's tank in Jersey when on holiday in 1959; and that dealer was not parting from them. Splash tetras seem rare too. I did see maybe four pairs in Tachbrook Tropicals about 1967-68, but that was about it. Where have all the old favourites gone?" (I would be pleased to hear from any of our older readers who have noted the disappearance of species which they particularly liked. Such species may, of course, be available in some areas and not in others. Perhaps we could compile a list of dealers from whom once popular species may still be obtained; or of readers who have stocks of such fishes and would be prepared

to supply other aquarists who would like to keep them. Let me know what you think of the idea).

One of my young Egyptian mouth-brooders, a female fish, is at present carrying her young in her mouth. The female and her mate, both of which are only slightly over 1 in. in length and still quite young, were housed in a small community aquarium housing a collection of small fishes—mostly tetras. (See photograph of tank, page 92, June edition.) I was unaware that the mouth-brooders had spawned at all until I noticed the rather ugly bulging of the female's mouth. Noticing tiny dark specks through the stretched skin of the female's mouth I decided that she was "housing" a brood of babies; thus I removed her to a well planted little tank on her own. So far I have not seen any babies allowed to venture out of the mother's mouth, but I expect that they will be allowed by her to do so very soon. At the moment the mother is very emaciated because she is unable to eat any food because of her mouthful of babies. I look forward to seeing the fry when they make their first exit. By the way, I'd be interested to know if fishes which raise their young in this manner are correctly called "mouth-brooders" or "mouth-breeders". I prefer the term "mouth-brooders" as, to my knowledge, the creatures' sexual exploits do not involve the mouth; the eggs are laid and fertilised prior to being taken into the mouth for hatching of the young and their subsequent care until they are large enough to survive without having need of the mouth as a retreat for safety in times of danger. In my opinion the term "mouth-brooder" would seem to be the more appropriate; however, different books use the two different terms. Do you know if one term is more correct than the other, or if both are equally correct? I'll probably be accused of being pedantic. Another relevant point, along the same lines, concerns the use of the words "fish" and "fishes" when the words are being used in the plural sense. The plural of "fish" is, correctly, either "fish" or "fishes", but when I'm discussing the plural of *one* species of fish I use the word "fish"; and when I'm talking collectively about *a number* of different species at one time I use the words "fishes". I feel that this distinction helps to avoid ambiguity. From many readers' letters I have noted that this subtle distinction is not usually made. Could anyone tell me if there is an accepted rule, amongst aquarists, about the use of both words? If there is it would be useful if the information could be passed on, through this feature, so that a common standard usage could be adopted by all readers. I'd be pleased to have your views and opinions for publication in a future edition.

In last month's magazine (July issue) I mentioned the difficulties I was having due to severe and lasting power cuts in my part of the world. The cuts stretched over many days and there was a very strong possibility of a complete break in all power supplies which could have lasted for days at the very least. Fortunately, it being May, the ambient temperature was such that my six tropical tanks didn't cool too quickly; however, cuts of about ten hours' duration were about the maximum tolerable without taking steps to add hot water to the aquaria to prevent their cooling so low that death or diseases of my fishes would result. When a complete shut down was imminent, on several occasions, I metaphorically said good-bye to my stocks and assumed that I would probably have to start again from scratch when the strike was over. I was very fortunate as a complete shut down was finally avoided—and I only lost one fish out of my total collection. It was an elderly neon that would certainly have died very soon even without cuts in heating. I would be pleased to hear of the experiences of other aquarists who had to contend with the power cuts. Ironically, as the final zero hour

for shut down was only a few hours away, my enigmatic angels spawned yet again; and true to form, despite the shut down being averted at the eleventh hour, the angels ate their large patch of spawn before I had time to remove them. Electricity supplies now being back to normal, I'm strongly tempted to have fried angelfish for tea! (I wonder what they would taste like?) I've now added a pair of adult gouramies and a pair of catfish to their tank and they are all welcome to eat the next spawning.

After a previous spawning I was very quietly observing the adult fish fanning their eggs when, suddenly, they began a savage assault on the eggs and began to eat the large patch in a mad frenzy. Being enraged at their exploits I decided to see just how intent they were on scoffing their spawn. I tried knocking the aquarium glass quite loudly to see if it would arrest their cannibalism. It didn't. I then beat a tattoo on the lid of the tank; it had no effect on them. I finally introduced a thin, metal planting rod and tried to fend off the attack of the egg eaters. They weren't in the slightest put off and continued to swallow large mouthfuls of eggs. I was amazed at the strength of this paradoxical instinct to "protect" the eggs. The instinct was so strong that obviously nothing short of extreme physical violence, or removal of eggs or adults, would have prevented the pair of angels from devouring their—as they thought—threatened spawn. I'd be pleased to hear of other people's observations on the parental behavioural instincts of various fishes in captivity.

A point I've often intended raising with readers concerns the problems associated with the sieve-like fittings provided with filter siphons to prevent the siphons, removing dirty water from tank to filter for cleaning, from getting clogged up with pieces of debris, plant leaves, etc. I've used a variety of such siphons, on a variety of outside filters, and the sieves supplied always seem to get blocked with debris and need frequent cleaning. I've tried the siphons without the sieves and the result has usually been that the siphon tubes themselves have then got blocked. Do you know of any solutions? In the case of air operated filters it's not a very important problem; but a continuous supply of water is frequently required for my motor operated power filters to prevent the motor from over-heating. Blocked filter siphon tubes could thus result in damage to the motor of a filter—and the siphon sieves invariably seem to get blocked when one is at work. Can you offer a solution or provide the brand name of a filter siphon that does not get blocked easily? Have any readers designed their own plastic siphon tube sieves? If so, I'd be pleased to see the plans.

The tropical and marine fanciers having had plenty to say of late, it makes a pleasant change to devote some space to the cold water side of the hobby—particularly when the first letter comes from a lady aquarist. Unfortunately Mrs. Kerridge, whose home is at 5 East Hall Lane, Cherry Orchard Estate, Oak Road, Murston, Sittingbourne, did not provide me with the initial of her Christian name, but her lengthy address should leave us in no doubt as to her identity. Mrs. Kerridge writes: "Between us my husband and I have three tanks. Our cold water tank contains one moor and five bitterlings. We have found that although *Cabomba, Vallisneria* and other tropical plants grow well in the cold water aquarium, they are readily eaten and uprooted by the moor; while accepted cold water plants are brittle and not very attractive. *Ludwigia* seems to be the answer as the moor leaves it alone and it is not easily uprooted. It forms a pretty background and provides cover for the bitterlings, which are rather shy. The reader with the high temperature problem in her cold water tank is not alone. The temperature in ours rarely falls below 67°F, even in winter, as the house is centrally heated. Last summer, in fact, it soared to nearly 80°F. This had nothing to do with the lighting as we only use a single strip light; it only affects the temperature by one or two degrees. The fish do not seem to be harmed in any way providing they have enough oxygen. We have tried three different types of aeration/filtration: U/G, which fouled the water after two months; internal, which was awkward to change and disguise; and an external Airstream filter, which we found to be best as it can be changed without disturbing the fish."

"I was interested in your query about the oldest reader. I am afraid that I cannot quite claim that as I am only 73 years old, but I actually had 'The Amateur Aquarist' in 1924. I have been keeping cold water fishes for about 50 years on and off—mostly on—with the exception of the post war period when I was serving in the R.A.F. I have just retired from business and at present have three tanks of cold water fish in a small, outside brick fish house. I have 18 fish of different varieties, including some very fine golden orfe, and a pair of young koi which I have had in a community tank. They seem to be doing well. At the house opposite to me is a pond in the garden; it's quite big and about 30 years old. At various times I have introduced fish which I have had to spare, and some very find specimens developed there. But for no apparent reason all the fish have disappeared, including a green tench which was over 20 years old. The contractors who are altering the house for a new owner—the old owner died last year, aged 83—informed me that they had seen some large gulls swimming on the pond about two months ago, and I wondered if these birds had taken the fish. The fish have definitely not died as I have been to the pool most days." The above letter came from Mr. J. Leeson, of 9 Belvere Close, Worcester, and he's the

first reader to have contacted me to intimate that he was buying this magazine in the year of its inception —1924—when it was known as "The Amateur Aquarist". I'd be pleased to hear from others who were reading the magazine in 1924.

Mr. G. Robertson, whose home is at 88 Cornhill Road, Aberdeen, AB2 5DR, kindly sent me a copy of the British Marine Aquarists Association Booklet No. 2. It is entitled: "A Review of Evidence Relating to the Use and Effects of Sodium Cyanide and Other Methods Commercially Employed in Coralfish Collecting." The booklet stretches to fifteen pages and contains a wealth of interesting and disturbing facts about the subjects listed in the title. Very detailed reference sources are given and the B.M.A.A. are to be congratulated on their researches into the subject. The booklet is well written and its subject matter deserves the attention of a large number of aquarists—even if they don't keep marines. Copies, price 25p, are available from Mr. R. Edwards, 43 Hurst Road, Hurst Hill, Cosely, Staffs.

I am pleased to be able to include a further letter from Mr. V. Knight, of 8 Unwin Street, Bradeley, Stoke-on-Trent, ST6 7NH, whose previous letter resulted in the reply that opened this month's feature. Mr. Knight's letter was accompanied by an article entitled *Successful Spawning and Raising of the Neon Tetra*. I have forwarded the article to our Editor in the hope that he will publish it for the benefit of all readers. In his letter Mr. Knight writes: "My first item *must* atone for my meanness in not sharing what little I have learned about breeding the neon tetra. I have decided to pass on what little I know. The second set up I mentioned in my last letter was also successful, but by varying the water conditions, etc., I have only had poor results—i.e. only one or two fry; or sometimes no hatchings. I thought that if other readers worked around my basic method someone might hit on the perfect answer. You have my word that all is revealed in my article. I am still considering your recent question on the black neon. I got one pair shortly after you mentioned them but haven't had a chance to try to breed them. They were very beautiful when I bought them but they have now lost the full black coloration—though they seem very healthy otherwise. They are very quiet fish and the female never seems to get as plump as the normal neon." (I suppose that it would be fair to say that quite a number of fishes lose some of the brightness of their colours as they age.) Mr. Knight continues: "Your question on the albino tiger barb, sometimes sold as the golden tiger bar, prompts me to say that although some of my friends can't bear any types of sports from the norm, I think the albino is much prettier. I bought two females and one male in September 1973; after many attempts at breeding them, without results, I finally got them to spawn 'by example' so to speak. I put them in to spawn with a proven pair of normal tiger barbs. It worked! This was eight months after I bought them and both types are still together and the growth of each type is about the same. I put the trio in again in an 18 in. × 10 in. × 10 in. tank, on 12th May, 1974, with nine normal fish. There was a reason for so many but it isn't of interest. The tank now contains a very good batch of both varieties. The pH was 7·2 which, considering that we are told to use acidic water, is unusual. The fry seem very healthy so I'm not worried. I suppose some particles of the gravel must be soluble? One further point—I have tried the trio since without any luck. It seems they require company to stimulate them! Yes, I'm only joking. . . .

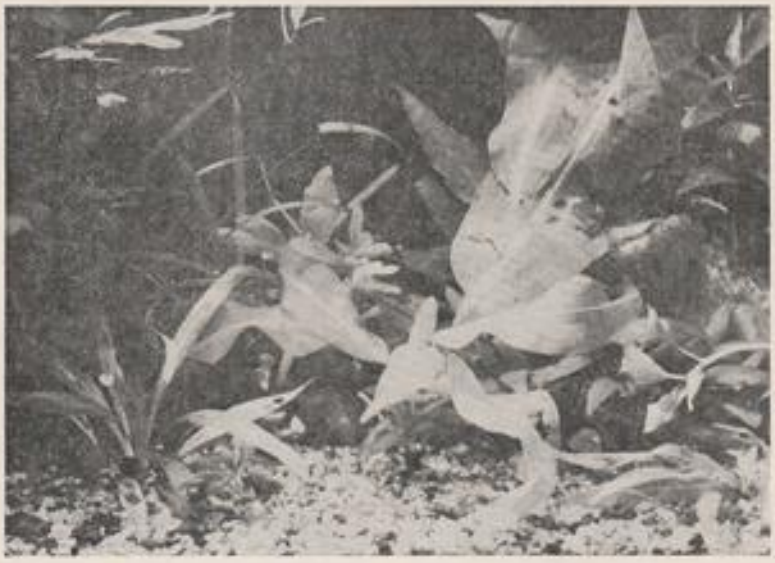
"Regarding velvet disease attacking fry—as you know this isn't uncommon. Mr. Bethell may find my own experiences of some help. I had a batch of cherry barb fry, of about one or two weeks old, and as they didn't seem very healthy I took a close look at them with a powerful magnifying glass. They were plastered with tiny dust-like spots. I asked my dealer for a cure for velvet disease, stating what it was for. When I got it home I read the label and found it was not intended for use with tiny fry. It was Datam Velvet Cure. However, I could see that the lot would die in any case so I decided to see what would happen. I put in two drops to each gallon of water and left an air stone running. The fry didn't show any signs of distress; so two days later I added one drop per gallon. It was like a miracle cure! The fry picked up to normal health in a couple of days. I used the same cure with a later infected batch. I have about three hundred now, of about 1 in. in length, so it appears to have done only good. I also had the same trouble on very tiny opaline gouramies. I have about a hundred or more of up to about ½ in., and they are all very healthy. The strange thing is, when used on adult harlequins it cured the trouble but though none died they certainly didn't take kindly to the treatment. Another point about which Mr. Bethell may or may not know: the dwarf gourami seems to fare much better (in the case of fry) at very high temperatures. My best results have been when the temperature has fluctuated, due to outside weather conditions, between 80 to as high as 95°F in the daytime. Also, after about three weeks don't be afraid to change some water at regular intervals.

"I have only one outside filter—a simple Cascade. The stones always seem to clog up just when you need the filter most. I simply scrapped the stone and replaced it with a short piece of air tube, one end packed loosely with slivers cut from the same tubing. The result is no further stoppages and more efficient operation with less air required to work it. What has happened to your angels? I purchased ten young 'black laces' to try later. I would love to raise a few

angels. By the way, I thought your photos of the angels spawning were excellent. I would have liked photographic details. . . . Perhaps someone could help me with my bogey fish—the checkered barb. I can't even keep them; and just as bad are the very long finned black widows. From several hundred fry in two spawnings I have raised only one; at present it is about ½ in. long. For the record, I don't enter my fishes in shows and I haven't done so for many years. Breeding is my main interest. However, I do like to attend shows to see what the standards are like. I don't get much time to spare very often as I manage to find something urgent in the fish house all the time. PS. With reference to my cure of velvet disease on fry, I admit it seems my fish house hygiene isn't all it should be; but once again I have saved a complete spawning from loss by using Datam Velvet Cure. This time the fry were Siamese fighters and only three days after they became free swimming they started to die off. Close examination showed the very tiny fry were covered in velvet. That was yesterday. Today they are cured! I have found a miracle cure. I know this product will never be out of my fish house again. I am now using the cure more as a preventative. I have given the treatment to zebras and white clouds, while still at the egg stage, to see what effect this has. Obviously I shall be trying the treatment on other more susceptible fishes' eggs. If you are interested please let me know and I shall inform you of the results. Can anyone tell me if any article has been published in 'The Aquarist' on the emperor tetra as I have no information on this species although I have spawned them twice?" (I can't recall an article on this particular species but there could well have been one. Can readers help? This is where an index to the magazine would come in very useful. Perhaps our Editor will give this idea serious consideration.

My thanks to Southend, Leigh & District Aquarist Society for sending me copies of their interesting Bi-Monthly Journal and special Open Show Issue. It's encouraging to note, from the wide variety of reports and features in the journals, that the hobby is thriving in such keen hands. One particular article, a parody on the work of a well known writer in the aquarium field, I found most amusing!

Mr. P. Neilson, who lives at Cumming House, Gordonstown, Elgin, Morayshire, Scotland, is another reader who asked me for details about photographing fishes. He particularly asked about exposures.



The best way to find out about these is to photograph the same subject, under the same conditions, varying only the aperture. Start at, say, f.22, and work down to lower f. numbers—i.e. larger apertures. Keep a written record of each numbered exposure. When you have had the film developed you can select the f. number that gave the best result and use it as a basis for future work. You could photograph future fishes at the selected f. number, at one stop higher and at one stop lower. By so doing you should end up with at least one reasonably good negative as regards exposure. Remember that when working at close quarters focusing is critical. The flick of a fish's tail is enough to render at least half of a photograph out of focus. If in doubt after taking one shot of a given fish, take another—particularly if the fish belongs to someone else and you may not have the opportunity to photograph it again. Although a 36 exposure film now costs

well over 50p, one good shot plus two or three wasted shots of a given fish is preferable to 36 wasted shots of 36 different fishes.

The last of this month's letters comes from "Rivendell", Poplar Close, Sherfield-on-Loddon, Hampshire, the home of Mr. J. Watson. He writes: "With regard to Mr. A. Teasdale's letter about the safety of aquarium electrical systems and the desirability of an earth, I think he is falling into the common trap of considering the aquarium water as a *conductor* of electricity. Pure water is actually a fairly good insulator, and the conductive properties depend entirely upon dissolved materials. A quick check of my freshwater tank showed that the resistance of the water across the width of the tank was about 20kΩ. This means that a maximum current of only 12mA could flow through the water at mains voltage—far too little to blow a fuse. An earth leakage circuit breaker would be needed in this set-up for any semblance of safety. In the marine aquarium conditions are a little different: salt water is a better conductor, and the cross tank resistance was measured at around 4kΩ. This gives a maximum current of 60mA—still too little to blow a fuse. Assuming that the earth lead into the water were used, safety would be improved if the electrode were as close as possible to the potential electrical hazard—heater/thermostat. In the salt water aquarium the problem is compounded by the difficulty of selecting a suitable electrode material. Most metals will quickly cause poisoning, and I can only suggest a gold or platinum electrode as being relatively safe. Electrical safety could be greatly improved by the use of a suitable 1:1 isolating transformer in the mains lead; but this would be expensive, a 200 watt model costing up to £10. My own rule is: earth the tank frame to avoid shocks from the metalwork in the event of a fault, and don't touch the water without first turning off the supply. With good workmanship the chances of a shock are very slim. None of my fishes —not even marines—is strong enough to break the heater/thermostat glass, and unless you mess with the electrical equipment without first turning off the power, you will be acceptably safe." (Please remember, I accept no responsibility for any of the views expressed by contributors to this feature. I have several other letters on this subject and I hope to include them in future editions).

Photograph 1 shows my male pearl gourami. He and his mate have been spawning continuously for the past several weeks in a crowded community tank. Many fry have hatched but they have only survived for a few days because of the other inhabitants in the tank. I'd be pleased to hear of your experiences with the breeding of this species. Photograph 2 shows an *Aponogeton* species in the centre of the photograph. Please send me details of the conditions under which you have managed to get *Aponogeton* species to flower and set fertile seeds.

IT GETS YOU!

by Anne Mendel

DAVID and I became parents for the 62nd time a couple of weeks ago. No, not a fertility drug, but a new, time-absorbing hobby—tropical fish.

Fools rush in they say, and I was one hell of a fool when one day I lazily agreed that perhaps he might get an aquarium. If it had been a matter of making the effort to go and buy one, perhaps I could have put off the evil hour, but as my brother had one to sell, it was all too easy. There it stood—quite harmless looking really, complete with a few gadgets which needed supplementing by way of a pump, thermostat, gravel, weeds and so on, all of which were purchased during one ecstatic lunch hour. Since that time, I have found, after the usual hurried pushing past dress shops, that his *antennae* had not the usual sharpness for picking out at 3 miles the nearest stereo shop, but now homed in on shops specialising in tropical fish.

We had a few novice's deaths which caused despondency in our household but far from putting him off, it brought out a will to succeed and he plunged again, adding more varieties almost weekly. As the tank was originally installed in our bedroom, I would often, when wearing a seductive nightie, realise the loving look in his eyes was not for me at all but were aimed at his new toy instead. Ah well, I thought, he'll get over it, and kept a supply of books by the bed.

I was wrong, though; an underground filter was installed and I was roped in for re-planting with the plea: "But you do it so much better than I can." So, up to my elbows in water, with bits of greenery clinging to me on several evenings and I was rewarded with a glow in my beloved's eyes that made me feel perhaps I was in with a chance.

Weekends are now occupied with going to our nearest stockist and grand tours of the surrounding area, for earnest discussions about the best foods, which fish get on together, cannibalism and other delightful matters. I must admit I got quite fond of the fancy guppies which he intends to use as live food for various monsters he will be buying in due course.

Meals are eaten staring at the latest wonderful doings of these creatures; I can be startled by a shriek from the next room of "Annie come quick!"—which means perhaps one of them has learned to talk? No, more babies being born!

Excuse me, I've just got to move a bucketful of petrified wood from the bath . . . .

B.K.K.S. Far East Trip

During the early part of Spring this year I was able to visit Japan. This was a preliminary visit to personally check facilities and arrangements for the forthcoming B.K.K.S. trip to Japan in April 1975.

I met a great many members of the Japanese Koi Society and was very privileged to visit their homes and see their ponds and koi. I was particularly impressed by their filtration methods and of course the superb specimens of Koi.

I was able to visit Tokyo, Kyoto, Himeji, Maizuru, Kanazawa, Nagaoka, Ojiya and of course Yamakoshi Village. This will be the basic itinerary for the group's visit next year, including a visit to Bangkok in Thailand for a few days on the outward journey.

ROLAND SEAL,
7 Highlands Road,
Offerton, Stockport,
Cheshire. SK2 5HU

Dearer Fish?

There has, over the past few months, been a great deal of talk concerning the probability of tropical fish becoming more expensive and less readily available due to difficulties in their importation. It has also been suggested that this will be of obvious benefit by providing ready outlets to individual breeders, and that these breeders should sell only to recognised retailers and not direct to private aquarists.

It seems that the shops can't lose.

For many years now there has been a steady increase in demand for tropical fish and importation has been relatively easy. This has meant that, in this area at least, aquatic dealers have not been interested in buying stock from the individual breeder with the result that he has to sell to the public direct, usually through aquarists' societies, or else use his hard won offspring to feed to his other fish.

Now that importation is going to become less viable it seems that the dealers may shortly wish to change their policy.

Whilst everybody recognises that shops play a major role in the hobby, breeders could be excused for thinking that they should continue to sell direct and let the dealers look after themselves; their problems will have been self-inflicted.

It is also probably that breeders are getting better prices for their fish by selling privately.

Unfortunately, although this situation would benefit clubs and club members in the short term (they would know best who was selling what), the long term effect on the hobby as a whole would be devastating.

It is to be hoped that this is only a local problem, but if it is widespread then I think the time has come for retailers to take a good long look at themselves and think to the future. If they refuse to buy the young now they must not be surprised if the opportunity is withheld later.

GRAHAM R. HALL,
Secretary,
Abingdon Aquarist Society.

Experience Bought . . .

I am writing with regard to my previous letter entitled "Cool Cats" which was published in the March issue of your magazine. I now realise the foolishness of keeping catfish in the same community tank as other species of coldwater fishes. Several weeks after the publication of my letter, the smallest of my pearl scale goldfish mysteriously disappeared. I had no reason to suspect the catfish as I thought I had always been giving it enough live food. A few days later, however, one of my larger goldfish began to display rather ragged finnage and I realised the catfish must be to blame. (The catfish in question had, by this time, grown to a considerable size.) Unfortunately the goldfish died of its wounds because of my reluctance to remove the catfish to another tank.

I am now a firm believer in the canabalistic habits of the catfish and would like to warn other coldwater enthusiasts against the foolhardy practice of keeping catfish in the same aquarium with other species of goldfish.

I would like to apologise to other readers who have written-in questioning my previous beliefs.

BRUCE BASIL SMITH,
5 Ladywell Sawmill,
Kirviemuir,
Angus,
Scotland, DD8 5PD.

Magazine Magpie

I am a collector of periodicals pertaining to the aquarium hobby. I am mainly interested in back issues of such magazines as *Tropical Fish Hobbyist*; *Aquarium*; *Aquarium Hobbyist*; *Marine Aquarist*; *Aquarium Journal*; *Buntbarsche Bulletin*; *Tropical Fish World*; *Aquatic Life*; *The Aquarist and Pond-Keeper and African Aquarist*. I am writing to you, in the hope you may be able to help me find these back issues.

Would you have any back issues of the above mentioned periodicals? Would you know of persons having these magazines, which might be gathering dust in an old attic, cellar or in their book shelves, and who would be interested in disposing of these

periodicals? If so, would you kindly forward an inventory list of any back issues mentioned above that would be available for sale.

I would appreciate your help in this matter, and any information concerning where I may purchase these back issues. Whether a reply from you or a fellow hobbyist, all letters will be answered immediately.

Thank you for your kind consideration, and I would appreciate hearing from you in the near future.

THOMAS N. TILLES,
c/o Yonkers A.S.
P.O. Box 84,
Yonkers, New York 10703.

