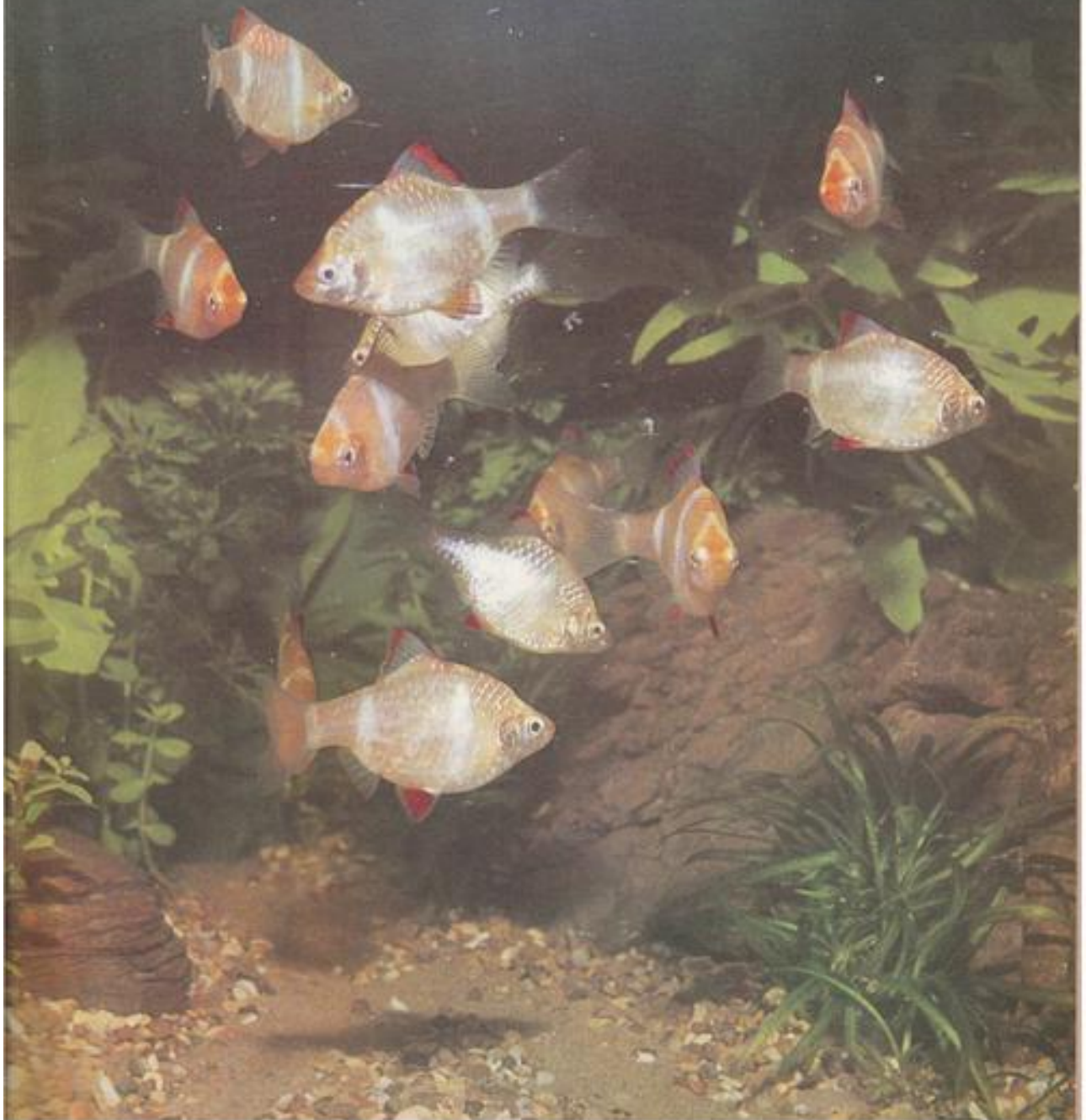


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THE AQUARIST

AND PONDKEEPER





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Our Cover
Albino Tiger Barbs

The Editor accepts no responsibility for views expressed by contributors.