Halfbeaks

I was interested in the answer given by Mr. Hems to the query about breeding Halfbeaks, (May issue) as I have been breeding and rearing these fish for over a year now and have experienced very little difficulty. The only problem was to get the original imported fish acclimatised and breeding, which was done by placing the new stock in a four foot community tank which was well stocked with plants, temperature at 80°F, and a pH reading of 6·8. They were fed with dried foods and gradually accustomed to taking *tubifex* worms from my fingers, as well as being given live *daphnia* and brine shrimp.

The first spawning consisted of eight fry which were found in the community tank. These were placed in a small tank by themselves and proved to be as easy as any other livebearer to raise, as they take fine dried food hours after they are born and newly hatched brine shrimp after the first day, swimming at all levels in the tank to feed.

Once the initial spawning has been achieved, future generations of "home-bred" fish are easy to care for and breed.

As I am interested in the more unusual varieties of livebearers, I would be grateful if any of your readers could help me to obtain some Blue Limia (*Poecilia melanogaster*), and Merry Widows (*Phallichthys amates amates*), as I am unable to purchase them in this area.

MRS. JUNE RENTON,
Secretary,
Newcastle Guppy & Livebearer Society.

What About a Discus Society?

I wonder if you would be so kind as to print this letter in your magazine, as I feel it will reach the people who it will most interest, in this way.

A great friend of mine, Mr. Frank Ashworth, of Llangollen who, along with myself, is a regular breeder of the Discus, feels there is not enough help or information available concerning this beautiful but sometimes difficult fish. We have decided to get together on this subject and, if there is enough interest shown, we will form "The British Discus Association."

As you can imagine, through breeding Discus ourselves, we have come across many problems which we have now overcome, and we are sure there are many people encountering the same. Through the Association we would be able to pool our knowledge and, of course, gain a lot more, whilst trying to promote this section of the hobby in any way we can.

Many people are put off from keeping these fish because of a general lack of knowledge and information; we feel sure we can correct this if there are enough people interested.

If anyone interested would contact either myself or Mr. Ashworth, and please enclose a S.A.E., we will make sure they receive a reply.

MR. BRIAN MIDDLETON,
7 Underhill Crescent,
Abergavenny, Mon.

MR. FRANK ASHWORTH,
41 Pengwern,
Llangollen, Denbs.

There is a B.K.A. and a B.C.A. and the B.K.K.S. Why not a "B.D.A."?

Hoping for your kind co-operation.

B. A. MIDDLETON.

"Garden Pool Cleaner"

People buying small ready-made garden pools can keep them clean without going to the expense of filters that are sold, simply by making a ring of stainless steel to fit into the deepest part of the pool, then covering the ring with fine nylon netting (in the form of a net). You then fill the net with *fine* gravel, about two inches deep, and lower into position in the pool. All waste food, dirt and debris fall into and will be held by this trap. The trap can be taken out of the pool, say every Sunday, and the net and gravel washed with the garden hose and replaced without disturbing the pool or fish.

Yours sincerely,
G. THOMPSON,
488 Scot Lane,
Marsh Green,
Wigan WN5 0PP,
Lancashire.

Missing Trophies

For the past 18 months Barry A.S. have been under new management. As the club has had a few lean years, we have not held an Open Show, we are now looking to a brighter future, and with this view in mind, we are trying to locate any of the Club Trophies. Will anybody holding any of Barry A.S. trophies, please return them, or anybody having any knowledge of them please let us know. Postage will be refunded.

M. C. GUTHRIE,
Hon. Secretary, Barry A.S.,
4 Nunston Close,
Rhoose,
Glamorgan.

VILLAGE PONDS FILL AGAIN

by D. England

At the time when I was living in a Norfolk village there were four ponds—two in farm yards and two by the roadside. Now there are none. In fact today only one pond can be found within a radius of three miles, and that survives only by the grace of the highways department, which finds it has a certain value in the drainage of a stretch of road.

And a delightful pool that as boys we knew as the Newt Pond—it abounded with this beautiful amphibian—is now derelict with litter, and the water fouled by domestic pollution. The newts are gone, together with a rich variety of aquatic insects, pond snails and a profuse assortment of microscopic creatures. Recollection still vividly recalls the captivation with which young eyes beheld the antics of water-boatmen and pond skaters. Now a miasma of decay hangs over the place.

These examples are, sadly, typical of what has been happening during the last 30 years, to that once ubiquitous and attractive feature of our countryside, the village pond. The total of 338,000 ponds in England and Wales was given as the result of a survey carried out between 1930 and 1960. However, as the count was somewhat piecemeal, some rechecking was done, and this showed that a good many had been missed because of small size, being overhung by woodland, or because they were dry. Possibly a figure of 350,000 is more accurate. It is much less now, for 100,000 have gone, and the remaining ones are disappearing at the rate of 100 a week.

They can ill be spared from the aspect of ecology alone; but also for the more practical reason, to millions of motorists anyway, of providing pleasure for visitors to the countryside. One coastal pool I know, well stocked with various species of waterfowl, draws literally hundreds of onlookers each day in summer. One way of getting the children interested in "bird studies" if nothing else. And a few miles away in another village, the regular afternoon (I wonder why invariably then?) peregrination of the domestic geese, Canadian geese, and mallards from the top common pond to the bottom common pond is watched absorbingly every day by visitors from the neighbouring caravan camp.

Cleaned, restored, and conserved our village ponds could be an added amenity to the countryside, giving enjoyment to the public; and, equally important, they could become reserves for many kinds of wild life. The "Save the Village Pond Campaign" which was launched at the beginning of March, has not come before it was needed. That the project has met with nation-wide approval is seen in the fact that during the succeeding four weeks more than a thousand letters and telephone calls asking for help and advice were received by the campaign's London headquarters. The British Waterfowl Association, which is organising the campaign, says that its aims are urgent. They are: to arrest the decline in the number of ponds, to restore them to their former role as a focal point of the country scene, and to save threatened species of plants and animals.

Perhaps appropriately, because mechanisation is largely responsible for the disappearance of the horse for which the farmyard pond was an essential, and in some ways its chief *raison d'etre*, the Ford Motor Company is sponsoring the campaign. On the campaign committee are representatives of a number of bodies including the Association of County Naturalists, the British Trust for Conservation Volunteers, the National Biological Records Centre of the Natural Environment Research Council, and the Council for the Protection of Rural England.

The present state of too many of our surviving ponds, victims of neglect, vandalism, pollution and rubbish (a miscellany of old bicycle frames, pram wheels, car tyres, holed pails, pesticide tins, broken bottles and rotten rags), compares sadly with the days when the church, inn, and the ponds were village landmarks. There are instances of a pond being the actual focal centre because the village was built around it. A notable example of this kind of planning is the Dorset village of Ashmore, 700 ft. high up on the edge of Cranborne Chase, which is thickly studded with ancient villages.

Ashmore encompasses a large and beautiful embanked pool, really a dew pond, which gives the village its Saxon name, "The Pond of the Ash Tree." A second instance is the tucked-away village of Buttermere in the neighbouring county of Wiltshire. Returning to Dorset, in 1971 the village pond at Winterbourne Zelston was left to a bird protection society for the use of "wild birds only." Domestic and "tame" species were specifically excluded on the

ground that they would drive away wild ones.

As with windmills, ponds are unevenly distributed over the countryside. The map survey showed that about one-quarter were sited in the hill farm country of Wales and the North, Devon and Cornwall. Dew ponds occurred on the high ridges of the Downs. Another quarter occurred in the dairy farming county of Cheshire and the agricultural county of Norfolk. The remainder were scattered over the other lowland counties.

How long many of our ponds have been in existence is a matter for conjecture. The one at Ashmore is believed to date back to Romano-British times. Although some research workers credit Iron Age or even Stone Age man with the construction of dew ponds, the Romans were the first people to deal with ponds in an efficient manner. They were placed at intervals along their military roads for the use of livestock and the horses of their legions. Excavations have shown that the ponds were regularly cleaned out.

As for the name, before the word "pond" came into general use, the common designation for such a pool was mere. This was applied to small natural lakes such as the well-known ones in Breckland—Ringmere, Langmere, Fowlmere. They flood or dry out as the water level rises or falls in the chalk of the district, and are little affected by sudden heavy rains. Last century, in particular, these meres were the centres of teeming wild life. Ospreys and otters were seen, and pike, carp, rudd, roach, perch, bream and eels abounded.

Some ponds were known as marl pits because they resulted from digging for this valuable fertilizer, a mixture of clay and carbonate of lime. Fields were marled when a sandy topsoil was of poor quality. Sometimes village and farm ponds were "puddled" to make them watertight. Their bottoms were trampled by cattle and even men, as the clay for bricks was trodden or "worked" mechanically to bring it to the right consistency. Dr. Edward A. Ellis, the East Anglian naturalist, said that once when he inspected nine Norfolk ponds, there was water in only one of them. That had been artificially puddled many years before.

Commenting on this custom, Dr. Ellis said: "Where holes are excavated in boulder clay and not properly puddled, the uneven texture of the clay, with its included grit and stones, causes cracks to develop round the sides in dry weather. These allow a certain amount of seepage to take place, increasing water loss in a rainless period until, finally, the bed of the pond is exposed to the sun and air and cracks in all directions."

As suggested, dew ponds may go back to the days of Neolithic man. Much unnecessary mystery has surrounded these. It was said, for instance, that they never went dry, that the secrets of their construction were jealously guarded between father and son, and that they were even created by God. Hence the spelling *Dieu* pond. All of which, of course, are fables.

For the most part dew ponds are sited at some altitude, and this seems essential to success. They are not confined to the south as sometimes believed. They can be found as widely scattered as Sussex, Berkshire, Dorset, Hertfordshire, Kent, Wiltshire, Derbyshire and Yorkshire. To the shepherds the pools were sheep ponds, pronounced "shippuns." They were also known as cloud ponds, mist ponds and even fog ponds, because although at one time it was denied that any other influences played a part in replenishing them, mist, fog and rain must add to the reserves.

Perhaps the best summing up of the matter is this: it is on clear summer nights when there is no chance of rain that the dew pond draws from the atmosphere by condensation; in cloudy, unsettled weather rain plays its part; and it is to mist and fog that the pond must look to make up the balance between precipitation and evaporation in the summer months when rainfall is at a minimum. The reason for the abandonment of dew ponds in livestock practice is that in recent years sheep have been ousted by corn.

A specialised type of pond was that providing a head of water to drive a mill wheel or a tilt hammer. Before the days of steam every commodity had to be fashioned separately, and every common utensil was strictly a product of handicraft. The only departure from this rule had its origin in horse or water power, and this last was tapped by damming a stream.

The local iron was wrought by hammers that were driven by water-wheels set beneath the sluice gates of the dams. These artificial stretches of water became known as hammer ponds. An especially beautiful example is the Shottermill Ponds, near Haslemere, Surrey. They are now in possession of the National Trust.

In addition to this industrial use, the watering of horses, cattle and sheep, and serving as a feeding ground for domestic ducks and geese, ponds were the filling stations for threshing engines and village fire engines in emergency, and almost every medieval manor house and abbey had its pond for yielding such fish as carp and eels. Abstention from meat was strictly observed then. Willows were also planted around ponds to meet the needs of cottage industries which turned out baskets, creels and panniers.

A little-known, but important use in hard winters, was for supplying ice-houses. On large estates the ice-men, clad in thick coats and wearing heavy gloves, took shovels and picks and cut out blocks of natural ice for long storage, from lakes and ponds. This "home ice" was much preferred to the imported ice from Holland. The chefs declared this melted as soon as looked at.

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.

COLDWATER QUERIES

by Arthur Boarder

I have a garden pond in which I have eight golden orfe, some goldfish, green tench and carp. I now find that all the orfe have a disease of the eyes. Some appear to be blind in both eyes and the others in one eye. The orfe are 9-10 inches long and I have had them for four years. What is the cause of this trouble please?

You did not state the size of the pond nor the size of the other fishes. Usually orfe are very healthy but this is when the water is in good condition and contains plenty of oxygen. Warm water loses much of its oxygen and during the past summer many ponds have become very warm, and can have been over 80°F., for many days. This is not to the liking of orfe and unless a fountain or waterfall has been in operation it is probable that many orfe have been asphyxiated. You stated that the other fishes in the pond are quite well but this is not surprising as they can stand conditions which would soon kill orfe. The danger usually comes when there is a thundery night, with humid conditions. The fountain or waterfall may have been switched off for the night. In the early morning of such a night the orfe can be seen floating on the surface on their sides. If they are not attended to within a short space of time they will die. If found in time and a hose is played on them, they will be swimming about within five minutes as if nothing had happened. This proves that they were just lacking in oxygen.

When such fish are subjected to these conditions they become unwell and lose some of their mucus protective covering. They are then prone to attacks of any diseases which may be about. The orfe are suffering from a form of fungus disease and cannot be treated whilst in still the pond. You will have to put them in a large container such as an old bath and treat them with sea salt (Tidmans is good for this). The solution should be at the strength of a tablespoon to the gallon of water and the salt should be added after the fish and left to dissolve gradually. To assist the cure the eyes can be carefully wiped with cotton wool dipped in a mixture of one part of glycerine to half part of iodine. After a day or two with this treatment the white film may be wiped away. Do not feed whilst under treatment but when better give live foods such as garden worms or white worms and broken maggots.

My pond has been green with *Algae* for some time. Do you think that it will clear as the water gets colder?

It is quite probable that the *Algae* will die off as the water cools and the sun loses some of its power. If this happens suddenly in the summer when the water is warm it can cause trouble as the *Algae*, in quantity, can pollute the water, However in the cooler weather this is not as likely to happen but if the water smells unpleasantly change most of it for fresh. Once a pond clears in the late autumn it is likely to remain so until the spring.

I have a fair-sized pond and have some Koi and golden orfe which I would like to put out into the pond. The pond has been filled for some days and the water should have matured. Will it be too late for the fish to harden off before the winter sets in or should I wait until the spring?

As this is only the end of August you can safely transfer the fishes to the pond. If we get the usual September it is quite likely that the temperature of the water in the pond can be well over 70°F, for much of the time. This is warm enough for the Koi and then as the water cools down they will be able to adjust to a lower one. As for the orfe, they can stand any amount of cold and prefer cold water to warm. In fact many orfe are lost when the water gets too warm and loses much of its oxygen.

Do you think that it is a good idea to have duck weed on the surface of the water of a goldfish pond?

It is very useful to use this water plant as it can serve several purposes in the garden pond. Firstly it is very good for shading out much of the sun during the summer months and so tending to prevent the formation of green *Algae*. It is also eaten by hungry goldfish and very good for them. It can be used by the goldfish as a spawning medium, as the fine roots can form a convenient mass for the reception of eggs. Should it get too rampant and cover too much of the surface of the water, a hose played on it from one side of the pond can roll it easily to the other side where it can be raked out.

When I wrote to you earlier in the year I said that I could never see a sign of my goldfish in the pond. Following your advice I am now happy to say that the fish have bred and I have seen several young ones. Some were quite big and could not not have been more than a few days old, one was even coloured. There are shubunkins as well as goldfish in the pond. Will the young ones live through the winter in the pond?

The young fish you saw were definitely more than a few days old, more like six weeks. When first hatched they are like tiny splinters and it would be very difficult to see them in a pond, especially if you did not know quite what you were looking for. As for them living through the winter, this depends on how large they grow before then and the amount of water weed in the pond in which they could find shelter. Also the type of winter which we get can make all the difference. One like the last one and the fry could live, but one like 1962-3 could kill them all.

I keep losing goldfish. I have a 30 watt bulb above the tank and the room is centrally heated. Why do the fish not keep healthy?

Your tank will only hold about seven inches of fish and you may have been over-stocking. The warm water will contain less oxygen than colder water which tends to upset the fish. You may also have been over-feeding. If uneaten food remains in the tank it will soon pollute the water and if warm the danger is increased.

I recently purchased a tank with three goldfish. About a week later their gills started to turn black. Why was this?

It appears that the fish may have had a form of disease or damage from pests and the damaged parts would usually be black when they made fresh growth. It is probable that the black will soon disappear. However, it is not unknown for goldfish to have black marks permanently or even to turn silver. It is not a disease and you cannot cure it; just wait and it should soon clear of black.

I have had no success at rearing goldfish fry. I can hand spawn and get fry hatched all right, but after four or five days they die. I have a tank with a filter in and add a teaspoon of salt to each four gallons of water. I feed with Liquifry but find that the water becomes cloudy. Should it not clear as the Liquifry is eaten?

I do not like your idea of adding salt to the water in which young fry are kept. This could be your fault. Also a filter is not necessary as it could clear the water of any *infusoria* on which the fry should be feeding. The Liquifry encourages the formation of *infusoria* and when this is present the water will take on a cloudy appearance. If the water is crystal-clear, then there is no food there for the fry. I never use a filter in a fry tank; in fact, in all my years of fishkeeping I have never used one at any time. When one is necessary in a coldwater tank it is a sign of bad fishkeeping. Either over-feeding, over-stocking or wrong management would make it necessary to use a filter.

What is the best way to treat sores on koi?

It depends on the cause of the sores. In the first place it would be wise to try to find out the cause of the sores and then a cure might be easier to recommend. Some sores can be caused by fish lice, the *larvae* of dragon flies or beetles. Out of the water predators such as cats and birds could also be a cause. If the sores are just red patches it may be possible to paint them with a neat solution of T.C.P. Hold the affected fish in a wet cloth and dab the sores with cotton wool dipped in the chemical. There is no need to let any get on to the gills and head of the fish. It may be necessary to repeat the treatment after a day or two.

I have a tank, 48 × 15 in. and 18 in. deep. I would like to keep one crucian carp, four gudgeon two roach, two tench and one Hi-goi. Will there be enough surface space if I use an aerator?

Your tank can house about 32 inches of fish, not counting the tail. You could probably keep more with the aid of the aerator, but the fish are not as likely to thrive and grow as if you stick to the limit stated. You may have trouble with the roach as these fish are liable to attacks of fungus disease. This is because their bodies are heavily covered with mucus which comes off if a fish is handled. The fish are then open to attack by pests and diseases. I suggest that you leave the roach out of your tank. The other fishes could be all right, although you might have some difficulty in keeping the gudgeon. You can work out the sizes of your fish from the rule stated. You will find that the best plants for your tank are *Lagarosiphon major* and *Ceratophyllum demersum*.

TROPICAL QUERIES

by Jack Hems

Q. What should I do to encourage a pair of kribensis to spawn? The breeding-aquarium I have given them is 2 ft. long.

A. Essential requirements are plenty of plants, soft water and a "cave" for the fish to use as a love nest. The entrance to this "cave" should be lightly camouflaged with plants. Some pieces of slate, propped one against another, make a suitable retiring place in which to stow the eggs. Alternatively, introduce a well-scrubbed clay flower pot. Some aquarists enlarge the drainage hole and then upend it. Others just place a flower pot on its side. To bring the fish into prime condition feed them generously on live food and meat. Next, see that the tank receives long days of bright light. To begin with, temperature is of no great importance but, after a week or two, raise it to the upper seventies or lower eighties (°F). If the fish are of a size for breeding and are that way inclined, they will respond to the increased temperature and protein-rich food in no unmistakable manner. In short, the male will pay extra attention to the female and scurry excitedly about the tank, while the female will assume glowing red lower parts and noticeably bloated sides and abdomen.

Q. My *Datnioides microlepis* has turned dark between the black vertical bars and has lost interest in food. What do you think has gone wrong?

A. Generally speaking, darkening of the body and loss of interest in food should be taken as a sign that conditions in the tank are not to the liking of this beautiful species. *D. microlepis* thrives best in a long-established aquarium containing water low in calcium and giving a neutral to acid reaction. A strictly tropical range of temperature is called for. Also, a forest of submerged plants to afford retiring and lurking places.

Q. I have just bought a fish which my dealer told me is called *Leptobarbus hoevenii*. I have access to a good library of aquarium books, yet cannot find this fish mentioned anywhere. Is it new to science?

A. *L. hoevenii* was known to zoologists when Queen Victoria was alive and well (that is if my memory serves me right), but it has rarely appeared in the tanks of the aquarist. As far as I know, it is the only representative of its genus and comes from Borneo and thereabouts. It is a member of the family *Cyprinidae* (Carps) and is one of the species which bears four barbels. Care for your fish as you would for any Asian barb. I have no idea of the length it reaches in the natural state. And for all I know, it might be an ardent eater of plants.

Q. I set up my first aquarium several days ago and introduced swordtails, platies, a variety of barbs and zebra danios. I have *vallisneria* and *sagittaria* as oxygenating plants. These are anchored in a coarse grit I obtained from a horticultural shop. Now, although the fish are eating well and showing no external signs of disease, they keep dashing themselves against the plants. I should like to know the reason for this strange behaviour.

A. Water new from the tap seems to affect certain fishes in this way. In all probability your fishes will stop rubbing their bodies against the plants as the water matures and the plants settle in. For all that, I do not feel too happy about the grit you obtained from a horticultural shop. If the grit is of a non-calcareous nature, all is well. On the other hand, if it is a mixture of crushed limestone, fragments of shell, and rapidly disintegrating stone, then all will not be well. Another thing, if your fishes develop inflamed gill-openings and the gill-covers stand out, raw-looking places on the sides, and keep cruising at the surface as though in need of air, then suspect some infection by a parasite, or parasites. A reputable dealer will supply you with a wide spectrum drug to deal with a mild infection. If you leave ailing fishes too long without treatment their illnesses are sometimes impossible to clear up.

Q. I am puzzled by an unsightly growth which keeps appearing on the gravel in my aquarium. It grows on the uneaten food on the bottom. I have taken the gravel out quite a few times and boiled it, but still the growth appears on the food the fishes do not eat. How can I prevent this growth?

A. Properly fed fish do not leave food uneaten for long. For food left uneaten for days decays and pollutes the aquarium. Give only sufficient dried food (a mere pinch at a time) to keep the fish madly grabbing at it for a minute or two. Then no more for a few hours. However, feed your fish more than twice or thrice a day. Of course a few fragments of food will come to rest on the bottom. These, however, will be dealt with by bottom-feeding fishes, which it is a good plan to obtain. *Corydoras* catfishes are bottom-feeders. So, also, is the peaceful cichlid called *Geophagus jurupari*. The brown sediment that gradually accumulates on the bottom is nothing to worry about. Too much of it, however, should be

siphoned away every so often. Unless you take more care over the feeding of your fish your unsightly growth will turn into a dangerous mould.

Q. What foods should be given to the common hatchet fish and how do I go about sexing and breeding this species?

A. Live foods that rise to, frequent, or struggle on the surface of the water are necessary for hatchet fish. Thus gnat *larvae*, *Daphnia*, new-born guppies, fruit-flies, green flies taken from a tree or plant untouched by chemical sprays, and whiteworms wriggling out of a perforated feeder just touching the water are well-suited to these fish. I believe one or two species of hatchet fish have bred in the past, but very little is known about the breeding procedure other than the male fish drives the female into tangles of vegetation where she scatters her eggs. Sexing is largely a matter of comparing body outlines and contours. Hence it is reasonable to assume that wafer-thin hatchet fish are males and slightly bulging-sided fish are females.

Q. I have a catfish called a Fossilis. Please give me some information about it.

A. I suspect the fish you have is *Heteropneustes fossilis*, a species which is said to be quite widespread over eastern India through to Vietnam. It is a big fish in the natural state and attains a length of some 2 ft. In the home aquarium, however, it does not appear to grow to such a large size. *H. fossilis* requires worms, maggots, meat, and various swallowable fry for food. A temperature in the seventies (°F) is all it asks for.

Q. I am interested in aquarium plants but cannot find any books which deal with them knowledgeably or in depth. Have you any suggestions as to suitable works I should consult?

A. First and foremost, obtain a copy of Mr. Colin Roe's *Manual of Aquarium Plants*. Follow up with J. Stodola's *Encyclopedia of Water Plants*. Professor H. C. D. De Wit's *Aquarium Plants* covers a wide field and is reliably informative. Then, if aquatic plants become a really absorbing interest, visit the first-class second hand bookshops and try to run down *Water Gardening* by Miss Frances Perry. Again, if you read French keep a look out for *Decors Exotique et Plantes d'Aquariums* by M. François.

Q. Please snd me some information on the catfish called *Kryptopterus bicirrhis*.

A. This species is a member of the family *Siluridae*. Its popular name of glass catfish is most apt, for most of its body is nearly as transparent as glass. The fish is not a bottom-liver but haunts the middle of the water. It flourishes best when it is kept with several others of its own kind. A single specimen introduced into a community tank sometimes loses interest in food and mopes. It is a fairly active fish but is not on the go all the time. When it stays still, it takes a slightly head-up and tail-down position. Food for it is best given alive. Whiteworms, tubifex, brine shrimps, Daphnia, bloodworms, and gnat larvae suit it well. Also, tiny pieces of raw red meat or fragments of uncooked cod or fresh haddock. *K. bicirrhis* may reach a length of about 4 in. and requires a temperature in the middle to upper seventies (°F).

Q. I have just bought several small Texas cichlids which I have placed in my 4 ft. community tank. I should like to know how large the Texas cichlid will grow and at what size is it likely to breed?

A. This fish—the only cichlid which is found inside the U.S.A.—reaches a length of some 6 or 7 in. in the ordinary home aquarium, which is about half the size it attains in the wild. It is not a fish for a community tank because with increasing size it becomes increasingly aggressive and dangerous. I cannot say when the Texas cichlid reaches sexual maturity but imagine that fish of about 3½ to 4 in. are capable of producing young.

Q. I bought some silicone rubber sealant and a gun at a rummage sale and would like to know what else I would require to make a fairly large aquarium.

A. All you need are five pieces of glass and the necessary skill to stick them together to make a leak-proof tank. For a tank up to about 4 ft. long use quarter-inch thick plate glass. See that it is cut square along the edges. New tubes of silicone rubber sealant for aquarium construction are supplied with the necessary instructions. All the same, a friendly dealer in aquarium fishes will let you inspect his all-glass tanks and tell you how to go about making one on your own.

Q. I have been told that algal growths can be useful to the aquarium keeper. This takes some believing and I would welcome your views on the above.

A. Certain algal growths can be beneficial. Filamentous and woolly *algae* produce oxygen under the influence of a strong light. Furthermore, such algal growths make good spawning grounds for egg-scattering fishes, and newly-hatched fry find safe havens in the tangled growths. Then again, greenstuff-eating fishes look upon green algae as a source of food. Without algae to eat, such fishes must be given a suitable substitute such as cooked nettles, spinach, turnip tops, or bruised and scalded lettuce leaf. To sum up then, algal growths have their uses in the aquarium even though many aquarists look upon them as pests. For all that, there is nothing good to be said about blue-green *algae* or brown *algae*. The former is nasty smelling and suffocates all the higher plant life when it takes over a tank. The latter is not so obnoxious, but it does denote that there is too much decaying matter in a tank and insufficient light.

PRODUCT REVIEW

Elite White Worm Feed, price 60p plus V.A.T.
Elite Brine Shrimp Feed, price 66p plus V.A.T.
Both are manufactured by Derhams Products, and distributed by Hillside Aquatics of 29 Dixons Hill Road, Welham Green, Nr. Hatfield, Herts., AL9 7EF.

The names "Elite" and "Derhams Products" should be well known, particularly by older aquarists, as the connection has been providing products for the aquarist for a quarter of a century. These two new products, although relatively expensive, present the high standard that we have come to expect from items carrying the "Elite" label. These two feeds are not intended to be used for feeding fishes; they are intended to be used for feeding the brine shrimps and white worms which will be fed to fishes.

The following information is provided about Elite White Worm Feed. "Elite White Worm Feed is formulated on the principle that what you feed to the worms today is what you will feed to your prize fish later. It is a 40 per cent protein feed; 99·9 per cent organic, with a 5-1 vegetable/animal ratio. Fine particles ensure rapid growth and a high conversion rate. Each packet (carton with a revolving plastic lid) . . . will produce hundreds of high protein feed worms." General instructions for raising "Elite White Worms" are also given. "Place white worm culture in a box with loam to depth of 3in.; temperature 50-60°F. Keep very moist but not waterlogged. Dust a thin layer of Elite White Worm Feed over the entire box every 3 days; if an excessive amount is left reduce feed; if none is visible, increase. Turn loam every fortnight."

The Elite Brine Shrimp Feed carton, complete with revolving plastic top, carries the following information. "Adult brine shrimps (*Artemia salina*) are an excellent disease-free food for all fish. Elite Brine Shrimp Feed now makes it possible to raise these creatures to full size easily and inexpensively. (It) is especially formulated as an alternative to the phytoplankton upon which the shrimps normally feed in the salt lakes where they are found. Conditions for brine shrimps: Brine shrimps, if fed on Elite Brine Shrimp Feed, can be raised in a solution of tap water and common salt—not table salt which contains magnesium carbonate—in the ratio of one tablespoon to a pint of water, and at a temperature of 60-80°F. Allowance should be made for evaporation and a mark made on the container, so that tap water can be used to top it up to the original level. Within reasonable limits a solution saltier than the one recommended will do no harm, and allowance should be made for salt loss which can follow when salt is deposited outside the container when drops of water, which are thrown up by aeration, evaporate. Raising from eggs: Fill jam jar or milk bottle with salt water solution to a depth of 2½in.; sprinkle eggs on surface and apply aeration; hatch should be completed in 36 hours. After hatching best results are obtained by continual aeration but not to the extent that the brine shrimps are buffeted around. Feeding: Feed small amount match head proportions of Elite Brine Shrimp Feed as often as possible, but at least 3 times each day. This will tint the water, but only excessive feeding will cloud the water and give a smell. If this happens strain off shrimps and place in newly prepared salt solution at the same temperature as the solution from which they have been taken. General care: After four days remove shrimps to a larger container as they grow. They will tolerate excessive overcrowding if aeration is applied. Shrimps should be strained and fed to fish according to size, although most tropical fish can manage a half grown adult. Brine shrimps can grow in aquarium conditions to just over ½in."

Although these high quality feeds are expensive, keener aquarists who raise their own brine shrimps or white worms could, with advantage, give them a try and form their own judgements as to their practical value. The Elite White Worm Feed carton contains 85 grms. (3 oz.); no weight is given on the Elite Brine Shrimp Feed carton.

B. WHITESIDE.

Tropicure Vitex, "an essential nutrient for freshwater, tropical and marine fish," manufactured by Tropicure Products Ltd., Horsforth, Leeds, available in a brown plastic bottle containing seventy large tablets. Price unknown at the time of writing.

This new product is said to be: "A scientifically prepared water soluble nutrient which will dissolve in aquarium water and so provide essential and necessary mineral salts and vitamins which can be absorbed by your fish to promote health, spawning, appetite and improved colour." The directions provided are: "Freshwater and tropical fish—one tablet per 25 gallons twice weekly. Marines—one tablet per 25 gallons every two days." The contents are given as: "Vitamins B1, B2, B6, A, D3 and E; nicotinic acid, sodium chloride, chlorine and calcium pantothenate." No quantities for any of the contents were given; I wish they had been as I would not be too keen to add quantities of sodium chloride (common

salt) to my freshwater tropical aquaria without good reason. A minor complaint, similar to one I made about a similar product in a previous review, concerns the fact that each tablet is intended for such a large volume of water. I imagine that the majority of tanks kept by the average aquarist contain a much smaller volume of water than 70 gallons. However, I found that the Vitex tablets could be broken into halves and quarters without much difficulty. Much smaller tablets, suitable for 5 and 10 gallons of water, would be much handier: one could add the appropriate number to a given tank without having to break the tablets up into pieces.

It would be unwise to make any total evaluation of the benefits to be gained from using Vitex without having made extended, controlled experiments.

B. WHITESIDE.

Featuring an ocean-like water flow pattern, a new 120 gallon culture system for marine invertebrates and fishes that is said to hold and maintain even delicate marine animals for an indefinite period, is announced by Aquarium Systems, Inc., Eastlake, Ohio.

The **Instant Ocean CS-120 Culture System** makes controlled marine studies or classroom displays possible anywhere in the world. It requires a minimum of care and maintenance and is virtually automatic in operation. It controls all the important marine life-supporting parameters such as water temperature, oxygen and pH buffering plus the removal of carbon dioxide and nitrogen wastes. All that's required to complete the tank is Instant Ocean Synthetic Sea Salts (provided), tap water and marine animals.

Called the Instant Ocean Model CS-120 Culture System, it incorporates Aquarium Systems' patented subgravel air-lift system in all corners of the tank to produce the highly desirable water current found in the ocean. Ideally, the glass enclosed top is completely removable. Model CS-120 also features ¾-inch glass viewing windows on its two main panels. It is supplied complete with 200 lb. of Instant Ocean Filter Mix and subgravel filter plate in place. It also has a handy built-in drain.

Other unique features of the CS-120 are the four (4) independent air sources which motivate water movement while simultaneously aerating the water. Each unit is complete with a condensing assembly and case-compensated thermostat that reputedly maintains ambient to 35°F (3°C) temperatures (±1°C). The CS-120 is made of high quality plastic laminated marine plywood will all instream components non-toxic and non-corrosive. It is 48in. wide, 24½in. deep, 51in. high and its shipping weight is approximately 500 lb.

For additional details, write Aquarium Systems, Inc., 33208 Lakeland Blvd., Eastlake, Ohio 44094.

Metaframe Aquascapers, described as being "true replica plastic plants," and made "expressly for Metaframe in Hong Kong." They are distributed in the U.K. by Keith Barraclough Aquarist Ltd., 568 Great Horton Road, Bradford BD7 3HW. The plastic plants are produced in the following sizes: 5in., 8in., 12in., and 15in.; at the following prices, respectively: 32½p, 54p, £1·00 and £1·47½.

For review purposes I was sent a sample specimen labelled "Crimson Lace"—*Microcladia coulteri*—the habitat of real plants of the species being given as the Pacific. The plastic specimen I received was 8in. high and was made of a dull red coloured plastic. it had four branching stems, the bases of which ended in a holdfast fitted into a white plastic 'dish' for burying in the gravel to hold the plant in position in the aquarium. The holdfast and the habitat indicate that the specimen represents a marine *alga*—i.e. a seaweed.

I must admit that I do not like plastic plants any more than I like plastic divers or sunken galleons; however, I would agree that certain tanks—e.g. those housing plant eating or digging cichlids, and certain marine aquaria—look better when decorated with good quality plastic plants than they do if left bare. The "Crimson Lace" plant I received was well made and, no doubt, would look quite convincing if sited in a marine tank with a variety of other red, green and brown plastic plants. I should imagine that the

freshwater "Aquascapers" in the range would be at least as convincing as the marine sample. The package in which the specimen I received was contained stated: "True replicas of aquatic plants . . . Artfully crafted under the guidance of professional aquarists at Metaframe. Molded of polyethylene, a safe-for-fish plastic that lasts for years and years. Now . . . decorate your aquarium naturally."

Although I do not think that a plastic plant could ever be called "natural," I would say that Metaframe "Aquascapers" are at least as convincing as any other artificial aquarium plant that I've seen, and I would recommend their use to those who, for whatever reason, cannot grow live plants in their aquaria.

B. WHITESIDE.

MYER'S CATFISH

by Bill Simms

THERE are many *corydoras* species available, so it is not surprising that sometimes they are confused with each other. It is possible that there are plenty of aquarists in this country who have Myer's Catfish in their collection, but who purchased it under the name of *C. rabauti*, for these are sometimes confused. *C. Myersi* comes from small tributaries of the Amazon, well up river, while *C. rabauti* is a smaller fish from a different area.

C. myersi is just over 2in. long when fully grown, and prefers a neutral to slightly alkaline water at a temperature of around 76 deg. F. It is entirely peaceful in a community tank, although it is a little more active than some other of the *corydoras*. Its colour is reddish to yellow brown, with a dark stripe along its upper parts and the base of the tail. It will take all sorts of food, but because it remains more or less at the bottom, care should be taken to see that other fish do not take all the food on its way down. A catfish does not feed on the mulm at the bottom, but is merely searching it for proper food.

When a pair of Myer's catfish are kept in their own aquarium it is possible to watch them spawn. Pay great attention to the water neutrality and temperature, and see that there are stones as well as sand at the bottom. With the fish in good condition they both become more active and during this activity a portion of stone (or the glass side of the aquarium) is cleaned off. Then the male lies on his side on the bottom. Do not imagine that events have proved too much for him—it is merely his lazy way of taking part in the procedure.

The female approaches and nuzzles his vent so that he releases sperms. At the same time she releases a few eggs from her vent into a pocket formed by her ventral fins, and there they are fertilised. She then moves to the previously cleaned spot, mouths it to make it sticky, and presses the eggs to the sticky spot with her belly.

When the resulting young are very small their colours are totally different from those of the parents, for they are green at the front and red at the rear. This bright colouring may have something to do with protective camouflage but it does not last. As the youngsters develop the green of the front part darkens to a very dark green and changes shape to the long dark stripe, while the red fades to the yellowish-brown of the underparts so that the youngsters become like their parents.

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, TWA 8BN.

For the past few years Mr. Graham Cox has undertaken to answer all queries sent to the *Aquarist & Pondkeeper* under the above heading. Additionally during this period many queries were privately answered by Mr. Cox which had nothing to do with marine fishkeeping but concerned tropical freshwater fishes and pondkeeping.

Owing to pressure of business Mr. Cox has been forced to advise us of the following:—

> In future the only answers which will be issued to readers will be duplicates of only those letters which are printed in this magazine. That is to say, that the previous practice of privately answering *all* correspondence sent to him, irrespective of whether we printed the reply in the *Aquarist & Pondkeeper*, will be discontinued.
>
> No casual correspondence directed to Waterlife Research Ltd. or SeAquariums concerning aquarist problems can be replied to.

Graham Cox has asked that we accompany this decision with his expressed regrets at being forced to make this unwelcome decision.

Ten days ago I bought from my local dealer what he described as a Coral Lobster. Soon after it shed its skin, which I have enclosed. I would like to know the following:—

(1) What is it?
(2) Where does it come from, and how big does it get?
(3) Is it safe with a *Pterois volitans*, and what else could I keep with it?
(4) How often does it shed its skin and what should I feed it on?

I keep it in a 36 in. × 15 in. × 12 in. all-glass tank with one of your high powered U/G filters and a *Pterois volitans*.

This is, in fact, the so-called Purple "Lobster" (actually a crayfish or clawless lobster)—*Palinurus versicolor*. This shedding of the skin (ecdysis) is quite a normal manifestation of the fact that a crustacean is growing up, i.e. as the exo-skeleton becomes too tight for the growing animal inside, it (the exo-skeleton) ruptures to allow the larger animal to emerge from within. Provided that your pH is kept nice and high, i.e. pH 8·1 to pH 8·3 (or lilac-purple on the test kit in other words), by regular weekly use of "SeaBuff" and a 25 per cent water change every 3-4 months, you'll find that the newly-emerged lobster has no difficulty in hardening off its new exo-skeleton. The alarming "modern" tendency to buffer seawater on the alkaline side by means of sodium bicarbonate or sodium carbonate is to be deplored. This is only serving to increase the sodium ion (Na^+) content of the seawater, whereas in fact the alkaline reserve is made up of *calcium* (Ca^{++}) and magnesium (Mg^{++}) ions. The full implications of this to your lobster is that he *cannot* use Na^+ to harden his new exo-skeleton—only Ca^{++}, and silicon. *Palinurus versicolor* is fairly common throughout the Red Sea and the whole Indo-Pacific area. I have caught them as far afield as Eilat (Gulf of Aqaba in the Red Sea) and Mindanao (South of the Philippines). *However, one only rarely sees specimens as large as yours!* I think it is therefore reasonable to assume that your specimen is nearing full-size at about 8-10 in. overall.

It is quite safe with a *Pterois volitans* for as long as it remains larger than the *volitan's* mouth. You could keep any common coralfishes *except* Triggers, Boxfish, Diodons or Large Groupers with it.

The precise time interval between ecdyses depends

largely on the quality of your seawater and the quality of its diet. These crayfishes, like most other crustaceans are essentially scavengers and will eat almost anything, but are especially fond of unspoiled prawn-flesh.

KEEPING MALAWI CICHLIDS

Pseudotropheus auratus

by David J. Saphier

THE FIRST Malawi cichlids that I bought, were a pair of fully grown *Pseudotropheus auratus* which were in very good condition, taking into consideration the recentness of their importation. They were just £4·50 for the pair which, according to some adverts, was at the time very reasonable. As I had been waiting for a long time to get a pair of Malawis—preferably *P. auratus*—I did not hesitate in buying the best pair I could see which, in a tank full of the same fish, is no mean task!

At the beginning of February (1971) when I heard that a large consignment was due any day, I began to prepare a 36 in. × 15 in. × 12 in. tank for its occupants to be. I planted it out with about two dozen Vallises. I also adjusted the pH to exactly 7·6 and got all the stones and gravel recommended in various articles and books which I had read prior to getting these fish. These stones included pieces of crystalline rock along with a good choice of slate caves. As well as all this, I got a dividing glass to keep them separated in order to prevent unnecessary fights that may have occurred. However, I later took this glass out completely as I found that the fish were quite amiable towards each other. The water was kept at between 78° and 80°F. at first although I later raised it to 80° or 82°F. when they had settled in properly. After I got them, they ate very well and became tame enough to feed from one's hand after a matter of two or three days. The female got fatter and fatter and I used to fancifully imagine that I could see an ovipositor sticking out. I let them in together about three times a week at first but as I noticed them becoming quite friendly towards one another, I let them in together permanently. In April I bought a small pair of *Lamprologus petricola* and these were put in with the *auratus* who could easily have eaten them but who, I guessed correctly, would leave them well alone. 5 days later—on April 15th—I bought a pair of *P. tropheops* which were also put in the tank with the *auratus*. There was no more trouble other than the odd nip from the *auratus* who were, quite evidently the bosses of the tank.

On Whit Sunday, the 28th May, I went to look at the tank—and its occupants—and to my surprise I saw that the great day had at last come. The two fish were busy spawning on a bare patch of gravel in the middle of the tank. I must have arrived right at the start of their activities as they took very little notice of me and went straight on with their spawning without as much as a break in their flurried activities on the bottom of the tank. I sat watching them for almost an hour and in that time I was able to record, in reasonable detail, their spawning procedure which went as follows:—

The male went up to the female who was to be found, usually, in one corner of the tank and, with fins spread to split, he trembled violently in front of her. He then darted to the spawning sight with the female usually following close behind. They then took up the characteristic 'T'-shaped position, the male nudging the female above her vent while she trembled very slightly. This action caused her to release her eggs a few at a time. When she had released her eggs, she spun round on them and picked them up in her mouth; after she had done this the male turned so that his vent was near her mouth. He then curved his body slightly towards the female and, trembling violently, released his sperm which the female, who was mouthing the area aroung his vent, took into

her mouth. The egg must be fertilised within two minutes of 'laying' or else the egg wall hardens and it cannot be fertilized; for optimum results it must be fertilized within half a minute. So, it can be seen that the whole process takes place at great speed. This was then reversed, the male nudging the female once more and so on. Whenever the female broke away, the male rushed after her and enticed her back until she was quite empty and her mouth was quite full. I left her in the same tank for two days during which she was left completely alone by the male and after this she was moved to an 18 in. × 10 in. × 10 in. tank where she might as well have been hibernating, as she hardly moved at all for the next three weeks.

On June 19th she let the young out; this she did in the early morning and I only saw a very few before she sucked them up again into her mouth. That afternoon they were all out again and evidently they were out to stay. For, when I fed the mother with a lot of *tubifex*, she did not seem at all worried by my presence but after I left (so as not to disturb her too much) she must have eaten about ten of the fry. This is something I have not heard of before with Malawis and so, when I went back and found only 21 left, I immediately took her out and put her in a different tank on her own in order that she might come back into breeding condition.

The young when they were released, were about ¼ in. long and were very active, but at night they always huddled together under a large rock. A week after being released they had grown about ⅛ in. without any food other than brine shrimp and *algae* which I allowed to grow in profusion. I also saw several small worms wriggling in the *algae* which may have contributed to their growth. Unfortunately, a week later the female died. She had not eaten anything for six days and her whole body was covered in layers of mucus which was to be seen trailing over all the plants. Nothing I did could cure her and she finally succumbed.

"I've been watching your CLOWN FISH for ten minutes and I haven't laughed once!"

VIEWPOINT

by A. Jenno

THE article in the May issue by Mr. Zaczeniuk on Koi-keeping in ponds was most interesting and informative. It can be seen that some specialist cold-water aquarists are at last setting up pools with proper environmental control systems, spurred on no doubt by the cost of the larger, better quality specimens of Koi and other varieties. Here we have a definite parallel with marine aquatics. In both cases the fishes are expensive, and plants which might maintain the environment in good condition cannot be included for various reasons. Thus serious aquarists are forced to find other methods, utilising apparatus and artificial techniques, to substitute for the old standby of massed plant growth. It is also likely that every aquarist whose prime interest is in fish will invariably wish to crowd his environments with larger populations than occur, volume for volume, in nature, and so these methods and their full understanding take on an invaluable importance. The expert marine fish-keepers, in particular, have carried out much research and their findings can benefit us all, even if we are only keeping the very commonest of fishes.

Readers will see from the advertisements and other items how chemicals originally developed for marine use are finding their way into the other fields with beneficial effects, and should realise that the other techniques can be similarly copied to advantage. Mr. Zaczeniuk's point about the ability of large Koi to eat oxygenating plants is well made. Koi are the "in" thing at the moment with many pool owners, and so people must remember that when the fishes grow to a large size, which they can do quite quickly, then living quarters may need to be provided with some means of artificial maintenance if the environment is well populated. The article mentions both mechanical and biological filtration systems, and something called a "Koshihara" filter whose method of operation is not explained in the text. I am sure we would all like someone to tell us what it is and how it works. **See Final Footnote.*

One method of combining artificial assistance with decorative appearance is to build a nice waterfall by the pond and to install at the top a large filter instead of the normal holding pool. A deepish container should be used, say a foot, and in this an efficient reverse-flow biological filter can be built. The outflow pipe from the waterfall pump is simply installed so that the water is directed onto the bottom of the container underneath a deep gravel bed, say about four inches. The water will then rise through the gravel and overflow down the waterfall when the container becomes full. A preliminary mechanical filter or strainer on the pump inlet will stop any great build-up of large debris in the gravel bed (and will also protect the pump), so that the filter can develop a good biological function. One point concerning this system is that if the pump stops, or is only used intermittently, then the filter container will empty at each stoppage due to the water siphoning back into the pool through the pump and it's piping. This action might tend to flush the contents of the mechanical filter back into the pool. Some kind of non-return valve is needed and there does not seem to be one available on the aquatic market at the moment. It is therefore important to run the waterfall continuously and to use a reliable pump with dependable electrical wiring and connections. The biological action in the filter requires a constant circulation situation anyway. I have a "prototype" system running, using a refrigerator liner suspended over a 48 in. × 48 in. × 24 in. deep fibreglass pond, and powered by an Otter pump. The results so far are very encouraging.

Mr. Whiteside's reply to his correspondent Mr. P. Wilson, on the subject of plant growth combined with the presence of a sub-gravel filter, raises a favourite controversy once again. It is my firm opinion that aquatic plants cannot grow at their best when planted directly into the filter bed of an efficient biological system. An understanding of the effect and action of the biological filter on the nitrogenous waste material occurring in aquaria will show that there should surely be no appreciable nitrate content in the filter bed to act as plant food. This is my primary objection to such a combination. Others concern the unnatural circulation and the development of oxygen-rich areas around the plants' roots. Many aquarists will immediately claim that they do get lush plant growth with sub-gravel filters, but in my experience (and in every case), these filtration systems are inefficient through clogging with debris, insufficient air supply, or for other reasons such as bad initial design of installation. The filter is thus inactive and might as well not be there at all. At the other end of the

scale are those aquarists who have sparkling clean tanks but confess that they are unable, for some unknown reason, to grow plants well. These are those whose biological systems are working efficiently and doing their proper jobs. The mysterious lack of ability to grow plants is not due to any personal failing of the aquarist concerned, but is rather an indication of the efficiency of the filter system. Mr. Cox's comment that a one hundred-odd gallon tank may need a filter with two two-inch air lifts and a relevant air supply (Marine Queries), shows just what can be involved in relation to the volume of water present. It would be interesting to find out where such monster filters can be bought. Presumably we must make them ourselves from corrugated plastic roof sheeting and plastic drainpipe.

I was recently asked to sort out a large aquarium in a Birmingham public house. The tank was 48 in. × 24 in. × 18 in. and contained three very large Oscars, a similarly sized male *Tilapia mossambica*, a pair of Severum, three Gouramis, a large *Hypostomus*, and a good-size Armoured Catfish. Any fish which swam to the centre of the tank disappeared from view, and the whole thing was in a very sorry state. A complete strip-down and restart was the obvious answer, especially after the information was volunteered that the fishes were usually fed "about a handfull" of chopped prawn and whitebait every day from the chef's supplies. The fishes were temporarily housed in a new plastic dustbin and the operation started. Algarde sub-gravel filters were installed with a gravel bed of about three inches depth and two largish columnular rocks were added for decoration. The filters were given the whole of the air output from a large Rena pump between them, and the landlord was given instructions on proper feeding. I would have removed half of the fishes to ease the situation but they are apparently virtually on the brewery's inventory. The fishes were all past the prime of life so a diet of the large Pond Pride pool pellets was recommended to allow an easily regulated feeding programme in the hope of stopping the prime cause of the previous pollution. I mention this little story as a good example of the kind of situation a willing aquarist can get into when dealing with other people's fishes. Like the theatrical saying "the show must go on," and so all kinds of miracles are expected and perhaps this is a good thing in some ways because it forces us into ideas and experiments which we would probably never think of in our own aquaria. If this particular case is successful over a long period it will certainly confirm my belief in the efficiency and beneficial properties of the biological filtration system. One interesting point which arose during the conversation was that when another make of sub-gravel filter had been tried previously, the *Hypostomus* would suck his (or her) way up the lift tube and at about two-thirds of the way up, the resulting pull would be sufficient to withdraw the pipe from its rather badly fitting junction, thus rendering the filter useless. I am hoping that this will not happen with the Algardes because it is almost impossible to avoid getting gravel under the filter plate when this happens and during the subsequent refitting.

I include a short article taken from the May newsletter of the Tamworth Killifish and Aquarist Group, with acknowledgement to the author, Mr. M. J. Nightingale.