Is Your Filter Really Necessary?

by R. C. Mills

THE "BALANCED AQUARIUM" is a well-known principle—an ideal or myth, depending upon one's viewpoint; the theory is that the fish and plants in an aquarium are dependent upon each other for their well-being. If both life-forms are selected with an eye towards this, the aquarium will be self-supporting although the aquarist will need to add a motivating force (food!) to keep this "perpetual" state of affairs going. Apart from this slight chore, the fish will fertilise the plants which in turn will keep the water pure by absorbing the carbon dioxide and waste products from the fish.

The arguments over this Utopian state will continue to be bandied about and I, for one, am not going to stir it up again but rather would like to turn to another aspect of tank management—filtration.

In all the pros and cons of the "Balanced Aquarium" controversy little has been made of the part that filters can play; could it be that this modern aid is not as necessary as some people would have us believe?

Jack Hems, in an answer to "Tropical Queries" (*Aquarist*, March 1970), agrees that there is no perfect filter and maintains that in a reasonably stocked tank water changes will not be necessary for at least a year. In addition, he makes some unfavourable remarks about sub-gravel filters ("Tropical Queries," *Aquarist*, Feb. 1971) and in his book, "Freshwater Aquarium Fishes" (Harvey and Hems, Spring Books), he says, "... in fact, neither measure ... (aeration or filtration) ... is essential if the aquarium is not overcrowded, but they have their value in very deep aquaria and those that are crowded with fish." Supporting this, Arthur Boarder says, "I have had coldwater tanks in a living room for thirty years or more and have never used either of these apparatus. (Aeration or filtration). If one is forced to use an aerator then it is a sure sign that the tank is over-crowded. As for a filter, I consider that it is quite unnecessary in a set-up which is correctly functioning. All that will be needed is the weekly servicing when the front glass only is cleaned and the mulm from the front half of the tank is removed with a siphon." ("Breeding Goldfish"—*Aquarist*, Feb. 1971.)

Why use a filter? The answer most people

would give to this question would be, "To keep the tank clean." On breaking the answer down further what emerges is that most aquarists mean, "clear water and a clean tank-floor." This seems knowing what effect is wanted rather than how to get it and I am not convinced, after several years of fishkeeping, that filters are necessary except in isolated cases or for very special purposes. To me, and no doubt this will be considered heresy by a lot of aquarists, there is no need for a permanent filter (however quiet-running or unobtrusive it may be) on the average tank.

Unfortunately, the seeds of this idea are sown early on in the aquarist's life of fishkeeping; you know the idea—the salesman in the shop gets the tank off the shelf and proceeds to fill it up with all the paraphernalia; "Oh yes, sir, there's your heater, 'stat, pump and filter, you'll find it all quite easy to assemble ..." and so on, and the die is cast. The main victims of this delusion are the beginners and the "buy-it-all-in-one-go" brigade. Obviously the novice believes he has to have these items, later on he assumes that a bigger filter is a better filter and a vicious spiral is started. On one hand the demands made on a filter often exceed its capabilities and on the other, many virtues are attributed to it without any basis of fact; what is a filter and what will it do?

Filters, in the main are mechanical devices (except for the biological under-gravel type) and can be either air- or power-operated; they will clear the water, removing suspended particles from it and also remove some dissolved minerals and gases by means of a charcoal bed. Filters will continue to function with little or no regular maintenance, depending upon the type of filter used.

Taking the "mechanical" types of filter first, we see that these achieve their object by passing water from the tank through a chamber containing filtering medium of some description, and then returning the clean water back to the tank. Usually, water is siphoned into the filter box and the cleaned water pumped out; this system avoids the filter overflowing should the filter medium become clogged, in which case the water can only rise in the filter box to the level of the water in the tank, when the siphon action

will stop. The pumping action is usually an airlift, although more sophisticated filters use motor-driven impellers. These types of filters include inside corner filters on the surface of the water, inside box filters on the gravel, outside air-operated filters, outside power-operated filters and closed-circuit outside power filters.

The simplest filter is the sponge type (Fig. 1), where water is drawn through a sponge and released at the top of the tank. My only criticism of this type is that the clean water should be released further away from the sponge; a length of plastic hose will help achieve this.

The inside corner filter suffers from the drawback in that water is pumped *into* it, so that if the filter becomes clogged, dirty water overflows into the tank (Fig. 2).