"MICRO EELS are an ideal first food for killies, livebearers and many of the larger egglayers. They are also an excellent second stage food for the small varieties of egglayers (tetras, danios, etc.). They are smaller than both newly hatched brine shrimp and micro-worms and have the added advantage of living in the water until eaten.

To set up a micro eel culture you must first obtain a starter culture in a vial or similar container. This starter culture is added to a solution of golden syrup and water. The solution is made up as follows: To each pint of water add one desertspoonful of syrup. To this solution add the starter culture and keep at a temperature of 18°C (64°F)-24°C (75°F). Cover the culture and allow to stand for three to four weeks. During this time the solution will turn milky and then settle and millions of eels will be seen swimming mainly near the surface. The culture is now ready to feed. The best method of feeding is to make a net with a handkerchief and transfer eels from culture medium to fry tank with this. The culture should be good for a period of three months. Fresh cultures can be made by repeating above and taking a vial from your old culture.

A word of warning about the initial three to four week period: During this time the culture can have a rather unpleasant smell, it is therefore not practical to set up a culture in your home."

I have personally tried the method outlined and must say that the process has been an unqualified success. The eels appear to be an excellent food and the method is simple in the extreme. As with any of the cultured foods, the maintenance of the required temperature is important, and this is one point where otherwise careful aquarists often fall down. While it may be some trouble and expense to provide heated and regulated containers for live foods, it is essential if good yields are expected. The eels, and brine shrimp too, for that matter, will always develop far better if their production processes are carried out in small aquarium set-ups instead of just being stood on top of a large aquarium to gain heat by transference. In a space-heated fish-house, of course, things are

Continued on Page 191

From a Naturalist's Notebook

by Eric Hardy

IN THESE DAYS of constant pollution risks it is interesting to note the recent effects of the acidification of some 3,000 lakes within 80 km. of the Swedish west coast. In the last two or three decades the pH has been lowered by as much as 1·8 to below 6·0 in half of them and below 5·0 in a quarter. Most of the diatoms and green *algae* disappeared below 5·8, most of the *Daphnia* below 6·0, while roach, minnow, arctic char and trout disappeared with the acidification. Less sensitive perch and pike were strongly influenced, but eels were least sensitive. Crayfish were very sensitive to the change.

A scientific study of this change found the reproduction of roach inhibited when the pH fell to just below 5·5. The fish disappeared at a pH of 5·3-5·7. With increasing acidification, perch changed their diet from small fish to invertebrates, then from water hog-louse to water-boatmen. Almer, Dickson and Miller also studied the effect on plankton. Among rotifers, *Conochilus unicornis* appeared less adapted to acid water than *Polyarthra remata* (dominant with water below 5·5), and *P. remata* (dominant when above 5·2), both occurring at 4·2. Among water-fleas (*Cladocera*), *Bosmina coregoni* tolerates a wide range from as low as 3·3; but all *Daphnia* observed were sensitive to low pH, *cristata* being common above pH 6 but with few below that; *cucullata* wasn't found below 7, and *longispina* was sensitive to 6, and harmed at 5·3. *Bythotrephes longimanus* water-flea is a common fish-food in acid lakes; but as a higher pH encourages more fish, it is then depleted by more predation.

Regarding most plant plankton, phosphorous content seemed to have more influence than acidity, which generally slows down production. *Algae* are influenced, the *Pyrrophyta* dominating about pH 4·0 with a few *Chlorophyceae*. The pH has to be above 5 for diatoms to appear in algal blooms; pH 6 is most widely favourable to *algae*, while below 5 it is limited to some ten species of chlorophyceans, and chrysophyceans, then the floating filiform *alga Mougeotia scalaris*. Few Chlorophytes are found below pH 5.

Moving to reptiles, Soule and Kerfoot at the University of California have shown an interesting link between climate and scale-size in the *Sceloporus* lizard. In Oklahoma Landreth has force-fed rattlesnakes with radio transmitters and traced their movements for two years. The western diamondback species is active at midday in winter, early morning and late evening in spring and autumn, and at midnight in summer. Migrations to and from dens occur in spring and autumn, while summer ranges remained between 1 and 2 km. from the den. Rattlesnakes didn't wander and only moved on directed courses. Orientation tests showed they were guided by sun position and by this means learned routes.

At Western Reserve University, Cleveland, Pritz, Bass and Northcutt have devised a simple apparatus to train and teach turtles to perform visual recognition tasks. At Sarasota (Florida) Marine Laboratory, hatchling loggerheads were taught to discrimate between various broadbanded cues to obtain food. Meanwhile, tagging green turtles nesting in Surinam in the Guianas showed their feeding grounds were away near Ceara in Brazil, while olive Ridley turtles nesting at Surinam scattered over 3,800 km. of northern South America. One leatherback was recovered across the Atlantic in Ghana.

Leeches aren't popular in tank or fish-pool, because of their predations on small fish. There's a simple way of trapping them overnight which isn't mentioned in the hints on pond-dipping in the recent "Save the Village Pond" booklet. If an old plant-pot is lowered upside down on string into the garden pool, it can be examined daily for these pests which collect underneath. Surplus earthworms for chopped fish-food can be kept in 6 or 8 in. box of soil kept moist with a glass or polythene cover, by the way.

The common horse-leech must be tough to survive some habitats. One found in a drain at the Grangemouth works of a Scottish dye company years ago was living in a liquid consisting alternately of boiling weak acids, boiling caustic alkalis, chlorine and bromine liquors, liquors containing organic nitro bodies, and organic sulphur compounds. The space above the liquid was often charged with sulphuretted hydrogen, sulphur dioxide, chlorine, bromine and other gases poisonous to man, but apparently not to the leech below. It went to the Carnegie Aquarium. Medicinal leeches were collected almost out of existence from the British countryside last century; but two were collected in Cheshire (Wirral) in 1920 and their use isn't quite so historic. In 1940, they were used to cure a hopeless case of acute biliary colic when all other efforts failed and the patient was in a coma. The details were in the *Nursing Mirror*, 30th November, 1940. As well as these freshwater leeches, Britain has 12 species of marine leeches. The first piscoid leech modified to attach to the fin-rays of the common long-spined sea-scorpion was found a few years ago off Angelsey's Rhoscolyn, and Isle of Man's Port Erin. A new species

and genus, *Arctobdella*, was found parasitic on the long rough dab trawled off Iceland.

The recent run of mild winters have been very favourable to the coypu or nutria, widely established in the reed-beds of Norfolk marshes and broads, as I found on recent visits to Cley bird-reserve on the north coast, and Hickling and Barton Broads. Extensive cutting of their reeds is still practised, and this year this left insufficient cover for bitterns at their usual nesting haunts at these places. Water-violet (*Hottonia*), which isn't a violet, was flowering abundantly in May and June in the Barton great fen dykes by the public footpath below Fenside, below Catfield Hall, off the main A149, where I've also seen bladderwort's yellow flowers and, on the drier land nearby, fine clumps of royal fern. I again walked dryshod through reedbeds on the west bank of 650 acres Hickling Broad, like Swim Coots by the old pumping mill below Decoy Lane, normally the watery haunt of bittern and bearded tit. The reedbeds were equally dry below the high bank path around the far side of Whiteslea Mere, a long, easy public path signposted public halfway down Decoy Lane, which in turn signposted "No Through Road" at Rookery Farm, below Catfield.

Coypus must be formidable competitors for the native water-voles in Norfolk. Fortunately they are absent from the Cheshire Dee where water-voles and brown rats increased greatly with the modern extension of Spartina cord-grass, whose creeping stems they eat. At the Dee steelworks an area of open cooling water lagoons, banked with clinkers, gradually became overgrown with reed-mace or *Typha*, commonly misnamed "bullrush." This in turn increased the water-voles which fed upon its creeping stems until the beds were marked with their feeding places. Reed-mace, incidentally, is almost fatal to introduce to ponds and pools as it soon spreads and takes over the water with a thicket of growth. In a recent tour of Shropshire pools and ponds I found that reed-mace has almost completely covered the once mainly open water of the large Shrawadine Pool at Shrawadine Castle Farm, near Shrewsbury, and the lake at Winsley Hall near Minsterley. The former is Salop's main nesting haunt of shoveller duck and water-rail.

VIEWPOINT

continued from page 189

easier. The fairly common practice of floating jars of brine shrimp eggs in populated aquaria to achieve heating inevitably leads to a salt build-up in the aquarium, and the result of a similarly-heated micro-eel culture being accidently overturned can only be imagined.

About two months ago I "discovered" Java Moss, having cadged some from a friend thinking that it was some type of Nitella. The moss is attractive, easy to grow in dim lighting, and can perform several useful functions in aquaria which do not otherwise have plant growth. When first installed in a tank it is difficult to plant decoratively as it becomes entangled upon handling, but if a mass is simply thrown in (it sinks) and left alone it will develop into a beautiful clump after about a month and will expand quite rapidly. It will also grow well on Westmoreland Stone, and presumably other rocks, and can thus be used in crevices above the aquarium floor if desired. It will be found to be ideal cover for ground-hugging newly born fishes such as Platies as they can easily penetrate far into the plant away from the attentions of the bigger fishes. Another novel point is that it will easily grow on and around the grilles fitted in the bottoms of my large breeding traps to provide extra escape routes for the fry, and a further advantage in this situation is that any adult fishes kept in the traps permanently are far less neurotic through such close confinement if they can hide behind a thick clump when approached closely. They also have some green stuff available to browse on, which is otherwise lacking in such environments. I have also used it in tanks with bare glass bottoms, and although it grows well it does not root, of course, and so is easily rolled about by large fishes searching for food underneath it. This treatment tends to spoil it's appearance but does little other harm. All in all I find it a most useful plant and would encourage readers to try some if it can be obtained.

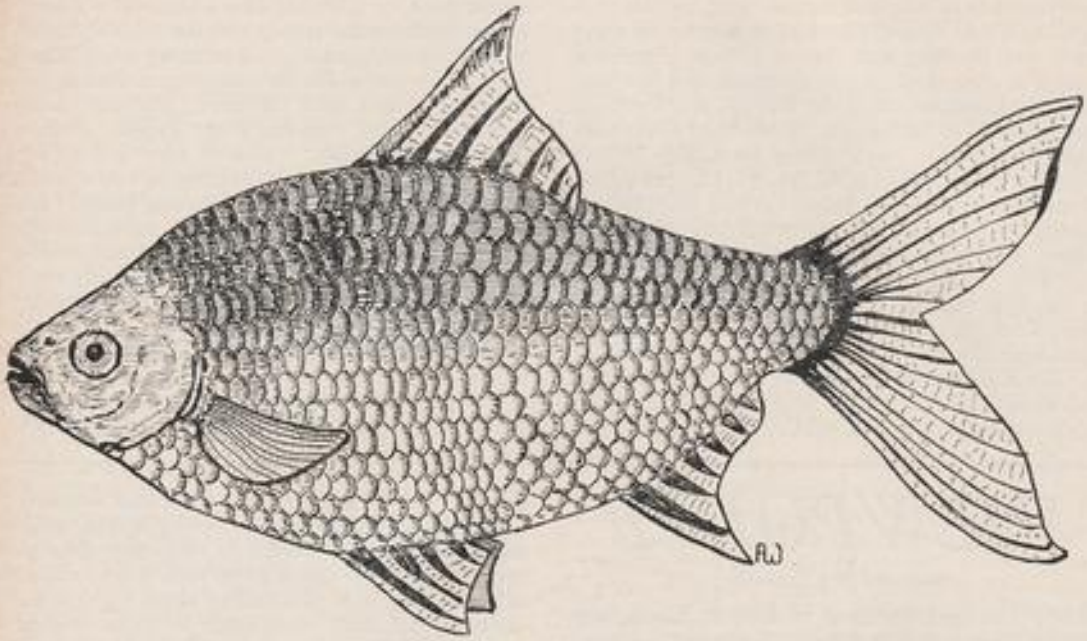
** An article on the Koshihara filter will appear in a forthcoming issue of "The Aquarist".*

THE GOLDFISH

You, in your world within a bowl of glass
Gaze at me in mine, with bored indiff'rence.
What purpose as you circle there? I pass
And you look . . . staring with glazed insolence.
I tap the bowl with finger-tip. You hide,
Darting into the writhing fronds of green;
Only to glide in view the other side . . .
As though my very presence had ne'er been.
In all your shining glory, armour gold;
You swim and dip and dive, with not a care
In your world as I have in mine! So bold
Contemptuous, and arrogant you stare,
You are admired . . . another pet to feed.
Reincarnation? If I had my wish
I'd choose your life. Yes! be another breed
And swim in a glass bowl . . . be a Goldfish.

MURIEL WILSON-PINNEY.

Junior Aquarist



TINFOIL BARBS— GOLDEN GEMS OF THE FISH WORLD

Written & Illustrated by Ann Walker (Aged 17 years)

IT WAS IN June 1971 that I purchased my first Tinfoil Barb. Like all young Tinfoils it possessed the shining silvery scales that give this species its name. My specimen was about three inches long. Its fins were tinted with black and yellow, and although not brightly coloured, it added excitement to my 18 in. tank that previously contained only the usual varieties of livebearer and catfish. I soon found that my "pet" had a rather large appetite. Daily, it consumed twice as much food as the rest of the fish in the tank put together.

Then, about three weeks later, I bought a companion for the quick-moving, shining fish that I was becoming so attached to by now. This second fish was, like the

first, glistening like silver foil. It was about two and a half inches long and just as adorable as the other elusive Tinfoil. I removed the swordtails to give the two fish more room, along with the other inhabitants, guppies, mollies and catfish. The two Tinfoils were left to share their home with two sucking loach.

Between the two of them they got through about a tablespoon of flaked food a day. The plants, little in evidence when the second Tinfoil arrived, were now non-existent. I learnt, all too late, that Tinfoils are, basically, vegetarians. Because of the relatively high cost of flake food I began to look for something else to feed them on. I decided to try them on earthworms and white worms. Both these foods proved acceptable and my stock of white worms was soon depleted. I was left with no alternative but to dig for earthworms every day!

By October 1971, they were about four inches long, and still growing. Suddenly, one day whilst admiring their sheen, and watching their playful chasing, I noticed that one of them had something in its mouth that looked all too much like the tail of a sucking loach! Net at the ready, I chased the unfortunate fish, until it dropped its prey, which was indeed a one and a half inch sucking loach. It was time for the big change round!

As well as my eighteen inch tank, I had a three foot tank full of guppies, swords and various tetras, and another eighteen inch tank containing gouramis. I did a switch and moved all the fish from the three foot tank into the two eighteen inch tanks. The two Tinfoil barbs then had the three foot tank in the company of a new addition, a large *Hypostomus* catfish.

All through the winter of '71 to '72, the Tinfoils, lived on flake food and tablet food, with occasional treats of chunks of wet fish from the fishmongers. By March 1972, they were about five inches long. At this time, confronted with the three foot tank containing only three fish and having a little money to spare, I purchased a pair of Blue Acaras to share the Tinfoils' home. All was well, until the Blue Acaras, which were adults of about four to five inches long, decided to spawn. The male kept the Tinfoils at one end of the tank for about three days, after which the eggs were eaten.

At intervals the Blue Acaras kept spawning and in July 1972 they succeeded in curbing their desire to eat the eggs and the young Acaras hatched. Deciding to give the Blue Acaras a chance to raise their young, I removed the Tinfoils and the catfish to a recently acquired two foot tank. Whilst in this tank they were fed on flaked food with the occasional earthworm.

By August the young Acaras were big enough to be put in a separate tank. After first removing all the young Acaras from the three foot tank, I released the Tinfoils and the *Hypostomus* catfish. The Tinfoils were glad to be back in their old home, and darted continuously from one end of the tank to the other. By now they were six inches long, and were beginning to take on a golden hue and develop red colouring to their finnage. It was at this time that they had feeds of, perhaps, a dozen small sticklebacks a day. Sticklebacks, I have since been informed, are harmful to their health, so I have ceased to use them as a food. They also got through enormous quantities of earthworms, tablet food, and flake food, and grew at an even faster rate than before.

By Christmas 1972 they were seven inches long, and had further developed their golden hue and red fins.

After this amazing spurt of growth, they seemed to slow down. By now the smaller of the two was barely a quarter of an inch smaller, and the fact that it was smaller at all was hardly noticeable.

For the next six months they had large feeds as before, with the addition of a clump of wasted pond weed from our garden pond. It was amusing to see them swimming about with a piece of pond weed sticking out of their mouths! It was not so amusing, however, when they ate an expensive, large *Cryptocoryne*, that I bought in the hope that their taste was limited to *Elodea* and *Vallisneria*. It took them just two days to eat the whole plant, which was about fifteen inches tall!

By June 1973, they were eight inches long and I was beginning to wonder if they would ever stop growing as the tank was already too small for them. Then in July 1973 the female Blue Acara died, the male pined, and he too died just three months later. Although their deaths were tragic, they also meant that the Tinfoils had more swimming space.

The power filter, that had been in use in the tank suddenly packed up and was found to be unrepairable. With little money to spare, and certainly not enough for another power filter, I invested in an air-operated filter, which I operated by one of my collection of pumps. At a later date, I bought a large pump to operate the three foot, and the two eighteen inch tanks put together.

In November 1973 the Tinfoils were nine inches long, and although consuming large amounts of flake food and pool pellets, had definitely cut down on their intake of food.

Now, in April 1974, they are ten inches long, and are truly beautiful, with a golden sheen and bright red tail fin, pelvic and anal fins. A six foot tank would be nice, and it would certainly allow them more freedom of movement, but space is limited. If the weather is good this summer, I will probably give them a treat, and put them in the garden pond for a couple of months. Yes, I would definitely recommend Tinfoil Barbs to anyone who has the space and the time to dig up worms to feed these swift-moving golden gems of the fish world!

HERPETOLOGICAL NOTES

by Stephanie Peaker

NORTH AMERICA provides the collector with a rich source of attractive and desirable specimens. Of these the king snakes (genus *Lampropeltis*) are extremely popular and the less commonly imported forms are greatly sought after. In many respects king snakes are ideal because they are easy to keep and feed as well as being attractive and active.

King snakes are well known because of their habit of killing (by constriction) other snakes and eating them. This includes the venomous rattlesnakes to whose poison they are relatively immune. The fact that they do prey on other snakes means that king snakes should not be kept with other snakes. Indeed, a king snake attacked a larger Royal Python with which it was housed for a few minutes while a vivarium was cleaned. However, similar sized king snakes can be housed together provided that they are well fed and that plenty of food is offered. Apart from snakes of course they eat rodents, lizards, birds as well as eggs of both birds and reptiles.

Californian King Snake showing typical patterning.

Most specimens imported belong to the species *Lampropeltis getulus* which is also known as the Chain King Snake. There is, however, such a wide variety of sub-species extending across the continent and which display entirely different colour patterns, that it is necessary to know the sub-species in order to be certain of what will arrive from the dealer. Those imported are likely to belong to one of four sub-species, although it must be remembered that many other sub-species are recognised and that, in common with other North American reptiles, intergradation is the rule. The first, the Eastern King Snake (*Lampropeltis getulus getulus*), is black or dark-brown with the relatively narrow "links" of the chain white or cream. This sub-species intergrades with another sub-species—the Florida King Snake (*Lampropeltis getulus floridana*); this form is extremely variable in the arrangement of the pattern. The Speckled King Snake or "salt-and-pepper snake" ((*Lampropeltis getulus holbrooki*) from the Mississippi Valley is extremely attractive with a profusion of white, cream or yellowish spots speckled over the entire black or brown dorsal surface. All these forms, together with others from the eastern parts of North America, are described in Conant's 'Field Guide to Reptiles and Amphibians of Eastern North America'. One sub-species commonly imported but which is not in this guide is the Californian King Snake from the western parts of the U.S.A. (*Lampropeltis getulus californiae*). Even this occurs in two pattern phases. The typical type is a rich brown with whitish cross bands—this is the one shown in the photograph. The other—the striped phase—is of a similar colour but instead has longitudinal whitish-yellow stripes, usually mid-dorsal, along the length of the body.

Most king snakes grow to a length of three to four feet so a large vivarium is not required. In the wild they occupy a large number of habitats—stream valleys, open plains, woods and even swamps, but they are not great climbers. A vivarium about three feet in length and eighteen inches to two feet in width is ideal for several specimens. Shelter should be provided but the cage furnishing can be very simple. For snakes such as these we prefer a fairly soft floor covering and if something more attractive than the functional newspaper or absorbent white paper is desired, then a mixture of one of the peat-based composts mixed with a good quality dry loam and sand can be used. Water is, of course, essential and these snakes, in our experience, drink a great deal; the water should be changed regularly.

The vivarium should be heated and a temperature of about 75°F seems suitable. In our opinion most snakes are underfed and under conditions of frequent feeding it is surprising how much will be eaten and how then rapid the rate of growth. Food can be offered at least twice per week and a king snake may often eat three or more mice or young rats one after the other. For example, the Californian King Snake shown in the photograph ate fifteen young rats in its first month. As with most snakes they do not feed immediately before and during sloughing.

These snakes are oviparous and lay about ten eggs. They have been bred several times in zoos and private collectors often achieve success if the eggs are artificially incubated, so it is worth choosing a pair of these snakes.

Only *Lampropeltis getulus* has been dealt with in these notes. Other species occur as far south as Ecuador but these must wait for another article.

King snakes usually settle and become very tame. They rattle their tails when disturbed and when they do this on stones they sound rather like a rattlesnake —are they mimicking? These snakes which are highly recommended are now fairly expensive. A specimen three feet in length may cost from £9 to £15, the Californian sub-species tending to be more expensive than the others mentioned.

Takydromus

The lizards with which we are most familiar in Europe, the members of the family *Lacertidae*, are very poorly represented in the Far East. One genus, *Takydromus*, has two species and we kept a group of *Takydromus sexlineatus ocellatus* while in Hong Kong. This really has no generally used common name but Long-tailed Grass Lizard and Six-lined Grass Lizard have both been used. These small lizards do in fact live amongst long grass and the very long tail assists them to move at very high speed between the stems. This species from south-east Asia and the East Indies is occasionally seen advertised and a typical vivarium with a day temperature of 80-85°F (falling to about 70°F at night) is required. They should have a place to bask and if long grass is included in the set-up the vivarium should be well ventilated. Their care, therefore, is similar to that required by the European members of the family. They are sold for about £1·50; this contrasts with the half-penny paid for our specimens in Hong Kong. They are caught there in large numbers as food for cage birds.

Hay

Tropical tortoises are often finicky feeders, especially in winter, but if they are kept sufficiently warm and out of draughts then most specimens will eat fruit, lettuce, etc. However, it is important that roughage should also be given in order to keep the digestive system in good condition. An ideal way of doing this is to chop good quality hay into short lengths and mix it with the fruit. Cabbage stems are also a good source of roughage—if the tortoises will eat them.

THE *FIRST* MIDLAND AQUATIC FESTIVAL

MANY PEOPLE were sad to learn that the Midland Open Show, held annually at Bingley Hall, Birmingham, for the past 25 years, had now come to an end. Well, let me assure new and old friends, that out of the ashes of the old show has been born the Midland Aquatic Festival. The Tropical section of the show—this includes tropical, marine, decorative aquariums and plants—are to be housed in Society tableaux. These are to be free-standing in Bingley Hall and the minimum size is 10 ft. by 8 ft. From early indication in the Midland area this appears to have gone down very well within Societies and it really looks as if there are going to be a record number of entries at this show.

The Midland Association of Aquarist Societies are to play a more active part in the M.A.F. Apart from their M.A.A.S. stand, they are also staging a theatre where every night during the duration of the show there will be lectures on some aspect of fishkeeping; also included in their programme will be the setting up of a decorative aquarium and showing the amateur how to make an all-glass aquarium. To many people this will be the kind of show the Midlands has needed for a long time, as it will enable Societies to talk about fish and their Society's problems throughout the duration of the show, and then be able to go away appreciating other Societies' points of view.

The coldwater side of the Midland Aquatic Festival is to be staged as it was at the old Midland Open Show. The Show Committee felt that the tropical and coldwater sections did not mix well in the tableau system. There are 23 classes of fancy goldfish; these include breeders' teams, single entries and matched pairs. When one reads of revival in fancy goldfish, goldfish enthusiasts in the Midland area are often amused by this description, as we cannot breed enough quality fancy goldfish to supply the demand. Enthusiasm for keeping fancy goldfish in the Midland area is still as great as it was in the early fifties. The coldwater feature of the Midland Aquatic Festival will be the annual competition between the Midland Aquarium and Pool Society and the Bristol Aquarist Society; this is a shield for the Society gaining the most points for fancy goldfish. Having seen some of the really good quality youngsters and adult fish in the Birmingham area, I can see the Midland Aquarium and Pool Society winning the shield for the fifth year running. Anyone interested in fancy goldfish and would like to see up to 300 in this competition, this is an opportunity not to be missed. Another feature of the Midland Aquarist Festival will be the Midland Section of the International Herpetological Society and I have been informed that not only are they putting individual entries in their own section, they are also staging a tableau which should be a sight to behold. the Midland Section of the I.H.S. have kindly donated cash prizes for junior members of societies showing at the M.A.F.

Junior Decorated Vivariums or Terrariums

Cash prizes of £10, £5, £2, £1. Maximum age 13 years. Any number of children may combine or show individually to be housed in 2 ft.-long tanks; other dimensions optional. It will be allowed as part of a Society's tableau or on the I.H.S. display. If the latter, they will have to become I.H.S. junior members. The ideas can be: Desert, Woodland Bog, Shoreline, or Aquatic Terrariums, can contain non-venomous snakes, lizards, frogs, toads, newts, terrapins, tortoises, salamanders or axolotils. Can be suitably decorated with any natural material, e.g. rocks, plants, moss, gravel, sand, soil, etc. Judged by I.H.S. Judged on impact, ingenuity, layout, condition of exhibit. To all readers of *The Aquarist*, whatever your interest in the hobby, you will find something to your liking at the show. Adequate car parking facilities and plenty of good class restaurants are in the vicinity. There is also a licensed bar and cafeteria at the show. So why not make a date from Thursday, 16th August, to Saturday, 18th August? When you have been once it will then become an annual aquarists' pilgrimage.

News from AQUARISTS' SOCIETIES

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

THE third annual Open Show of the **Gloucester A.S.** was held recently and there were over 400 entries. Results: Guppies (Male): 1, J. Colis (Stroud); 2, P. Greenwood (Bishops Cleeve); 3, C. F. Whittaker (Stroud). Guppies (Female): 1, Mrs. K. Press (Bath); 2, B. R. Goll (Evesham); 3, W. Burton (Trowbridge). Mollies: 1, R. Helder (Bishops Cleeve); 2, B. E. Cureton (Malvern); 3, C. Pratt (Bedworth). Platies: 1, J. Bishop (Bishops Cleeve); 2, D. Phippen (Bath); 3, C. Pratt (Bedworth). Swordtails: 1, J. C. Ferguson (Bath); 2, R. Jarvis (Gloucester); 3, C. Pratt (Bedworth). Barbs (to 14cm.): 1, C. Russell (Bath); 2, D. Phippen (Bath); 3, L. Attwood (Rubery). Barbs (above 14cm.): 1, B. R. Goll (Evesham); 2, P. Young (Gloucester); 3, D. Smith (Longbridge). H/H Characins: 1, J. Carney (Staffs.); 2, W. T. Corney (Gloucester); 3, C. Higgs (Gloucester). A.O.V. Characins: 1 and 2, B. W. Iles (Rhondda); 3, D. Phippen (Bath). Angels: 1 and 3, M. Rogers (Evesham); 2, P. Greenwood (Bishops Cleeve). Cichlids (to 10cm.): 1, R. A. Poors (Yate); 2, C. Rossiter (Gloucester); 3, G. Ceney (Darlaston). Cichlids (above 10cm.): 1, J. Carney (Staffs.); 2, L. Salisbury (Bedworth); 3, M. Wase (K.A.D.A.S.). Corydoras and Brochis: 1, Mrs. K. Press (Bath); 2, R. J. Dodson (C.A.S.); 3, G. V. Ludlow (Evesham). A.O.V. Catfish: 1, J. Salisbury (Bedworth); 2, G. Perkins (Gloucester); 3, K. Press (Bath). Fighters: 1, Mrs. K. Boswell (Bath); 2, C. Pratt (Bedworth); 3, M. Wase (K.A.D.A.S.). Labyrinths (to 7½cm.): 1, G. G. Castle (Trowbridge); 2, C. J. Nightingale (M.T.A.); 3, J. C. Ferguson (Bath). Labyrinths (above 7½cm.): 1, C. Pratt (Bedworth); 2, G. Castle (Trowbridge); 3, J. Salisbury (Bedworth). Loaches, Botias, Eels: 1, C. Russell (Bath); 2, K. R. Baker (E.F.K.S.); 3, G. Perkins (Gloucester). Danios Minnows: 1, A. Wyatt (Banbury); 2, J. C. Ferguson (Bath); 3, R. J. Slatter (Evesham). A.O.V. Tropical: 1 and 3, B. R. Goll (Evesham); 2, S. Plumb (B.R.D.A.S.). Breeders Pairs (Livebearers): 1, J. Salisbury (Bedworth); 2, Mrs. D. Rossi (Bishops Cleeve); 3, C. J. Nightingale (M.T.A.). Egglayers: 1, M. Bishop (Bishops Cleeve); 2, C. J. Nightingale (M.T.A.); 3, S. Cureton (Malvern). Teams Livebearers: 1 and 3, J. Salisbury (Bedworth); 2, C. F. Scriven (Bishops Cleeve). Egglayers: 1, C. Russell (Bath); 2, L. Edwards (K.A.D.A.S.); 3, G. Castle (Trowbridge). Coldwater, Shubunkins: 1 and 2, C. Rossiter (Gloucester); 3, L. Griffiths (Gloucester). Fancy: 1, Mr. Attwood (Rubery); 2, J. Salisbury (Nuneaton); 3, C. Pratt (Bedworth). Common Goldfish: 1 and 2, M. Bishop (Bishops Cleeve); 3, B. R. Goll (Evesham). A.O.V. Coldwater: 1, C. Pratt (Bedworth); 2 and 3, N. Wood (Gloucester). Beginners Petfish: 1 and 3, N. Owen (Bath); 2, L. Minchin.

* * *

IN June, the **Bournemouth A.S.** members were looking forward to an inter-club quiz with Devizes, but unfortunately a postponement was necessary. Instead the chairman gave a very interesting talk on breeding Gouramies, in which members gave accounts of their own experiences in breeding this species, and were able to give some of the less experienced members a few hints. Table Show results: A.V. Cichlid: 1, Mr. Bebb; 2, Mr. Turner; 3, Mr. Jeffery. A.O.V. Tropical: 1, Mr. Chatfield; 2 and 3, Mr. Haskins. A.V. Tropical (Breeders): 1, Mr. Turner; 2, Mr. Coombes; 3, Mr. Bebb.

THE results of the **British Cichlid Association** Open Show (for Cichlids only) were: Pelmatochromis: 1, J. Beavers (Hartlepool); 2, W. Hall (Washington); 3, F. Myers (Independent). Apistogramma: 1 and 2, C. A. Enright (South Shields); 3, Dr. Andrews (Independent). Nannacara, Crenicara and Dwarf Aequidens: 1, Mr. and Mrs. Hunt (Ashington); 2 and 3, G. Brown (Mount Pleasant). Pairs (Dwarf): 1 and 3, G. Brown (Mount Pleasant); 2, G. Hunt (Ashington). Breeders (Dwarf): 1, Dr. Andrews (Independent). Haplochromis: 1, J. Beavers (Hartlepool); 2, H. Garthwaite (Hartlepool); 3, W. Hall (Washington). Pseudotropheus: 1, P. Newton (Hartlepool); 2, C. A. Enright (South Shields); 3, H. Garthwaite (Hartlepool). Labeotropheus: 1, Mr. and Mrs. Ruffell (South Shields); 2, J. Beavers (Hartlepool); 3, M. Sneddon (Hartlepool). Lake Tanganyika sp.: 1 and 2, C. A. Enright (South Shields); 3, J. Beavers (Hartlepool). A.O.V. Rift V.: 1, G. McGuire (Hartlepool); 2, C. A. Enright (South Shields); 3, N. Watson. Pairs R.V.: 1, Mr. Alder (Hartlepool); 2, B. Risbridger (South Shields); 3, Mr. Costin (Priory). Breeders R.V.: 1, Dr. Andrews (Independent); 2, Mr. Alder (Hartlepool). Tilapia: 1, F. Askew (South Shields); 2, B. Risbridger (South Shields); 3, L. Southall (South Shields). Cichlasoma: 1 and 2, B. Cooper (Peterlee); 3, Mr. Wainwright (Hartlepool). Aequidens: 1, R. Bottomley (Hartlepool); 2, Mr. Gipson (Independent); 3, Mr. Leydon (Independent). Angels and Discus: 1, Mr. and Mrs. Ruffell (South Shields); 2, B. Hall (Stanley); 3, A. Whyatt (Washington). Geophagus: 1, Mr. and Mrs. Liddle (Ashington); 2, P. Wright (South Shields). A.O.V. Large: 1, F. Askew (South Shields); 2 and 3, J. D. Watson (Hartlepool). Cichlid Pairs (Large): 1, J. D. Watson (Hartlepool); 2, Mr. and Mrs. Liddle (Ashington). Cichlid Breeders Large Cichlid: 1, J. D. Watson (Hartlepool). Best Fish in Show: B. Cooper; Best Large Cichlid: B. Cooper; Best Rift Valley: P. Newton; Best Dwarf: C. A. Enright; Best Pair: G. Brown; Best Breeders: Dr. Andrews. Judges J. Burtles (Chairman, B.C.A.); C. Corbin (B.C.A. Southern Area Rep.); R. Atherton F.N.A.S. No. of entries: 119.

* * *

ANNUAL trophy winners were announced at the **Hinckley and District A.S.** annual general meeting and these were as follow: Junior Section: Best Fish of Year: Joint winners to hold trophy for six months each were Master P. Horabin and Master E. Baxter. Best Livebearer Pairs: P. Horabin. Best Egglayer Pairs: E. Baxter. Most Points: E. Baxter. Most Entries: P. Horabin. Winners in the Senior Section were: Best Fish of the Year: Mr. and Mrs. G. Hayes. Best Egglayer Pairs: Mr. and Mrs. G. Hayes. Best Livebearer Pairs: J. Roberts. Most Points: Mr. and Mrs. G. Hayes. Most Entries: Mr. and Mrs. G. Hayes. Election of new officers: President, N. Pywell; chairman, T. Redfern; secretary, G. Hayes, 51 Henry Street, Hinckley; treasurer, N. Fox; show secretary, R. Impey; assistant show secretary W. Fielding; librarian, Master E. Baxter; committee, Mrs. P. Impey, Mrs. M. Fielding.

* * *

PRIZEWINNERS at the **Brighton and Southern A.S.** were as follow: Class Ad: 1, M. L. Goss (Riverside); 2, C. A. Roffe (M.S.A.S and L. & B.A.S.); 3, S. Brookes (Brighton). Class B: 1, J. Bellingham (Tonbridge); 2, B. Sayers (Brighton); 3, K. and G. Groves (M.S.A.S.). Class C: 1, J. Livings (Lewisham); 2, T. C. Stacey (Redhill and Reigate); joint 3, P. Cottle (North Kent) and Mrs. J. Garrad (Runnymede). Class Ca: Mr. Jarvis (Lewisham); 2, Mr. and Mrs. Feek (Brighton); 3, W. A. Knight (Gosport). Class D: 1, J. Howe; 2, S. Freemantle (Gosport); 3, Mr. and Mrs. Sharp (Sittingbourne). Class Db: 1, B. Sayers (Brighton); 2 and 3, R. Burton. Class Dc: 1, K. Rees (Gosport); 2, Mr. and Mrs. Burtles (M.S.A.S.); 3, R. S. Hart (Hounslow). Class E: 1, Mrs. S. Parish; 2, R. J. Canning (Basingstoke); 3, M. Lewis (Sudbury). Class Ea: 1 and 2, J. Bayley (Sudbury); 3, S. Brookes (Brighton). Class F: 1 and 3, M. Collins (Hounslow); 2, A. Constantine (Hounslow). Class G: D. Lambourne (C.A.G.B.), Championship Trophy; 2, C. Pannell (Southern Independent); 3, R. Baker (Tonbridge). Class H: 1, Mr. and Mrs. Corbin (M.S.A.S. and B.S.A.S.); 2 and 3, M. Nethersell (Riverside). Class J: 1, I. Clarke (Gosport); 2, Mrs. B. Scales (Erith and District); 3, B. Mason (Roehampton). Class K: 1, Mrs. I. Bellingham (Tonbridge); 2, C. Pannell (Southern Independent); 3, K. F. Hale (Gosport). Class L: 1, A. Feast (Tonbridge), Best Fish in Show; 2, Mr. and Mrs. Burtles (M.S.A.S.); 3, C. Roffe (M.S.A.S. and L. & B.A.S.). Class M: D. and B. Purchard (Tonbridge); 2, I. Clarke (Gosport); 3, M. London (Tonbridge). Class Nb-m: 1, J. Richards (Sudbury); 2, M. Lewis (Sudbury); 3, T. Hewitt (Lewisham). Class No-t: 1, P. Cottle (North Kent); 2, C. Roffe (M.S.A.S. and L. & B.A.S.); 3, Mrs. J. French (Southern Independent). Class O: 1, J. Bayley (Sudbury); 2 and 3, W. A. Knight (Gosport). Class P: 1 and 3, Mr. and Mrs. B. Fry (North Kent); 2, Mr. Noronha (Orpington). Class Q: 1, R. J. Canning (Basingstoke); 2 and 3, J. Livings (Lewisham). Class R: 1, B. Mason (Roehampton); 2, C. Marsh (Medway); 3, J. Howe. Class S: 1, Mrs. Livings (Lewisham); 2, Mrs. Adams (Southern Independent); 3, Mrs. D. Cruickshank (Ealing). Class T: M. London (Tonbridge); 2, Mrs. D. Cruickshank (Ealing); 3, C. Marsh (Medway). Class Xb-m: 1, P. Cottle (North Kent); 2, J. Howe; 3, D. J. Soper (M.S.A.S.). Class Xo-t: 1, Mr. Noronha (Orpington); 2, C. Marsh (Medway); 3, P. Cottle (North Kent). Class Va and b: 1 and 3, B. Woodward (North Kent); 2, P. Hornsey (Brighton). Class Uc and d: 1, Mr. and Mrs. B. Fry (North Kent). Class V: 1, A. C. Gardner (Redhill and Reigate). Class W: 1, F. H. Hoppenbrouwers (H.D.A.S.); 2, J. Jennings; 3, B. Woodward (North Kent). Best Exhibitor: P. Cottle.

* * *

A REPORT of this year's spawning by members was the subject of the June meeting of the **Association of Goldfish Breeders.** Results of the Table Show were as follow: Breeding Pairs Twintails: 1 and 3, B. Cook. A.V. Young Fish: 1, H. Bence; 2, I. Fleming.

* * *

THE **Cotswold A.S.** heard a very good talk at their April meeting, on "Open Shows," which was given by P. Greenwood, and at their May meeting Mrs. B. Ryan of Fanday Limited gave a very interesting talk on "What is a Fish?" which she illustrated with fish she had brought along. This was of great benefit to many members to learn what the inside of a fish is all about. The table results were: April: 1 and 3, M. Poole; 2, Mrs. G. Hodges. May: 1 and 3, R. Dodson; 2, Mrs. S. Sargent.

* * *

TOTAL number of entries at the **Northwich and District A.S.** was 408. Results: Guppies: 1, Miss J. Gullance (Buxton); 2 and 3, Mrs. S.

Taylor (Macclesfield). Swordtails: 1, C. and K. Davies (Northwich); 2, Mr. and Mrs. Muckle (Independent); 3, J. and T. Perkin (Macclesfield). Mollies: 1, A. Morrey (Stone); 2 and 3, C. Norton (Sandgrounders). Platies: 1, R. Butterworth (Merseyside); 2, C. Norton (Sandgrounders); 3, A. Morrey (Stone). Barbs (Small): 1, C. Norton (Sandgrounders); 2, B. and C. White (Leigh); 3, D. R. Reading (Merseyside). Barbs (Large): 1, A. Vaissier (Merseyside); 2, A. Goddard (Macclesfield); 3, F. Mulla (Merseyside). Characins (Small): 1, G. Waterhouse (Sandgrounders); 2, W. Bamber (Sandgrounders); 3, P. M. Hughes (Independent). Characins (Medium): 1, G. Bond (Sandgrounders); 2, W. Bamber (Sandgrounders); 3, Mr. and Mrs. Pritchard (Wrexham). Characins (Large): 1 and 2, F. Thorne (Village); 3, Mrs. D. Eaton (Runcorn). Fighters: 1, E. Rowlands (Hoylake); 2, S. Royal (Northwich); 3, H. Buckley (Northwich). Anabantids, thick lips (up to 9 in.): 1, Miss J. Gullane (Buxton); 2, B. Wilson (Merseyside); 3, R. I. Payne (Merseyside). Anabantids A.O.V.: 1, C. Norton (Sandgrounders); 2, Mrs. V. Oliver (Wrexham); 3, T. and W. Brown (Warrington). Angels: 1, L. Bradley (Northwich); 2, H. R. Sefton (Grimwood); 3, M. E. Valentine (Northwich). Cichlids (Dwarf): 1, L. Thorne (Northwich); 2, Miss J. Gullane (Buxton); 3, Mrs. V. Oliver (Wrexham). Cichlids (Large): 1, G. Wilkenson (Hyde); 2, G. Billinge (Warrington); 3, C. Norton (Sandgrounders). Danios and Minnows: 1, J. Drake (Runcorn); 2, R. I. Payne (Merseyside); 3, W. Bamber (Sandgrounders). Rasboras: 1 and 2, G. Waterhouse (Sandgrounders); 3, B. and C. White (Leigh). Sharks: 1, T. Hampton (Merseyside); 2, Miss J. Gullane (Buxton); 3, H. Buckley (Northwich). Flying Foxes: 1, T. Hampton (Merseyside); 2, F. Mulla (Merseyside); 3, D. and R. Reading (Merseyside). Catfish, Corydoras and Brochis: 1, Mr. and Mrs. Muckle (Independent); 2, M. Clarke (Buxton); 3, B. and C. White (Leigh). Catfish A.O.V.: 1, Mrs. D. T. Armour (Independent); 2, P. Leese (Five Towns); 3, R. Butterworth (Merseyside). Loaches and Botias: 1, Mr. and Mrs. Pritchard (Wrexham); 2, G. Wilkenson (Hyde); 3, J. Pritchard (Grimwood). Toothcarps: 1 L. Thorne (Northwich); 2, T. Jenkins (Merseyside); 3, T. Sinclair (Northwich). A.O.V. Tropical: 1 Mr. and Mrs. Pritchard (Wrexham); 2, A. Jenkinson (Merseyside); 3, J. and T. Perkin (Macclesfield). Pairs (Livebearers): 1, R. I. Payne (Merseyside); 2, Master R. Pennington (Village); 3, J. and T. Perkin (Macclesfield). Pairs (Egglayers): 1, G. Waterhouse (Sandgrounders); 2, B. and C. White (Leigh); 3, A. Vaissiere (Merseyside). Breeders (Livebearers): 1, T. and W. Brown (Warrington); 2 and 3, J. Sergeant (Wrexham). Breeders (Egglayers, Easy): 1 and 2, A. Vaissiere (Merseyside); 3, K. Wright (Sandgrounders). Breeders (Egglayers, Hard): 1, A. Vaissiere (Merseyside); 2, L. Thorne (Northwich); 3, R. I. Payne (Merseyside). Common Goldfish: 1, D. Valentine (Northwich); 2, H. Buckley (Northwich); 3, S. Royle (Northwich). Fancy Goldfish: 1, Mrs. K. Smith (Merseyside); 2, D. Valentine (Northwich); 3, Mrs. E. Jenkins (Merseyside). A.O.V. Coldwater: 1, L. Thorne (Northwich); 2, Mrs. E. Jenkins (Merseyside); 3, M. Valentine (Northwich). Juniors (Livebearers): 1 and 3, A. Atherton (Grimwood); 2, M. Valentine (Northwich). Juniors (Egglayers): Miss J. Gullane (Buxton); 2, P. Smith (Wrexham); 3, J. Arhour, Jnr. (Independent). Furnished Mini Jars: 1 and 2, L. Thorne (Northwich). Best Fish in Show: T. Hampton, Merseyside, with a Flying Fox.

* * *

RESULTS of the **Loughborough and District A.S.** Open Show were as follow:

A.O.V. Anabantids: 1, G. W. Allen (N.A.D.A.S.); 2, Mr. and Mrs. Blades (Cresswell); 3, E. Geary (N.A.D.A.S.). A.O.V. Livebearers: 1, 2 and 3, A. Onslow (Loughborough). Egglaying Toothcarps: 1, B. and F. Hurst (Coventry); 2, A. Dean (Alfreton); 3, Mr. and Mrs. Blades (Cresswell). Twintail Goldfish: 1, 2 and 3, N. R. Giles (Leicester). Egglayer (Pairs): 1, Mr. and Mrs. R. Bull (Derby Regent); 2, A. Lane (Derby Regent); 3, G. Lindsey (L.A.D.A.S.). Rasboras: 1, Mr. and Mrs. Bull (Derby Regent); 2, Mrs. D. Sharpe (Independent); 3, K. Marshall (Independent). Male Betta Splendens: 1, F. Watts (Coventry); 2, Mr. Martin (Independent); 3, G. Allen (Northampton). A.O.V. Catfish: 1 and 2, K. Crosby (Independent); 3, W. E. Neville (Grantham). Angels: 1 and 3, F. Watts (Coventry); 2, Mr. Clayton (L.U.C.A.S.). A.V. Loaches: 1, 2 and 3, A. Brainbridge (Jones and Shipman). Danios and W.C.M.M.: 1 and 3, R. Illiott (C.A.D.A.S.) 2, F. Watts (Coventry). A.O.V. Barbs: 1 and 3, W. E. Neville (Grantham); 2, A. Simmons (Coventry). A.O.V. Tropical: 1, Mr. and Mrs. Shipman (Grantham); 2, T. Booth (Leicester); 3, Mr. and Mrs. Bull (Derby Regent). Guppies: R. Harlow (Derby Regent); 2, S. Elliott (C.A.D.A.S.); 3, D. Penwright (Darlaston). Livebearer Broods: 1, B. and F. Hurst (Coventry); 2, B. Jeffs (Jones and Shipman); 3, W. E. Neville (Grantham). Small Cichlids: 1, J. Gullane (Buxton); 2, I. Yeomans (Loughborough); 3, M. Young (Independent). Single Tail Goldfish: 1 and 2, F. Watts (Coventry); 3, Mrs. Martin (Independent). Egglayer Broods (Tropical): 1, T. Neal (Independent); 2 and 3, A. Lane (Derby Regent). A.V. Coldwater (Pairs): 1, R. Shakespeare (Bedworth); 2, D. Sharpe (Northampton); 3, H. Brakes (Jones and Shipman). Livebearer Pairs: 1, Mr. Brainbridge (Jones and Shipman). A.V. Pond or River Fish: 1, A. Simmons (Coventry); 2, R. Shakespeare (Bedworth); 3, F. Watts (Coventry). A.O.V. Cichlids: 1 and 3, G. Allen (Northampton); 2, R. Shakespeare (Bedworth). Small Characins: 1 and 2, G. Roberts (Uttoxeter); 3, D. Sharpe (N.A.D.A.S.). Small Barbs: 1, Mr. and Mrs. Bull (Derby Regent); 2, S. Neville (Grantham); 3, D. Sharpe (N.A.D.A.S.). A.O.V. Characins: 1, F. R. Shakespeare (Bedworth); 2, G. Allen (Independent); 3, G. Roberts (Uttoxeter). Corydoras and Bronchis: 1 and 2, G. Lindsey (Loughborough); 3, I. Yeomans (Loughborough). Best Fish in Show: Mr. and Mrs. Shipman (Grantham) with a Siamese Tiger.

* * *

ENTRIES totalled 862 at the second Open Show of the **Sudbury A.S.** Results: Class B: 1, D. Cruikshank (Ealing); 2, R. Newman (Uxbridge); 3, M. Lewis (Sudbury); 4, M. Strange (Basingstoke). Class C: 1, P. Moye (Sudbury); 2, M. Smith (Ans.); 3, T. Fraser (Basingstoke); 4, I. Strange (Basingstoke). Class Ca: 1, R. Coyle (Independent); 2, C. Kislingbury (Run.); 3, R. Taylor (Sudbury); 4, B. Bissoon (Basingstoke). Class D: 1 and 3, R. F. Thodsy (Dun.); 2, G. Dixon (Basingstoke); 4, M. Nethersell (Riv.). Class Da: 1, J. Nethersell (Riv.); 2, K. Usher (Ans.); 3, G. Dixon (Basingstoke); 4, T. Jones (S.L.A.S.). Class Db: 1, T. Fraser (Basingstoke); 2, B. Bissoon (Basingstoke); 3, I. Clarke (Gosport); 4, D. Reilly (Run.). Class E: 1, T. Cruikshank (Ealing); 2, M. Lewis (Sudbury); 3, T. Jones (S.L.A.S.); 4, R. Baker (Tonbridge). Class Ea: 1, T. Taylor (Basingstoke); 2, M. Brown (Devizes); 3, P. Moye (Sudbury); 4, D. Murphy (Ealing). Class F: 1, J. Parker (Sudbury); 2, L. Little (Bracknell); 3, J. London (Thur.); 4, R. Norris (Bracknell). Class G: 1, E. Fantham (Sudbury); 2, J. Howe (Ans.); 3, M. Nethersell (Riv.); 4, P. Jones (Basingstoke). Class H: 1, Mr. and Mrs. Murpny (Ealing); 2, L. J. Brazier (Sudbury); 3, E. Stainer (S.L.A.S.); 4, M. Nethersell (Riv.). Class J: 1 and 3, A. Harmsworth (Basingstoke); 2, B. Mason (Roehampton); 4, J. H. Jackson (Basingstoke). Class K: 1, T. Cruikshank (Ealing); 2, J. Connolly (B.G.A.S.); 3, J. H. Jackson (Basingstoke); 4, P. Moye (Sudbury). Class L: 1, R. Leslie (High Wycombe); 2, T. Coyle (Independent); 3, R. Taylor (Sudbury); 4, K. Usher (Ans.). Class M: 1, R. Coyle (Independent); 2, T. Taylor (Basingstoke); 3, M. Nethersell (Riv.); 4, L. J. Brazier (Sudbury). Class N.B.M.: 1, C. Kislingbury (Run.); 2, P. Cottle (N. Kent); 3, I. Clarke (Gosport); 4, P. Coyle (Independent,. Class N.O.T.: 1, P. Cottle (N. Kent); 2, B. Bissoon (Basingstoke); 3, K. Usher (Ans.); 4, R. Onslow (Basingstoke). Class O: 1, J. London (Thur.); 2, C. D. Hodgeson (Run.); 3, Mr. and Mrs. Murphy (Ealing); 4, T. Fraser (Basingstoke). Class P: 1, P. Grovenor (Run.); 2, L. Jones (Bracknell); 3, B. Meech (Dun.); 4, T. Wooley (Har.). Class Q: 1, I. Pierce (High Wycombe); 2, R. Taylor (Sudbury); 3, B. Bissoon (Basingstoke); 4, A. Hall (High Wycombe). Class R: 1, T. McKennie (Caterham); 2, B. Bissoon (Basingstoke); 3, Mr. and Mrs. Murphy (Ealing); 4, R. Ashweeth (Sudbury). Class S: 1, J. London (Thur.); 2, Mr. and Mrs. Murphy (Ealing); 3, D. Cruikshank (Ealing); 4, L. Little (Bracknell). Class T: 1, R. Onslow (Basingstoke); 2, 3 and 4, K. Usher (Ans.). Class X.B.M.: 1, P. Cottle (N. Kent); 2, M. J. Taylor (Har.); 3 and 4, P. Moye (Sudbury). Class X.O.T.: 1, B. Bissoon (Basingstoke); 2, R. Onslow (Basingstoke); 3 and 4, K. Usher (Ans.). Furnished Showjars: 1, L. J. Brazier (Sudbury); 2, B. Fry (N. Kent); 3, A. Schofield (Hemel Hempstead); 4, A. Lusby (Hemel Hempstead). Highest Pointed Society: Basingstoke.

* * *

DETAILED results of the **Gosport and District A.S.** eighth Open Show, held in May, were as follow: Class AA-AE: 1, D. Haines (Gosport); 2, M. Cott (Gosport); 3, P. Jupe (Gosport). Class B: 1, P. Brown (Southampton); 2, M. Strange (Basingstoke); 3, B. Bissoon (Basingstoke). Class C: 1, G. Hallum (Southampton); 2, I. Strange (Basingstoke); 3, A. Houghton (Gosport). Class CA: 1, L. Little (Bracknell); 2, I. Strange (Basingstoke); 3, T. Fraser (Basingstoke). Class D: 1, K. Bissoon (Basingstoke); 2, A. L. Hall (High Wycombe); 3, S. Freemantle (Gosport). Class DA: 1, J. Dickinson (Havant); 2, T. Winter (Southampton); 3, D. Haines (Gosport). Class DB: 1, Mr. and Mrs. Newbury (Southampton); 2, A. Weare (Southampton); 3, T. Fraser (Basingstoke). Class DC: 1, K. Rees (Gosport); 2, L. Little (Bracknell); 3, T. Taylor and Family (Basingstoke). Class E: 1, R. J. Canning (Basingstoke); 2, Mr. and Mrs. Newbury (Southampton); 3, A. Ford (Havant). Class EA: 1, T. Taylor and Family (Basingstoke); 2, K. Rees (Gosport); 3, A. Weare (Southampton). Class FA: 1 and 2, M. Cott (Gosport); 3, J. Jackson (Basingstoke). Class F: 1, M. Cott (Gosport); 2, D. Haines (Gosport); 3, A. Weare (Southampton). Class G: 1, Mr. and Mrs. Jones (Basingstoke); 2, J. Dickinson (Havant); 3, N. Davies (Havant). Class H: 1 and 3, K. Taylor (Havant); 2, K. Howell (Gosport). Class J: 1 and 3, B. Bissoon (Basingstoke); 2, I. Clarke (Gosport). Class K: 1, J. Jackson (Basingstoke); 2, A. Hall (High Wycombe); 3, Mrs. Cruikshank (Ealing). Class L: 1 and 3, R. Leslie (High Wycombe); 2, I. Pearce (High Wycombe). Class M: 1, F. Willis (Havant); 2, Mrs. A. Davidson (I.O.W.); 3, D. Haines (Gosport). Class NBM: 1, W. Cowburn (Basingstoke); 2, R. J. Canning (Basingstoke); 3, Mrs. Blofield (Havant). Class NOT: 1 and 2, B. Bissoon (Basingstoke); 3, A. Gibson (Reading). Class O: 1 and 2, C. Beets (Freelance); 3, W. Knight (Gosport). Class P: 1, Mrs. Garrad (Runnymede); 2 and 3, A. Hall (High Wycombe). Class Q: 1 and 2, B. Bissoon (Basingstoke); 3, A. Tracy (Gosport). Class R: 1, R. J. Canning (Basingstoke); 2, B. Bissoon (Basingstoke); 3, M. Cott (Gosport). Class S: 1, L. Little (Bracknell); 2, G. Tester (Gosport); 3, T. Adams (S. Independent). Class T: 1, K. Bissoon (Basingstoke); 2, A. Weare (Southampton); 3, M. Strange (Basingstoke). Class U: 1, D. Haines (Gosport); 2 and 3, B. Cowley (Gosport). Class V: 1, D. Stokes (Havant); 2, R. Rice (Basingstoke); 3, E. Binsted (Portsmouth). Class W: 1, E. Binsted (Portsmouth); 2, D. Stokes (Havant); 3, J. Jupe (Gosport). Class XBM: 1, R. J. Canning (Basingstoke); 2, F. Willis (Havant); 3, T. Adams (S. Independent). Class XOT: 1, B. Bissoon (Basingstoke); 2 and 3, L. Little (Bracknell). Class ZA-ZB: 1, Mr. Jackson (Basingstoke); 2, M. Cott (Gosport); 3, J. Jeffries (Bournemouth).

SEVERAL changes on the committee of the **Immingham A.S.** have been made and are as follow: Chairman, S. Bingham; vice-chairman, T. Clark; treasurer, A. Stark; secretary, C. Grant; assistant secretary, P. Grant; news editor, Mrs. K. Swales; public relations, B. Swales. Anyone requiring further information regarding the Society should contact C. D. Grant, 39 Newark Walk, Immingham, Lincs.

* * *

THE committee members for the **Amersham and District A.S.** are as follow: Chairman, D. Barker; vice-chairman, Mrs. W. Thompson; secretary, P. Dawson; assistant secretary, S. Thompson, show secretary, B. Jessop; assistant show secretary, P. Daniels; Publicity: R. Steptoe; treasurer, J. Berridge.

* * *

AT the recent annual general meeting of the **Ilfracombe and District A.S.** the following were elected as committee: President, A. Bligh; chairman, C. Lipscombe; secretary, J. Paul "Kinvara," 6 Avenue Road, Ilfracombe, N. Devon; treasurer, J. Evans; show secretary, Mrs. S. Lipscombe, 8 Foxbear Road, Ilfracombe, N. Devon. Holders of the above Society's trophies are requested to return them to the show secretary at the above address.

* * *

A TOTAL of 613 entries were benched at the **Salisbury & District A.S.** tenth annual Open Show. The Best Fish in Show award went to a Corydoras Catfish, exhibited by K. E. Taylor of Havant A.S. Full results were: Club Furnished Aquaria: Salisbury. Individual Furnished Aquaria: 1, B. Ashton (Salisbury); 2, D. Kerr (Salisbury); 3, T. Blanchard (Salisbury). Barbs (Large): 1, R. F. Adams (Salisbury); 2, J. Jackson (Basingstoke); 3, F. Silver; 4, T. Wooley (Harlow). Barbs A.O.S.: 1, M. Strange (Basingstoke); 2, T. Wooley (Harlow); 3, R. F. Adams (Salisbury); 4, A. Cripps (Basingstoke). Hyph., Hemig. and Cheirodon: 1, I. M. Strange (Basingstoke); 2 and 4, C. Turner (Cardiff); 3, B. Bissoon (Basingstoke). Characins A.O.S.: 1, I. A. Weaire (Southampton); 2, Mrs. V. J. Lloyds (Newbury); 3, L. G. Little (Bracknell); 4, J. F. Bailey (Gosport). Angels: 1, T. Winter (Southampton); 2, F. Willis (Havant); 3, J. Dickenson (Havant); 4, T. Taylor (Basingstoke). Dwarf Cichlids: 1, R. F. Adams (Salisbury); 2, P. Brown (Southampton); 3, A. Weaire (Southampton); 4, K. Bissoon (Basingstoke). Lake Malawi Cichlids: 1, K. Rees (Gosport); 2, K. Hale (Gosport); 3, L. G. Little (Bracknell); 4, Mrs. M. Nethersell (Riverside). Cichlids A.O.S.: 1, R. F. Adams (Salisbury); 2, J. Dickenson (Havant); 3, P. Wright (Chard); 4, P. Gillam (Yeovil). Siamese Fighters: 1, K. Bissoon (Basingstoke); 2, K. Rees (Gosport); 3, P. Brown (Southampton); 4, J. Jeffery (Bournemouth). Labyrinth A.O.S.: 1, T. Wooley (Harlow); 2, R. Canning (Basingstoke); 3, Mrs. V. J. Lloyds (Newbury); 4, G. Castle (Trowbridge). Killies: 1, Mrs. Lay (B.K.A. and Plymouth); 2 and 3, L. G. Little (Bracknell); 4, J. Jupe (Gosport). Tropical Catfish: 1, D. Lambourne (Roehampton); 2 and 3, J. Dickenson (Havant); 4, J. Jackson (Basingstoke). Corydoras and Brochis: 1 and 4, K. E. Taylor (Havant); 2, Mrs. K. Howell (Gosport); 3, P. Rushbrook (Reading). Rasboras: 1, I. Clarke (Gosport); 2, J. H. Jackson (Basingstoke); 3, F. Grant (Salisbury); 4, P. Rushbrook (Reading). Danios: 1, J. H. Jackson (Basingstoke); 2, C. Middleton (Bournemouth); 3, K. Hale (Gosport); 4, Miss J. Jolliffe (Salisbury). Botias and Loaches: 1, Mrs. Lay (B.K.A. and Plymouth); 2, B. Riste (Chard); 3, Miss J. Jolliffe (Salisbury); 4, B. Bissoon (Basingstoke). A.O.S. Tropical: Egglayers: 1, I. F. Willis (Havant); 2, Mrs. V. J. Lloyds (Newbury); 3, I. Clarke (Gosport); 4, D. Lambourne (Roehampton). Sexed Pairs: 1, Mrs. M. Seymour (Ringwood); 2, I. Clarke (Gosport); 3, A. S. Cripps (Basingstoke); 4, A. Gibson (Reading). Male Guppy: 1, W. A. Knight (Gosport); 2, Mr. and Mrs. G. Castle (Trowbridge); 3, K. S. Gibbs (Bournemouth); 4, Mr. Fraser (Basingstoke). Female Guppy: 1, W. West (Salisbury); 2, I. Goddard (Salisbury); 3, T. Wooley (Harlow); 4, Mrs. M. Seymour (Ringwood). Swordtails: 1, M. Strange (Basingstoke); 2, G. Wells-Burr (Chard); 3, K. Hillier (Newbury); 4, B. Bissoon (Basingstoke). Platies: 1, K. Bissoon Basingstoke); 2, B. Bissoon (Basingstoke); 3, F. Cripps (Newbury); 4, R. Canning (Basingstoke). Mollies: 1, L. G. Little (Bracknell); 2, Mr. Nethersell (Riverside); 3, T. Wooley (Harlow); 4, Mrs. M. Seymour (Ringwood). Livebearers A.O.S.: 1, P. Onslow (Basingstoke); 2, A. Weaire (Southampton); 3, W. West (Salisbury); 4, K. Bissoon (Basingstoke). Common Goldfish and London Shubunkin: 1, D. Kerr (Salisbury); 2, R. F. Adams (Salisbury); 3, K. Forward (Yeovil); 4, P. Onslow (Basingstoke). Comets and Bristol Shubunkins: 1, V. Hunt (Havant); 2 and 4, G. Axe (Yeovil); 3, W. Crockford (Petersfield). Twintail Goldfish: 1 and 4, G. Axe (Yeovil); 2, Miss D. Jackson (Basingstoke); 3, E. Binstead (Portsmouth). Koi Carp: 1, I. Goddard (Salisbury); 2, E. Binstead (Portsmouth); 3, T. Cooke (B.K.K.S.). Centrarchidae 1, E. Binstead (Portsmouth); 2, M. Slade (Chard); 3, K. Forward (Yeovil). A.O.S. Coldwater: 1 and 4, V. Hunt (Havant); 2, A. Dean (Havant); 3, J. Jeffery (Bournemouth). Breeders Egglayers: 1, G. Castle (Trowbridge); 2 and 3, C. Turner (Cardiff); 4, F. Willis (Havant). Breeders (Livebearer): 1, 2 and 3, C. Turner (Cardiff); 4, D. Parkes (Havant). Breeders (Coldwater): 1, G. J. Axe (Yeovil). Tropical Marine: 1, T. Taylor (Basingstoke); 2, Mrs. L. Doubleday (B.M.A.A.); 3 and 4, B. Ashton (Salisbury). Native Marine: 1, S. Ham (B.M.A.A.); 2 and 3, L. Wilkins (B.M.A.A.); 4, Miss B. Maddocks (B.M.A.A.). Aquatic Plants: 1, L. G. Little (Bracknell); 2, M. Hutchings (Salisbury); 3, J. Hughes (Roehampton); 4, J. Jeffery (Bournemouth).

* * *

THE Birmingham Section of the **Fancy Guppy Association** meet on the fourth Sunday afternoon of each month at The Glebe Farm Community Centre, Stechford, Birmingham. At last month's meeting, R. Jones was elected chairman following the resignation of G. Steadman who had held the position for the past eighteen months. Four new members have joined the club and they are: Mrs. M. Swain, Winslow; Mr. E. G. Willis, Winslow; Mr. and Mrs. Mitchell, First Estate; Mr. D. Tait of Stroud.

* * *

THE **Llantwit Major A.S.** (F.B.A.S./C.N.A.A.) held their twenty-first anniversary Open Show in June. This important occasion in the Society's history was an outstanding success with the largest number of entries recorded, with a total of 553. The results of the show were as follow: Class Ad: 1, P. Thomas (Swansea); 2 and 3, Mrs. J. Thomson (Llantwit Major); 4, S. Nelson (Llantwit Major). Class Ag: 1, Master John Edwards (Llantwit Major); 2, Master Robert Newton (Llantwit Major). Class B: 1, 3 and 4, M. Thomas (Rhondda); 2, J. Egan (Port Talbot). Class C: 1, C. Harding (R.A.D.T.F.A.); 2, D. R. Warmeant (Cardiff); 3, W. G. Best (Swansea); 4, C. Turner (Cardiff). Class Ca: 1 and 2, C. A. Short (Newport); 3, C. Turner (Cardiff); 4, A. Ibbertson (Llantwit Major). Class D: 1, D. R. Warmeant (Cardiff); 2, C. E. Morrison (Port Talbot); 3, A. Cryer (Rhondda); 4, J. Egan (Port Talbot). Class Da: 1, K. Player; 2, P. A. James; 3, J. M. Morris; 4, S. Nelson (Lantwit Major). Class Db: 1, B. Bissoon (Basingstoke); 2, P. Player; 3, T. Taylor and Family (Basingstoke); 4, R. Newton (Lantwit Major). Class E: 1 and 2, G. G. Castle (Devizes); 3, P. Thomas (Rhondda); 4, K. Player. Class Ea: 1, M. Brown; 2, C. Turner (Cardiff); 3, T. Taylor (Basingstoke); 4, D. R. Warmeant (Cardiff). Class F: 1, C. E. Morrison 2, Mr. and Mrs. M. Williams (Rhondda); 3 and 4, M. Addicott (Newport). Class G: 1, W. Limbrick (Llantwit Major); 2, Mr. and Mrs. M. Williams (Rhondda); 3, M. C. Guthrie (Barry); 4, C. Harding (R.A.D.T.F.A.). Class H: 1 and 3, Mr. and Mrs. M. Williams (Rhondda); 2, R. S. Wigg (Llantwit Major); 4, R. W. Purdy (Ebbw Vale). Class Ia: 1 and 3, Master D. Earnshaw (Taunton); 2, Master J. Edwards (Llantwit Major); 4, Master K. Williams (Rhondda). Class J: 1, Mr. and Mrs. M. Williams (Rhondda); 2, D. Egan (Port Talbot); 3 and 4, D. R. Warmeant (Cardiff). Class K: 1 and 4, Master R. Newton (Llantwit Major); 2, Mrs. Scanlon (Cardiff); 3, Master D. Earnshaw (Taunton). Class L: 1, P. Thomas (Swansea); 2, Master P. Glover (Llantwit Major); 3, C. Turner (Cardiff); 4, Master K. Williams (Rhondda). Class M: 1, H. Chick; 2, M. Loveless (Cardiff); 3, T. Taylor and Family (Basingstoke); 4, J. J. Edwards (Llantwit Major). Class N: 1, C. A. Short; 2, S. Nelson (Llantwit Major); 3, J. J. Edwards; 4, C. Turner (Cardiff). Class O: 1 and 3, Mrs. P. Purdy (Ebbw Vale); 2, S. Castle (Port Talbot); 4, K. S. Daniel (Swansea). Class P: 1, Mrs. P. Purdy (Ebbw Vale); 2, M. Thomas (Rhondda); 3, J. Egan (Port Talbot); 4, R. J. Richards (Rhondda). Class Q: 1, Master K. Williams (Rhondda); 2, M. Thomas (Rhondda); 3, R. Perkins (Port Talbot); 4, C. Harding (R.A.D.T.F.A.). Class R: 1, P. Player; 2, R. J. Daws (Cardiff); 3, J. Egan (Port Talbot); 4, A. Ibbertson (Llantwit Major). Class S: 1 and 2, W. G. Best (Swansea); 3, T. Taylor and Family (Basingstoke); 4, Mrs. M. Guy. Class Xa: 1, M. A. Smith (Rhondda); 2, D. Warmeant (Cardiff); 3, M. Addicott (Newport); 4, C. Turner (Cardiff). Class Xb: 1 and 3, C. Turner (Cardiff); 2, C. Harding (R.A.D.T.F.A.); 4, A. Ibbertson (Llantwit Major). Class W: 1 and 2, W. M. J. Mathews (Torbay); 3, C. Rupert (Port Talbot); 4, S. Pearcy (Taunton). Class U: 1 and 4, Mrs. J. Griffiths (Torbay); 2 and 3, C. Rupert (Port Talbot). Class Ua: 1 and 3, T. Click (Rhondda); 2 and 4, C. Rupert (Port Talbot). Class V: 1 and 2, Mrs. J. Griffiths (Torbay); 3 and 4, D. R. Warmeant (Cardiff). Best Fish in Show: Gold Pin award to H. Chick with a Red Fin Shark. Highest Pointed Llantwit Major entry: H. Chick. F.B.A.S. Trophy winner of Class Q with a Female Greensword: Master Kevin Williams (Rhondda).

* * *

MEMBERS who attended the June meeting of the **Gloucester Fishkeeping and Social Club** were fortunate to have as their speaker Dennis Noble from Bristol who gave a most interesting talk on Catfish, accompanied by some extremely good picture slides. The Table Show for the evening was also Catfish, winners being: 1, 2 and 3, M. Burke; 4, T. Diamond. The main topic of conversation during the early part of the evening were plans for the "Ideal Homes" exhibition in Gloucester Park and volunteers were asked for to help set up the stand before the opening date, and to supervise it during the event. It is hoped that the efforts this year will lead to as much success as those of last year. Also discussed were forthcoming outings and the Home Aquaria competition, sponsored by the "Barrier Reef," which is to be held this autumn. The club would very much welcome some new members. Meetings are held on the last Thursday in each month at 8 p.m. at the Hucclecote Community Centre.

* * *

OFFICERS elected at the fourth annual general meeting of the **British Koi-Keepers' Society** were: Chairman, E. A. Allen; general secretary, A. J. Bullock; treasurer and newsletter editor, M. G. Waumsley; membership secretary, D. C. Davis; committee members, Mrs. P. Bryant, G. W. Atkins, B. Chapman, D. M. Hollom, G. W. Lupton, W. R. Seal. A presentation was made to the retiring general secretary, Mrs. H. M. Allen, and she was unanimously voted an honorary member with life membership, in recognition of her work for the Society. Following the tea break, W. R. Seal gave a talk on his recent trip via Thailand to Japan, which was made to determine an itinerary for the Society visit next year. A slide show of places en route and of Japanese ponds, Koi, and filtration methods as used by members of the All-Japan Koi-Keepers' Society proved most enlightening. E. A. Allen then illustrated with slides and

discussed his own arrangement of pond construction, under-gravel filtration and water-changing system. The meeting concluded with cine films of the garden, pond and Koi of F. Ahrens, and of a visit to Hong Kong by G. W. Atkins which also showed local Koi-Farming. The British Koi-Keepers' Society welcomes anyone interested in joining the ever-growing ranks of successful Koi-keepers, and they should contact the membership secretary, D. C. Davis, 137 Gayfield Avenue, Withymoor Village, Brierley Hill, Staffs. Tel: 0384 75791.

* * *

RECENTLY the **Hastings and St. Leonards A.S.** heard Dr. Carrington of Interpet talk on Water Chemistry, stating how important water conditions are when breeding fish. The Table Show was for Swordtails and Mrs. E. Reed was the judge, the placings being: 1, Mrs. Pannell; 2 and 3, Mrs. Grieg. For the second meeting of the month M. Penfold judged the Table Show, which was Catfish.

* * *

RESULTS of **Middleton and District A.S.** third Open Show: Best in Show: B. Marshallsea (Blackburn). Platies: 1, D. and M. Laycock (Sheaf Valley); 2, Mr. and Mrs. Emmerson (Castleford); 3, T. Hindley (Worsley). Mollies: 1 and 3, D. Buckley (Heywood); 2, J. Emmerson (Castleford). Swordtails: 1, D. and M. Laycock (Sheaf Valley); 2, Miss S. Clarke (Aireborough); 3, Mr. and Mrs. A. Derby (Hyde). Guppies: 1, Mr. and Mrs. D. Kirke (Castleford); 2, Mr. Greenhalgh (Bury); 3, Mr. and Mrs. Scott (Sheaf Valley). A.O.V. Livebearers: 1, Mr. and Mrs. Toyne (Sheaf Valley); 2, T. Tasker (Sandgrounders); 3, Mrs. Tasker (Sandgrounders). Egglaying Toothcarps: 1, L. Smith (Castleford); 2 and 3, B. Marshallsea (Blackburn). Small Characins: 1, D. and M. Laycock (Sheaf Valley); 2, B. Mason (Worsley); 3, L. Smith (Castleford). Large Characins: 1 and 3, Miss S. Clarke (Aireborough); 2, K. Smith (Middleton). Small Barbs: 1, Mr. and Mrs. Toyne (Sheaf Valley); 2, L. Maynard (Osram); 3, T. Hindley (Worsley). Large Barbs: 1, Mr. and Mrs. Ward (Middleton); 2, K. Smith (Middleton); 3, H. Warburton (Heywood). Sharks and Foxes: 1, Miss S. Clarke (Aireborough); 2, Mrs. Jones (Heywood); 3, F. Chatburn (Heywood). Corydoras: 1, L. Smith (Castleford); 2, E. Ibbrell (Hyde); 3, L. Dean (Middleton). A.O.V. Catfish: 1, T. Hindley (Worsley); 2, J. Emmerson (Castleford); 3, L. Burton (Middleton). A.V. Loaches: 1, B. Marshallsea (Blackburn); 2, L. Dean (Middleton); 3, Mr. and Mrs. Toyne (Sheaf Valley). Rasboras, Danios and Minnows: 1, B. Mason (Worsley); 2, Mrs. Davies (Heywood); 3, Mr. and Mrs. Emmerson (Castleford). Dwarf Cichlids: 1, B. Marshallsea (Blackburn); 2, L. Maynard (Osram); 3, Mr. Horrocks (Osram). Large Cichlids: 1, Mr. Davies (Heywood); 2, Mr. and Mrs. Rigby (Worsley); 3, L. Burton (Middleton). Angels: 1, Mr. and Mrs. Toyne (Sheaf Valley); 2, Mr. and Mrs. Scott (Sheaf Valley); 3, Mr. Richards (Worsley). Rift Valley Cichlids: 1 and 2, S. Wolstenholme (Heywood); 3, Mr. and Mrs. Rigby (Worsley). Fighters: 1, 2 and 3, L. Smith (Castleford). A.O.V. Anabantids: 1, L. Dean (Middleton); 2, Miss S. Clarke (Aireborough); 3, P. Wolstenholme (Middleton). A.O.V. Tropical: 1, B. Marshallsea (Blackburn); 2 and 3, E. Kirkland (Hyde). Breeders Egglayers (1-10): 1, P. Armstrong (Heywood); 2, F. Chatburn (Heywood); 3, D. Wolstenholme (Blackburn). Breeders Egglayers (11-20): 1, L. Smith (Castleford); 2, Mr. Abbott (Swillington); 3, P. Armstrong (Heywood). Breeders Livebearers: 1, D. Buckley (Heywood); 2, B. Marshallsea (Blackburn); 3, S. Hooton (Sandgrounders). Egglaying Pairs: 1, Mr. and Mrs. Scott (Sheaf Valley); 2, D. and M. Laycock (Sheaf Valley); 3, Mr. and Mrs. Toyne (Sheaf Valley). Livebearing Pairs: 1, P. Armstrong (Heywood); 2, T. Hindley (Worsley); 3, Mr. and Mrs. Toyne (Sheaf Valley). Common Goldfish: 1, Miss S. Clarke (Aireborough); 2, D. Wolstenholme (Blackburn); 3, C. H. Whitsey (Accrington). Shubunkins: 1, Mr. Walsh (Accrington); 2, Miss S. Clarke (Aireborough); 3, C. H. Whitsey (Accrington). Fancy Goldfish: 1, Miss S. Clarke (Aireborough); 2, Mr. Walsh (Accrington); 3, C. H. Whitsey (Accrington). A.O.V. Coldwater: 1, 2 and 3, Mr. Walsh (Accrington). Mini Jars: 1, Mr. and Mrs. Toyne (Sheaf Valley); 2, J. Wolstenholme (Blackburn). Ladies Trophy: 1, Mrs. Emmerson (Castleford); 2, Mrs. M. Ward (Middleton); 3, Mrs. B. Gouver (Heywood). Juniors Trophy: 1, Miss H. Johnson (Hyde); 2, Master G. Dean (Middleton); 3, Master P. Crowther (Middleton).

* * *

THE **Havant and District A.S.'s** fourth Open Show was held early June and there were 450 entries. The Best Fish in Show awards went to Mrs. S. Parrish of Hounslow with a Ctenoposma kingsleyae. All the show results were as follow: Class Ade: 1, Mrs. D. Booker (Havant). Class Agb: 1, Miss J. Booker; 2, Miss S. Blofield. Class B: 1, H. Armitage (Havant); 2, A. Cripps (Basingstoke); 3, R. Adams (Salisbury); 4, M. Strange (Basingstoke). Class Ca: 1, M. Strange (Basingstoke); 2, I. Clarke (Gosport); 3, A. Cripps (Basingstoke); 4, T. Fraser (Basingstoke). Class C: 1, A. Weaire (Southampton); 2, L. Little (Bracknell); 3, J. Martin (Havant); 4, S. Rigby (Gosport). Class Da: 1, Mr. and Mrs. Winter (Southampton); 2, F. Willis (Havant); 3, J. Dickinson (Havant); 4, J. Scott-Morgan (Bournemouth). Class Db: 1, A. Weaire (Southampton); 2 and 4, Mr. and Mrs. Winter (Southampton); 3, Mr. and Mrs. Newbury (Gosport). Class Dc: 1, K. Rees (Gosport); 2, L. Little (Bracknell); 3, K. Groves (Mid-Sussex); 4, J. Hughes (Roehampton). Class Dz: 1, S. Freemantle (Gosport); 2, R. Adams (Salisbury); 3, Mr. and Mrs. Beattie (Godalming); 4, J. Kent (Portsmouth). Class Ea: 1, Mr. and Mrs. Beattie (Godalming); 2, C. Beets (Unattached); 3, P. Brown (Southampton); 4, J. Scott-Morgan (Bournemouth). Class Ez: 1, Mrs. S. Parrish (Hounslow); 2, Mr. and Mrs. Able (Unattached); 3, Mr. and Mrs. Newbury (Gosport); 4, R. Adams (Salisbury). Class F: 1, L. Little (Bracknell); 2, Miss A. Crabtree (Unattached); 3, A. Weaire (Southampton); 4, M. Strange (Basingstoke). Class G: 1 and 2, J. Dickinson (Havant); 3, J. Hughes (Roehampton); 4, M. Strange (Basingstoke). Class H: 1, 2 and 4, K. Taylor (Havant); 3, K. Howell (Gosport). Class J: 1, H. Armitage (Havant); 2, A. Harmsworth (Basingstoke); 3, I. Clarke (Gosport); 4, S. Crabtree (Havant). Class K: 1, S. Crabtree (Havant); 2, D. Jones (Southampton); 3, P. Miller (Unattached); 4, A. Harmsworth (Basingstoke). Class L: 1 and 4, S. Crabtree (Havant); 2, R. Adams (Salisbury); 3, M. Strange (Basingstoke). Class Ma: 1, H. Pratt (Hounslow); 2, G. Tester (Gosport); 3 and 4, D. Parkes (Havant). Class Mz: 1, H. Pratt (Hounslow); 2, I. Clarke (Gosport); 3, H. Armitage (Havant); 4, G. Haskins (Bournemouth). Class Nb-m: 1, Mrs. J. Blofield (Havant); 2, K. Stephenson (Havant); 3, I. Clarke (Gosport); 4, J. Bailey (Gosport). Class No-t: 1, R. Onslow (Basingstoke); 2, D. Jones (Southampton); 3, J. Scott-Morgan (Bournemouth); 4, Mrs. D. Booker (Havant). Class O: 1 and 4, C. Beets (Unattached); 2, R. Adams (Salisbury); 3, A. Cripps (Basingstoke). Class P: 1, W. West (Salisbury); 2, Mr. and Mrs. Beattie (Godalming); 3, R. Adams (Salisbury); 4, J. Scott-Morgan (Bournemouth). Class Q: 1, W. West (Salisbury); 2, R. Aslet (Devizes); 3, Mr. and Mrs. Bebb (Bournemouth); 4, P. Brown (Southampton). Class R: 1, 2 and 4, J. Jeffery (Bournemouth); 3, W. West (Salisbury). Class S: 1, L. Little (Bracknell); 2, J. Scott-Morgan (Bournemouth); 3, H. Armitage (Havant); 4, Mr. and Mrs. Bebb (Bournemouth). Class T: 1 and 4, A. Weaire (Southampton); 2, R. Onslow (Basingstoke); 3, M. Strange (Basingstoke). Class Uab: 1, W. Crockford (Petersfield); 2, B. Binstead (Portsmouth); 3, P. Stevens (Unattached); 4, R. Onslow (Basingstoke). Class Ucd: 1, E. Binstead (Portsmouth); 2, L. Menhennet (New Forest); 3, W. Crockford (Petersfield); 4, P. Stevens (Unattached). Class V: 1, 3 and 4, D. Stokes (Havant); 2, E. Binstead (Portsmouth). Class Wb: 1, E. Binstead (Portsmouth); 2 and 3, V. Hunt (Havant). Class Wz: 1 and 4, D. Stokes (Havant); 2, J. Jeffery (Bournemouth); 3, V. Hunt (Havant). Class Xb-m: 1, D. Jones (Southampton); 2, R. Aslet (Devizes); 3, M. Carter (Southampton); 4, K. Groves (Mid-Sussex). Class Xq-t: 1, R. Onslow (Basingstoke); 2, Mr. and Mrs. Bebb (Bournemouth); 3, L. Little (Bracknell); 4, A. Weaire (Southampton). Class Xop: 1 and 2, Mrs. and Mrs. Winter (Southampton); 3, C. Beets (Unattached). Class Xuw: 1 and 2, L. Menhennet (New Forest). Class Ya: 1, 2, 3 and 4, A. Harmsworth (Basingstoke). Class Yb: 1, K. Whiting (Havant); 2 and 4, Mrs. D. Booker (Havant); 3, M. Hinton (Havant). Class Z: 1, L. Little (Bracknell); 2, J. Hughes (Roehampton); 3 and 4, J. Jeffery (Bournemouth). The F.B.A.S. Championship Trophy was for Class Yb, Native Marine Fishes, won by K. Whiting of Havant.

* * *

THERE were 458 entries at the **Mid Kent A.S.** first Open Show, and the results were: Class Ba: 1, J. Bellingham (Tonbridge); 2, T. London (Thurrock); 3, R. King (M.K.A.S.); 4, Brett and Woodward (N.K.A.S.). Class Bz: 1, B. Bissoon (Basingstoke); 2, S. Cowell (Independent); 3 and 4, J. Bellingham (Tonbridge). Class C: 1, L. Laming (Medway); 2, C. Kislingbury (Runnymede); 3, R. Bowes (Independent); 4, P. Cottle (N.K.A.S.). Class Db: 1, B. Bissoon (Basingstoke); 2, L. Brazier (Sudbury); 3, S. Cowell (Independent); 4, C. Marsh (Medway). Class Dz: 1, S. Cowell (Independent); 2 and 4, J. Hughes (Roehampton); 3, L. Brazier (Sudbury). Class Ea: 1, J. Bayley (Sudbury); 2, M. Lewis (Sudbury); 3, R. Baker (Tonbridge); 4, J. Parker (N.K.A.S.). Class Ez: 1, L. Brazier (Sudbury); 2, B. Newman (Sittingbourne); 3, R. Bowes (Independent); 4, R. Kislingbury (Runnymede). Class F: 1, 2 and 4, R. Duroe Orpington); 3, R. Parker (N.K.A.S.). Class G: 1, D. Charles (Caterham); 2, L. Laming (Medway); 3, J. Bellingham (Tonbridge); 4, L. Brazier (Sudbury). Class H: 1, L. Brazier (Sudbury); 2, C. Kislingbury (Sudbury); 3, A. Hope (Leytonstone); 4, B. Newman (Sittingbourne). Class J: 1, D. Newell (Sudbury); 2, J. London (Thurrock); 3, P. Coyce (Independent); 4, J. Bayley (Sudbury). Class K: 1, C. Kislingbury (Runnymede); 2, R. Bowes (Independent); 3, K. Dryden (Croydon); 4, Mr. and Mrs. Murphy (Ealing). Class L: 1, D. and B. Purchard (Tonbridge); 2, M. Sanford (Reigate); 3, J. Bayley (Sudbury). Class M: 1, D. and B. Purchard (Tonbridge); 2, D. Newell (Sudbury); 3, M. and R. Coyce (Independent); 4, J. Bayley (Sudbury). Class N-Bm: 1, R. Bowes (Independent); 2, P. Cottle (N.K.A.S.); 3, P. Coyce (Independent); 4, D. and B. Purchard (Tonbridge). Class N-Ot: 1, P. Cottle (North Kent); 2, B. Bissoon (Basingstoke); 3, J. Dryden (Croydon); 4, D. Winder (Dulwich). Class O: 1, Mr. and Mrs. Fry (N.K.A.S.); 2 and 3, Mr. and Mrs. Murphy (Ealing); 4, R. Peck (Basingstoke). Class P: 1 and 2, Mr. and Mrs. Fry (N.K.A.S.); 3, C. Green (N.K.A.S.); 4, R. Bowes (Independent). Class Q: 1, B. Bissoon (Basingstoke); 2, R. Baker (Tonbridge); 3 and 4, F. Lammas (Leytonstone). Class R: 1, L. Brazier (Sudbury); 2, C. Kislingbury (Runnymede); 3, P. Floyd (Sittingbourne); 4, C. Marsh (Medway). Class S: 1 and 2, J. London (Thurrock); 3, C. Kislingbury (Runnymede); 4, T. Taylor (Basingstoke). Class T: 1, K. Dryden (Croydon); 2, C. Marsh (Medway); 3, Mr. and Mrs. Fry (N.K.A.S.); 4, P. Cottle (N.K.A.S.). Class W: 1, Mr. and Mrs. Fry (N.K.A.S.); 2, R. Parker (N.K.A.S.); 3 and 4, Brett and Woodward (N.K.A.S.). Class X-bm: 1, Mr. Adams (Southern Independent); 2, P. Cottle (N.K.A.S.); 3, S. Jordan (Harlow); 4, Mr. Devierson (B.K.A.). Class X-ot: 1, B. Bissoon (Basingstoke); 2, P. Cottle (N.K.A.S.); 3, Mr. and Mrs. Fry (N.K.A.S.); 4, Mr. and Mrs. Fock (Brighton). Class Z: 1, P. Brown (Tonbridge); 2 and 4, J. Hughes (Roehampton); 3, C. Goddard (Sudbury). Best Fish in Show: D. and B. Purchard (Tonbridge).

* * *

AT the **South Shields A.S.** third Open Show members of Basingstoke and District A.S. made the long trek north, and twinned the two clubs with the handing over of a scroll beautifully designed, and it is hoped that South Shields can do the same at the Basingstoke Open Show on 6th July. There were 567 entries and the results were as follow: Best Fish in Show and Best Exhibitor: R. Atherton (Hartlepool). Best Society: Hartlepool. Furnished Jars: 1 and 2, P. R. James (Priory); 3, J. Robertson (Mount

Pleasant). Small Barbs: 1, J. Gallon (N.G.L.S.); 2, Mr. and Mrs. Dorner (Redcar); 3, J. Ford (Basingstoke). Large Barbs: 1 and 3, Mr. and Mrs. Davison (Ashington); 2, R. Atherton (Hartlepool). Small Characins: 1, J. Brown (Redcar); 2, J. Gallon (N.G.L.S.); 3, F. Sonnley (B.K.A.). Large Characins: 1, R. Atherton (Hartlepool); 2, Mr. and Mrs. Liddle (Ashington); 3, Mrs. Strange (Basingstoke). Angels: 1, Mr. and Mrs. Ruffell (South Shields); 2, G. Dixon (Basingstoke); 3, C. Knott (South Shields). Small Cichlids: 1, C. Enright (South Shields); 2, M. Lister, Jnr. (Stanley); 3, D. Turnbull (Mount Pleasant). Large Cichlids: 1, B. Cooper (Peterlee); 2, Mr. and Mrs. Lamb (Redcar); 3, R. Nesworthy (Peterlee). Haplochromis Derivitives: 1 and 2, R. Atherton (Hartlepool); 3, H. Hubbard (Peterlee). Fighters: 1, J. Beavers (Hartlepool); 2, F. Myers (Independent); 3, Mr. and Mrs. Shearer (Redcar). A.O.V. Labyrinths: 1, R. Atherton (Hartlepool); 2, G. Maguire, Jnr. (Hartlepool); 3, Mr. and Mrs. Smith (Redcar). Aphyosemion and Roloffia: 1, F. Sonley (B.K.A.); 2, D. Street (Whitley Bay); 3, P. Askew (South Shields). A.O.V. Egglaying Toothcarps: 1 and 2, I. Gardner (Washington); 3, Mr. and Mrs. Coates (South Shields). Tropical Catfish: 1, Mr. and Mrs. Saunders (Stockton); 2, I. Gardner (Washington); 3, G. Quantrill (Priory). Corydoras and Brochis: 1 and 3, R. Atherton (Hartlepool); 2, I. Gardner (Washington). Rasboras: 1, Mr. and Mrs. Saunders (Stockton); 2, Mr. and Mrs. Risbridger (South Shields); 3, I. Thompson (Redcar). Danios and White Clouds: 1, Mr. and Mrs. Liddle (Ashington); 2, Mr. and Mrs. Shearer (Redcar); 3, M. Lister, Jnr. (Stanley). Loach: 1, R. Nesworthy (Peterlee); 2, D. Turnbull (Mount Pleasant); 3, M. Lister, Jnr. (Stanley). A.O.V. Tropical Egglayers: 1 and 2, Mr. and Mrs. Liddle (Ashington); 3, D. Turnbull (Mount Pleasant). Sharks, Labeos, Flying Foxes: 1, K. Greenley (Half-Moon); 2, G. Brown (Mount Pleasant); 3, G. Clewer (Basingstoke). Egglayers Pairs: 1, M. Holman (Priory); 2, Mr. and Mrs. Risbridger (South Shields); 3, A. Scott (Peterlee). Livebearers Pairs: 1, J. Beavers (Hartlepool); 2, Mr. and Mrs. Dorner (Redcar); 3, J. Brown (Redcar). Guppies: 1, Mr. and Mrs. Shearer (Redcar); 2, Mrs. M. Quantrill (Priory); 3, F. Myers (Independent). A.O.V. Livebearer: 1, R. Onslow (Basingstoke); 2, M. Strange (Basingstoke); 3, Mr. and Mrs. Saunders (Stockton). Swordtails: 1, E. Prythergh (Ashington); 2 and 3, Mr. and Mrs. Ruffell (South Shields). Platy: 1, Mr. Wrightson (Bellingham); 2, Mr. and Mrs. Shearer (Redcar); 3, R. Kerr (N.G.L.S.). Molly: 1, Mr. and Mrs. Lamb (Redcar); 2, Mr. and Mrs. Moorhead (Ashington); 3, J. Brown (Redcar). A.O.V. Coldwater: 1 and 2, Mr. and Mrs. Eggo (Priory); 3, Miss Davison (Ashington). Breeders Egglayers: 1, Dr. Andrews (Independent); 2, Mr. and Mrs. Ruffell (South Shields); 3, H. Hubbard (Peterlee). Guppy Breeders: 1 and 2, R. Bottomley (Hartlepool); 3, I. Waggott (South Shields). Fun Class: A.V. Aquatic Reptile: 1, Mr. and Mrs. Risbridger (South Shields); 2, P. Whitfield (Independent); 3, L. Stephen (Independent).

* * *

RECENT events at the meetings of the **Kingston and District A.S.** have included interesting talks on a variety of subjects, one of which was an F.B.A.S. slide and tape lecture on Corydoras, given by C. A. T. Brown, F.B.A.S. Owing to the uncertain period earlier this year, it had been decided not to hold an Open Show, but a show is already being planned for next year. More details will be available later. Forthcoming items in the Society's programme include an "Exhibition of Fish and Aquaria," to be held at the New Malden Library during August. Meetings of the Society are held at Elm Road School, Kingston, Surrey, at 8 p.m. to 10 p.m. on the first and third Thursdays of each month, and all are welcome. Further details of the Society's events are available from the secretary, Mrs. D. Ellis, 6 Buxton Crescent, Cheam, Surrey.

* * *

DURING the June meeting of the **Mid-Sussex A.S.**, Cyril West (F.B.A.S. "B" class) judged the Table Show for Catfish "G" and "H" and Characins, while the members watched a King British film of Keith Barraclough in Malaysia. Mr. Soper, the chairman, thanked the members for their help in making this year's exhibition such a success. Any further information on the Society may be obtained from the secretary, John Reeve, 36 Rumbolds Lane, Haywards Heath. Tel: 3702 (evenings).

* * *

THE **Leicester A.S.** are staging an exhibition of furnished aquaria for both Tropical and Coldwater fish, with breeders' classes, and specimen tanks, at the City of Leicester Show, to be held at the Abbey Park, Leicester, on Monday and Tuesday, the 26th and 27th August. There will also be a grand pond layout, and this tent always creates a great attraction to visitors to the show. The Society meets at the St. Matthew's Community Centre, Malabar Road, Leicester, on the first Thursday in the month at 7.30 p.m. Anyone interested in the hobby would be very welcome.

* * *

THE June meeting of the **Bristol A.S.** was taken up by a Table Show, the results being as follow: Coldwater: Shubunkins: 1 and 2, R. Pinnock. Veiltails: 1, R. Pinnock. Tropical: Barbs: 1, Miss Morgan; 2 and 3, W. Ham. Loaches: 1, Miss Morgan. Catfish: 1, 2 and 3, Miss Morgan. The judges for the Table Show were G. Bell (Coldwater) and E. Bowden (Tropical). While the judging was taking place some of the older members gave a series of short talks on how they became members of the society, giving some idea of how much the equipment and various other aspects of the hobby has changed since the early 1930's.

* * *

MEMBERS of the **Weymouth A.S.** were given a talk at the June meeting on breeding tropical fish, by Jack Stillwell of Portsmouth A.S. He described many ways of setting up breeding tanks for many different varieties of fish. This included making a glass "trap" in a tank to save the young livebearers; cutting pieces of hosepipe to provide nesting places for Khuli Loaches; and setting up an old bath in the garden to breed W.C.M.M. Although W.C.M.M. are tropical fish, they live in the mountain streams in their natural habitat and can therefore stand the lower temperatures during the summer months. The Table Show results were as follow: H.H. and C.: 1 and 3, Mrs. J. Grundell; 2 and 4, D. Mullen. A.O.V. Characins: 1, D. Mullen; 2, B. Dalley. Goldfish: 1, Mrs. J. Grundell. Meetings are held on the second Tuesday of the month at 7.30 p.m. at the Ratcliff Hall, Queen Road, Radipole Spa, Weymouth. New members and visitors are very welcome. The Club Show and Exhibition on 1st September will be held at the Hotel Prince Regent, Esplanade, Weymouth, at 3 p.m.

* * *

THE July-August "Toras Topics," the magazine of the **Torbay A.S.**, is another well presented and informative issue, containing a number of articles on a variety of aquatic subjects. The list of future meeting programmes given until the end of the year includes a number of excellent and informative subjects which must prove of interest to all aquarists whether novice or expert. The society meets on alternate Tuesdays, and full details can be obtained from J. Denning, 297 Teignmouth Road, St. Marychurch, Torquay TQ1 4RT. Tel: 38404.

* * *

OPEN Show results of the **Lincoln and District A.S.** were as follow: Section 1. Livebearers—Guppies: 1, D. and M. Laycock (Sheaf Valley); 2, D. Caldow (Scunthorpe); 3, H. and M. Buxton (Sheffield). Swordtails: 1, Mr. Ardron (Doncaster); 2, D. and M. Laycock (Sheaf Valley); 3, Mr. and Mrs. Roberts (Doncaster). Mollies: 1, J. Igoe (Sherwood); 2, Mrs. Stephenson (Sherwood); 3, Mr. and Mrs. Blades (Cresswell). Platies: 1 and 2, D. and M. Laycock (Sheaf Valley) (section winner); 3, Mr. and Mrs. Daines (Doncaster). Section 2. Barbs—Small Barbs: 1, Mr. and Mrs. Vickers (Doncaster); 2, Mr. and Mrs. Burton (Blackburn); 3, E. Neville (Grantham). Large Barbs: 1 and 2, Mr. Goldson (Lincoln) (section winner); 3, Mr. and Mrs. Blades (Cresswell). Section 3. Characins—Small Characins: 1, D. and M. Laycock (Sheaf Valley) (section winner); 2, S. Walker (Grimsby and Cleethorpes); 3, Mr. Jackson (Doncaster). Large Characins: 1, Mr. and Mrs. Bailey (Sherwood); 2, Mr. and Mrs. Daines (Doncaster); 3, M. Walkington (Bridlington). Section 4. Toothcarps, Minnows and Danios—Killiefish: 1, T. Smith (Sheffield) (section winner); 2, Mr. and Mrs. Blades (Cresswell); 3, Mr. Carr (Doncaster). Minnows and Danios: 1, Mr. and Mrs. Stanton (Sheffield); 2, A. Kirk and Son (South Humberside); 3, Mr. and Mrs. Emerson (Castleford). Section 5. Sharks and Rasboras—Sharks and Foxes: 1, Mr. Blundell (Doncaster); 2, Jackson and Bolder (Grimsby and Cleethorpes); 3, Mr. and Mrs. Stanton (Sheffield). Rasboras: 1, Mr. Ardron (Doncaster) (section winner); 2, Mr. Thorpe (Doncaster); 3, Mr. and Mrs. Stanton (Sheffield). Section 6. Cichlids—Dwarf Cichlids: 1 and 2, Mr. and Mrs. A. Binns (Scunthorpe); 3, D. Underwood (Special Aquatic). Large Cichlids: 1, Mr. and Mrs. Sellars (Lincoln); 2, T. E. Ingram (Special Aquatic); 3, Mr. and Mrs. Blades (Cresswell). Angels: 1, Mr. and Mrs. Sellars (Lincoln) (section winner); 2, Mr. and Mrs. Bailey (Sherwood); 3, A. Kirk and Son (South Humberside). Section 7. Catfish and Loaches—Catfish: 1, Mr. Blundell (Doncaster); 2, B. Wressell (Scunthorpe); 3, Mr. Goldson (Lincoln). Loaches: 1 and 3, Mr. and Mrs. A. Binns (Scunthorpe) (section winner); 2, J. Randall (South Humberside). Section 8. Fighters and Anabantids—Fighters: 1 and 3, L. Smith (Castleford) (section winner); 2, D. and M. Laycock (Sheaf Valley). A.O.V. Anabantids: 1, Mr. and Mrs. Stanton (Sheffield) 2, Mr. and Mrs. Blades (Cresswell); 3, Mr. and Mrs. Simpson (Worksop). Section 9. A.O.V. Tropical: 1, D. Caldow (Scunthorpe) (section winner); 2, A. Feasey (Doncaster); 3, Mr. and Mrs. Guy (Doncaster). Section 10. Pairs Egglayers: 1, Mr. and Mrs. R. T. Bull (Derby) (section winner); 2, D. Caldow (Scunthorpe); 3, Mr. Ardron (Doncaster). Pairs Livebearers: 1, Mr. and Mrs. Fletcher (Doncaster); 2, Mr. and Mrs. Daines (Doncaster); 3, Hughes and Walker (Grimsby and Cleethorpes). Section 11. Junior Egglayers: 1, T. Senior (Lincoln) (section winner); 2, G. Allen (South Humberside); 3, Master J. Emerson (Castleford). Junior Livebearers: 1, A. Clark (Castleford); 2, A. Feasey (Doncaster); 3, Miss J. Cavill (Doncaster). Section 12. Breeders Egglayers (1-10): 1, Mr. Armstrong (Grantham); 2, Mr. Thorpe (Doncaster); 3, T. Smith (Sheffield). Breeders Egglayers (11-20): 1, Mrs. Wells (Doncaster) (section winner); 2, Mr. and Mrs. Fletcher (Doncaster); 3, L. Smith (Castleford). Breeders Livebearers (1-10): 1, A. Feasey (Doncaster); 2, Mr. and Mrs. Kilvington (Doncaster); 3, Mr. Blundell (Doncaster). Breeders Livebearers (11-20): 1, Mr. and Mrs. Kilvington (Doncaster). Section 13. Novice Class: 1 and 2, Mrs. D. Nicholson (Sherwood) (section winner); 3, Master M. Bryant (Doncaster). Section 14. A.V. Marine Fish: 1, Mr. Fletcher (Lincoln) (section winner); 2 and 3, D. Caldow (Scunthorpe). Section 15. Any Tropical Female: 1, Mr. and Mrs. Kilvington (Doncaster) (section winner); 2, Mr. Jackson (Doncaster); 3, Mr. and Mrs. Stanton (Sheffield). Section 16. Ladies Class: 1, Mrs. Copley (Doncaster) (section winner); 2, Mrs. P. Laycock (Sheaf Valley); 3, Mrs. I. Simpson (Worksop). Section 17. Goldfish and Comets: 1, Mr. and Mrs. R. T. Bull (Derby); 2, Mrs. Lilly (Bridlington); 3, Mr. and Mrs. Barlow (Grantham). Shubunkin and Fancy Goldfish: 1 and 2, P. Robson (Bridlington); 3, Mrs. J. E. Asquith (Castleford). Section 18. Furnished Tank: 1, R. Fletcher (Lincoln). Best Fish in Show: Mr. Goldson (Lincoln).

* * *

MEMBERS of the **Bournemouth A.S.** were entertained recently with a film show with slides. The chairman, as the slides were shown, asked the club members questions about the various fish and their habitats. This proved very interesting, because it tested many of the newcomers to the fishkeeping hobby. During the interval, with the aid of a suggestion sheet, the members decided on a club badge. Monthly Table Show results: Platies: 1, 2 and 3, J.

Jeffery. Swordtails: 1 and 2, Mr. Middleton. Siamese Fighters: 1, J. Jeffery; 2, K. Gibbs; 3, Mr. Greenhalge. O.B. Pairs: 1 and 2, E. Chadfield. For further information about the society, please contact R. Matley, 36 Blake Dene Road, Parkstone, Poole.

* * *

THE **Lincoln and District A.S.** will be holding a Bring and Buy on Monday, 21st October, at the Liberal Club, St. Swithins Square, Lincoln, at 7.30 p.m. Reserves accepted, 15 per cent to the society.

* * *

AN interesting talk was given at the June meeting of the **S.P.A.S.S.** by P. Bienacki, on some of the many coldwater fish diseases, together with a number of the remedies available. This was followed by question and answers. Meetings are held every third Tuesday in the month at the Wimbledon Community Centre, St. Georges Road, London, S.W.19, or enquiries Mrs. M. Dudley (01-540 5662).

* * *

THE second annual Open Show results of the **Dunmow and District A.S.** were: Best Fish in Show: A. Feast (Tonbridge). Society with Most Points: Harlow. Mini Furnished Aquaria: 1, A. Worth (Mid-Herts.); 2, Mr. and Mrs. Tedladay (Chingford); 3, I. Farlow (Dunmow). Barbs: 1, Mr. and Mrs. Hubert; 2, M. Lewis (Sudbury); 3, B. Bassoon (Basingstoke); 4, F. Jacobs (Romford). Characins: 1, K. Usher (Anson); 2, P. Coyle (Independent); 3, Miss R. Coyle (Independent); 4, A. Feast (Tonbridge). A.V. Cichlids: 1 and 2, R. Thoday (Dunmow); 3 and 4, Mr. and Mrs. Hubert. Dwarf Cichlids: 1, S. A. L. Feast (Tonbridge); 2, V. G. Green (S.A.P.A.); 3, E. C. Fantham (Sudbury); 4, M. Pearson (Dunmow). A.O.V. Labyrinths: 1, A. Chandler (Walthamstow); 2, T. Woolley (Harlow); 3, M. Lewis (Sudbury); 4, L. Brazier (Sudbury). Fighters: 1, A. Worth (Mid-Herts.); 2, A. Thacker (Vauxhalls); 3, B. Bassoon (Basingstoke); 4, A. P. Taylor (Sudbury). Killifish: 1, D. G. Wood (Haverhill); 2, R. Thoday (Dunmow); 3 and 4, R. A. Ott (Haverhill). Catfish: 1, E. C. Fantham (Sudbury); 2, T. Woolley (Harlow); 3, J. London (Thurrock); 4, W. Mason (Rochampton). Corydoras-Brochis: 1, P. W. Cottle (North Kent); 2, K. Usher (Anson); 3, C. Breitkreutz (S.A.P.A.); 4, A. P. Taylor (Sudbury). Rasboras: 1, M. Lewis (Sudbury); 2, W. Mason (Rochampton); 3, A. P. Taylor (Sudbury); 4, P. W. Cottle (North Kent). Danio-W.C.M.M.: 1 and 3, R. Kerridge (Harlow); 2, A. Thacker (Vauxhalls); 4, I. Farlow (Dunmow). Loach: 1, A. Feast (Tonbridge); 2, K. Usher (Anson); 3, Master T. Coyle (Independent); 4, V. G. Green (S.A.P.A.). A.O.V. Tropical Egglayers: 1, Mr. and Mrs. Hubert; 2, P. Coyle (Independent); 3, Mrs. R. Coyle (Independent); 4, G. Sutton (Chelmsford). Sexed Pairs (Egglayers): 1, S. Jordan (Harlow); 2, P. W. Cottle (North Kent); 3, J. London (Thurrock); 4, P. Coyle (Independent). Sexed Pairs (Livebearers)—F.B.A.S. Trophy: 1, G. Smith (Walthamstow); 2 and 4, K. Usher (Anson); 3, S. Jordan (Harlow). Male Guppy: 1, A. E. Noronha (Orpington); 2, P. Coyle (Independent); 3, K. Martin (Thurrock); 4, E. Mistud (Dunmow). Female Guppy: 1, T. Woolley (Harlow); 2, K. Martin (Thurrock); 3, B. Meech (Dunmow); 4, A. E. Noronha (Orpington). A.V. Sweetfail: 1, J. H. Preston (Southend); 2, F. Jacobs (Romford); 3, S. A. L. Feast (Tonbridge); 4, T. Woolley (Harlow). Platies: 1 and 2, G. Smith (Walthamstow); 3, W. Mason (Roehampton); 4, A. Chandler (Walthamstow). Mollies: 1, and 2, J. London (Thurrock); 3, W. Terris (Chingford); 4, M. Clark (Harlow). A.O.V. Livebearers: 1, D. M. Cheswright (Southend); 2, F. Jacobs (Romford); 3, A. Chandler (Walthamstow); 4, K. Usher (Anson). Tropical Egglayers (Breeders): 1, A. Chandler (Walthamstow); 2, V. G. Green (S.A.P.A.); 3, Mr. and Mrs. Hubert; 4, R. A. Ott (Haverhill). Tropical Livebearers (Breeders): 1 and 2, K. Usher (Anson); 3, S. Jordan (Harlow); 4, D. M. Cheswright (Southend). With 468 entries and 23 societies competing, this show was a satisfactory improvement on last year's annual show.

* * *

IN August, **Slough and District A.S.** will be holding an "Eight-a-Side" with High Wycombe A.S. and to make it a little more interesting there will be a General Fishkeeping Quiz. The meeting will be held on 21st August at 8 p.m. at the Friends Meeting House, Ragstone Road, Slough.

* * *

NEW officials for the **Aberdeen A.S.** are as follow: President, S. McPherson; vice-president, D. Strachan; secretary, R. Baxter, 20 Colthill Circle, Milltimber, Aberdeen. Tel: Aberdeen 732551; treasurer, J. Reidford; show manager, G. C. Robertson, 88 Cornhill Road, Aberdeen. Tel: 45440.

* * *

SLIDE Show on "Gems in the Rough" was shown at the **Peterborough Fishkeepers Association,** by E. Allen at the meeting held in July. He also gave a very good slide show on Koi and Building a Pond. Table Show: Open A.V.: 1, K. M. Fox; 2, C. A. Brakes; 3, R. Fairchild. The secretary is C. A. Brakes, 62 Wisbech Road, Thorney, Peterborough PE6 0SD.

* * *

COMMITTEE members of **Hemel Hempstead A.S.** for the coming year are as follow: Chairman, A. Dibley; vice-chairman, A. Bloice; treasurer, Miss Kate Yearsdon; secretary, Mrs. Helen Bloice; minutes secretary, Mrs. Mary Whitby; show secretary, I. Scragg; assistant show secretary, V. Mills; social secretary, K. Markham; librarian, G. Whitby; junior representative, G. Bloice. The annual general meeting was held in June.

* * *

AT the May monthly meeting of the **Cotswold A.S.** all the club members took part in judging a competition of some 70 paintings which had been painted by the children of Parliament Street Infants School, Stroud. The subject of the paintings was "Tropical Fish and Their Habitat." The speaker at this meeting was B. Goll who gave a very interesting talk on fish foods and how to make your own. The Table Show was Furnished Sweet Jars, and the results were: 1, K. Hodges; 2, Mrs. G. Hodges; 3, Mrs. S. Sargent.

* * *

NEW SOCIETIES

THE **Midland Cichlid Society** has been formed and the Club nights are held on the second Tuesday of the month at 7 p.m. in the Midland Vaults, Upper High Street, Wednesbury, Staffs. All will be made welcome. The secretary is P. J. Baugh, 13 Telford Close, West Bromwich, Staffs.

* * *

A NEW club, **Basford and District A.S.,** has been formed and any new members will be greatly welcomed. The club chairman is G. Guest, 166 Vernon Road, Old Basford, Nottingham, and the secretary is Mrs. W. Smith, 4 Norman Street, Netherfield. The next meeting will be held on 8th August at 8 p.m., at 2 Southglade Road, Bestwood Estate, Nottingham.

* * *

SECRETARY CHANGES

Hinckley and District A.S.: G. Hayes, 51 Henry Street, Hinckley.

Rotherham and District A.S.: Mrs. Joan Eaglestone, 218 Hague Avenue, Rawmarsh, nr. Rotherham, Yorks.

The British Koi-Keepers' Society: Gen. secretary, A. J. Bullock, 150 Ashburton Avenue, Seven Kings, Ilford, Essex IG3 9EL. Membership secretary, D. C. Davis, 137 Gayfield Avenue, Withymoor Village, Brierley Hill, Staffs. Tel: 0384 75791.

Barnsley T.F.S.: E. Hampshire, 11 Waterloo Road, Barnsley, Yorks S70 6EL.

Grimwood A.S.: R. Atherton, 232 Ormskirk Road, Upholland Moor, Skelmersdale. Tel: Skelmersdale 24705.

* * *

CHANGE OF ADDRESS

Farnworth and District A.S.: Secretary, K. G. Leech, 124 Kingsbrook Road, Whalley Range, Manchester 16 M16 8NT.

SHOW VENUE CHANGE

The new venue for the **Hinckley and District A.S.** Open Show to be held on 6th October, is Westfield Community Centre, Rosemary Way (off Coventry Road), Hinckley, Leics.

* * *

SHOW CANCELLATION

Due to circumstances beyond their control, the **Hucknall and Bulwell A.S.** are cancelling this year's Open Show, which was to be held on the 29th September.

* * *

DATE CHANGES

The Open Show of the **Northampton and District A.S.** has been brought forward one week and will now be held on 22nd September. The venue remains the same.

A new date and venue has been found necessary by **Grimwood A.S.** for their third Open Show. The revised date is now 29th September and the new venue is the Ecumenical Centre, Skelmersdale.

The revised date of **Blackburn and District Waterlife Society** Open Show is now 3rd November, one week earlier than previously stated.

* * *

AQUARIST CALENDER 1974

2nd-3rd August: The Open Show will be held in conjunction with the Hull Show in the East Park, Holderness Road, Hull. As well as the Open Show there will be a display of aquaria for the interest of the public. There is also the rest of the show ground for everyone to enjoy.

3rd-4th August: Tottenham and District A.S. Open Coldwater Show will be held in conjunction with Haringey Judges G.S.G.B. Further details of the show and show schedules can be obtained from the Show Secretary, S. Townson, 1 Haslam Court, Waterfall Road, London N11 1NJ. Tel: 01-368 2091.

4th August: Tonbridge and District A.S. Open Show. Show Secretary: I. T. Matheson, 33 Nortons Way, Five Oak Green, Tonbridge, Kent.

4th August: Blackpool and Fylde A.S. Open Show at the Norbeeck Castle Hotel, Blackpool.

10th August: Newport (Mon.) A.S. Open Show, St. John's Hall, Victoria Avenue, Maindee, Newport, Mon. Schedules from Show Secretary, W. Gibbon, 65 Dunstable Road, Newport, Mon. Tel.: 74103.

11th August: Grimsby and Cleethorpes A.S. third Annual Open Show will be held at the Memorial Hall, Cleethorpes. Schedules later.

15th-17th August: Midland Aquatic Festival, Bingley Hall, Broad Street, Birmingham.

17th August: Anson Aquatic Club Annual Open Show to be held at Kings Hall Community Association, 155 Harlesden Road, Willesden, N.W.10. Details to follow.

17th-18th August: Harwich and District A.S. Annual Show at the Queens Hotel, Dovercourt.

18th August: Stroud and District A.S. will be holding their Open Show at Stroud Subscription Rooms, George Street. Schedules from J. Cole, Avignon, The Hill, Randwick, Stroud, Glos. Tel: Stroud 4504.

18th August: Huddersfield Tropical F.S. Open Show at Paddock Youth Centre, Beech Street, Huddersfield. Details from: H. Ackroyd, 51 Warrenside, Deighton, Huddersfield. 37997.

25th August: Bedworth A. and P.S. Open Show at Nicholas Chamberlains School, Bulkington Lane, Bedworth. Schedules from Mr. J. Salisbury, 261 Gadsby Street, Nuneaton.

25th August: Castleford A.S. Open Show, Civic Centre, Castleford. Further details from P. Hayes. Tel: Castleford 2782. Letters to Mrs. J. E. Asquith, 32 Lower Oxford Street, Castleford.

25th-26th August: Gt. Yarmouth and District A.S. Tropical Fish Exhibition at Youth and Adult Centre, St. Nicholas Road, Great Yarmouth. Furnished Aquaria, Tropicals, Show Fish, Coldwater and Marines, Trade stands, etc. Further details from Mr. P. Watson, Petnne, 31 Common Road, Hemsby, Gt. Yarmouth.

31st August: Weston-super-Mare and District T.F.C. Fifth Annual Open Show at St. John's House, Oxford Street, Weston-super-Mare. Details from Mrs. M. Tanner, Show Secretary, 6 Byron Road, Locking, Weston-super-Mare.

September: Goldfish Society of Great Britain Open Show. Date and venue to be announced later.

1st September: Wellingborough and District A.S. (F.B.A.S.) annual Open Show at the Queensway Hall, Goldsmith Road, Wellingborough, Northants. Show schedules are obtainable from P. Wallis, 12 Cherry Walk, Raunds, Northants.

1st September: Peterlee and District A.S. 13th annual Open Show. Schedules available later from A. Bebbington, 40 Marlborough Road, Hastings Hill, Sunderland.

1st September: Bethnal Green A.S. 25th Open Show at The Institute, 229 Bethnal Green Road, E.2. Schedules from Show Secretary, Sybil Hedges, "Koi Kernor," 150 Ashburton Avenue, Ilford, Essex. F.B.A.S. Championship class to be announced. New members made welcome.

1st September: Newbury and District A.S. second Open Show will be held at The Plaza, Market Place, Newbury, Berks. Details and Schedules from G. Foster, 19 Jubilee Road, Newbury, Berks.

1st September: Yorkshire A.S. Open Show to be held at Moorland Drive Sports Centre, Stocksbridge, nr. Sheffield. Information from Frank Toyne, 10 Barber Crescent, Sheffield 10.

6th September: Worksop Aquarist and Zoological Society is holding a Mini-Open Show at Worksop Boys Club, Shaw Street, Worksop (opposite St. John's Church). Benching from 7.15 p.m. to 8 p.m. Schedules will be available from J. B. Clarke, 116 Lordens Hill, Dinnington, nr. Sheffield, Yorks.

7th September: The Goldfish Society of Great Britain annual Open Show will be held at Sutton Adult School, Sutton, Surrey. The committee invite all coldwater enthusiasts to take part in this Open Show. Schedules available from Mrs. Dudley, 163 South Park Road, Wimbledon, S.W.19.

8th September: Harlow A.S. Annual Open Show, Moot Hall, The Stow, Harlow. Show Secretary, 21 Brooklane Field, Harlow, Essex.

8th September: Bracknell, Didcot and Reading A.S. Joint Open Show to be held at the Students' Union, Reading University. Show Secretary: J. Horsey, 4 Rickman Close, Woodley, Reading, Berks., RG5 3LL. Tel: Reading 666917.

8th September: Slough and District A.S. Invitation Show at the Rotunda Club, Slough.

8th September: Cleveland A.S. Open Show at the Church Hall, Whitby Road, Guisborough. Show schedules from B. Welford, 1 Railway Terrace, North Skelton, Saltburn.

8th September: Nuneaton A.S. Open Show, Friary Youth Centre, Abbey Street, Nuneaton, Warks. Schedules from show secretary, M. Short, 8 Greenhill Road, Stoke Golding, Nr. Nuneaton, Warks.

8th September: Barnsley T.F.S. tenth annual show at Mappewell Village Hall, Barnsley. Details from E. Hampshire, 11 Waterloo Road, Barnsley, Yorks.

13th, 14th September: The Bristol A.S. show this year will take place at Bishopston Parish Halls. Further details can be obtained from the show secretary: Mr. E. Bowden, 12 Stoneleigh Walk, Knowle, Bristol, BS4 2RL.

14th September: Hounslow and District A.S. Annual Open Show to be held at Cecil Road Youth Centre, Hounslow. Secretary, H. Pratt, 23 Woodlawn Drive, Feltham, Middlesex. Tel:01-894 0923. Show venue to be confirmed.

14th September: Malvern & District A.S. first Open Show. Schedules are obtainable from show secretary, D. West, 9 Mamby Road Great Malvern, Worcs.

15th September: Nelson A.S. Annual Open Show at the Civic Centre, Stanley Street, Nelson. Details from H. Illingworth, 94 Barrowfold Road, Colne, Lancs.

15th September: Goodyears End A.S. Second Open Show at George Street School, Bedworth. Details from: Mrs N. Nesbit, 104 Newcomen Road, Bedworth, Nuneaton, Warwickshire.

15th September: Bishop Auckland A.S. sixth annual Open Show, Y.M.C.A., Proudfoot Drive, Woodhouse Close Estate, Bishop Auckland. Schedules from B. Minto, 111 Craddock Street, Spennymoor, Co. Durham.

21st September: Annual Open Breeders Show for the East London Aquarist and Pondkeepers' Association will be held at Ripple Road School, Ripple Road, Barking, Essex. Show schedules are obtainable from Show Secretary, F. Vickers Esq., 13 Irons Way, Romford, Essex.

22nd September: Torbay A.S. proposes to hold its sixth Annual Open Show at the Torquay Town Hall. Show schedules from J. R. Davis, 43 Halden Road, Torquay, Devon.

22nd September: Hastings and St. Leonards A.S. Open Show at St. Clements Church Hall, Croft Road, Hastings. Show manager, M. Penfold, 44 St. Mary's Road, Hastings, Sussex.

22nd September: Buxton and District A.S. Open Show at Pavilion Gardens, Buxton. Show secretary, D. Cotterill, 15 Peacefield, Marple, Nr. Stockport.

22nd September: Northampton and District A.S. Open Show at the Drill Hall, Clare Street, Northampton. Show schedules from Show Secretary, G. Allatt, 30 Chiltern Avenue, Northampton, when available.

22nd September: Rotherham A.S. Show, Broom Valley Junior School, Broom Valley Road. Benching 12 noon to 2 p.m. Schedules from Mrs. J. Eaglestone, secretary, 218 Hague Avenue, Rawmarsh, Rotherham S62 7PR.

28th September: Hendon and District A.S. Open Show. Further details to follow.

29th September: Chesterfield and District A.S. Annual Open Show. Venue, Clay Cross Social Centre, Chesterfield Road, Clay Cross, Nr. Chesterfield, Derbyshire. Exit 29 off M1. Follow signs four miles to show. The spacious venue is situated on the A61. For further details apply to Show Secretary, J. Tomlinson, 16 Bradbury Drive, Wingerworth, Chesterfield.

29th September: Grimwood A.S. third annual Open Show to be held in the Skelmersdale Ecumenical Centre, Skelmersdale. Details from R. Atherton, 232 Ormskirk Road, Upholland Moor, Skelmersdale. Tel: Skelmersdale 24705.

5th October: Cardiff A.S. Open Show at St. Margarets Church Hall.

6th October: Vauxhall Motors Recreation Club Aquarist Section second Open Show. Details and Show Schedules available from the Show Secretary, A. D. Philip, 15 Hollybush Road, Luton, Beds. LU2 9HG.

6th October: Fifth annual Open Show organised by the Newcastle Guppy and Livebearer Society at the Civic Hall, Gosforth, Newcastle-upon-Tyne. This will be the first all livebearer show held in this country. Schedules available shortly from Mrs. J. Renton, 128 Dunstan Tower, Garth 18, Killingworth, Newcastle-upon-Tyne NE12 0TX.

6th October: Scunthorpe and District A.S. will be holding their first Open Show at St. Paul's Church Hall, Ashby High Street, Scunthorpe.

6th October: Hinckley and District A.S. Open Show at Heathfield High School, Belle Vue Road, Earl-Shilton. More information from Secretary, K. Bates, 6 Merevale Close, Hinckley, Leics. LE10 0PZ.

6th October: Hinckley and District A.S. Open Show at the Westfield Community Centre, Rosemary Way (off Coventry Road), Hinckley, Leics. Show secretary, R. Impey, 25 Beryl Avenue, Hinckley, Leics.

6th October: Kent A.A.S. Open Show, Medway and Maidstone College of Technology, Maidstone. Show secretary, T. A. King, 57 Murchison Avenue, Bexle, Kent.

12th-13th October: British Aquarists Festival, Belle Vue, Manchester.

20th October: Sherwood A.S. Open Show, to be held at the Thoresby Miners Welfare Hall, Edwinstowe, Ollerton, nr. Mansfield, Notts. Schedules from show secretary, J. Igoe, 25 Marples Avenue, Mansfield Woodhouse, Notts. Tel: Mansfield 32249.

26th/27th October: The Irish Tropical Fish Society will hold their third Annual Show at the Mansion House, Dawson Street, Dublin 2. Information and Show Schedules may be obtained from J. P. Naismith, Hon. Secretary, Kilgobbin, Sandyford, Co. Dublin.

27th October: Doncaster and District A.S. Open Show at Brodsworth Miners Welfare, Welfare Road, Woodlands.

27th October: Ilfracombe and District A.S. Open Show at The Pavilion, Sea Front, Ilfracombe. Details from show secretary, Mrs. S. Lipscombe, 8 Foxbear Road, Ilfracombe, Devon.

2nd November: Goldfish Society of Great Britain (meeting). Conway Hall, Holborn, London, W.C.2. 2 p.m.

3rd November: Blackburn Aquarist Waterlife Society Open Show. Venue will be the "Windsor Hall," Blackburn. Details may be had from Show Secretary: B. Marshallsea, 10 Hawthorn Crescent, Oldham, Lancs.

10th November: Halifax A.S. Open Show at the Forest Cottage Community Centre, Cousin Lane, Illingworth, Halifax. Individual Furnished Aquaria, Plant and Marine classes included. Schedules from David Shields, "Cobblestones," Gainsit, King Cross, Halifax. Phone Halifax 60116.

10th November: Walthamstow and District A.S. Open Show.

10th November: Hartlepool A.S. 16th Annual Open Show. Longscar Hall, Seaton Carew. Schedules available later from M. Sneddon, 35 Spurn Walk, Hartlepool or S. Hay, 43 Ventnor Avenue, Hartlepool.

17th November: Bradford and District A.S. 27th Annual Open Show at East Bowling Unity Club, Leicester Street, Wakefield Road, Bradford.

1st December: Horsforth A.S. 5th Open Show at the new Civic Hall, Stanningley Road, Pudsey.