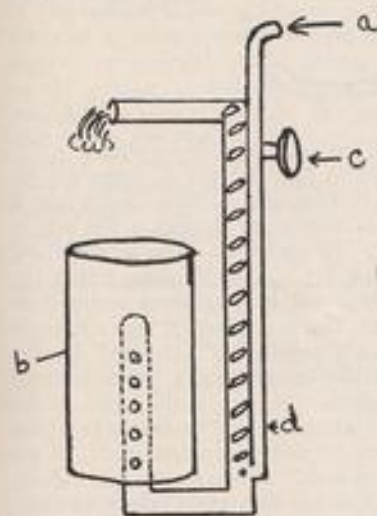


Fig. 1.

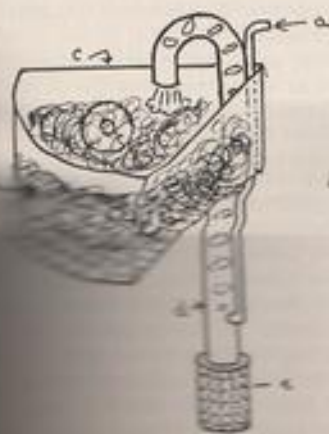


Fig. 2.

Inside bottom filters are very efficient and convenient (Fig. 3), but *only* if they are easily accessible for *regular* cleaning; certainly not for use in tanks in out-of-the-way situations!

Outside filters are very popular, but usually one needs to cut the tank hood to accommodate them neatly; also some of the faster water turnover types have long, ungainly pipes which may be a problem to hide. Another factor, all air-operated filters are noisy to some degree, depending on the speed at which they are run and this can have an effect on one's comfort far removed from the usually quoted tranquillising one that aquaria are renowned for! (Fig. 4).

Power-operated filters are usually quieter, have a fast water turnover rate (which may or may not be a good thing), but sometimes are a bit unaesthetic.

A recent development has been the introduction of motor attachments to "powerise" the more normal air-operated outside filter. Such a fitment increases the water turnover rate, but this can also be achieved by fitting different airlift systems (Fig. 5).

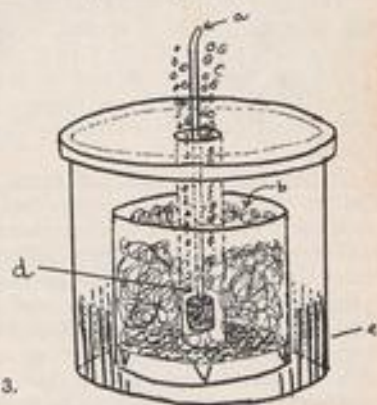


Fig. 3.

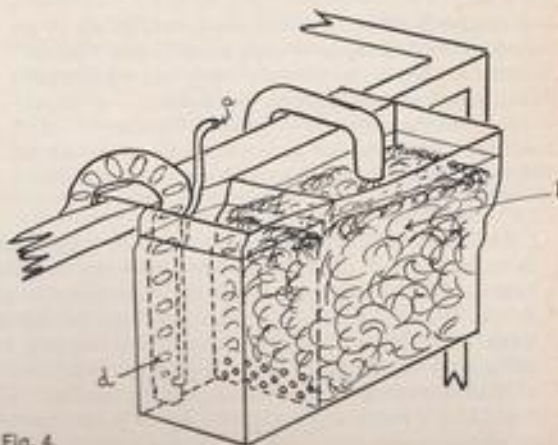


Fig. 4.

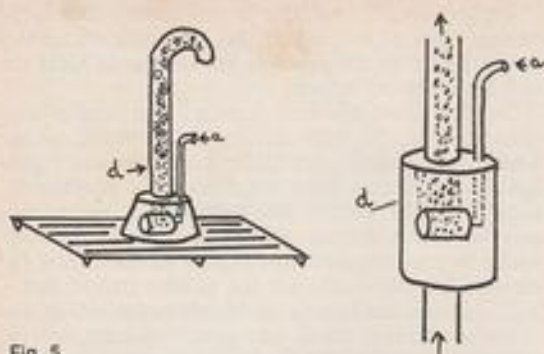


Fig. 5.

Sub-gravel filters are usually classed as being "biological" in operation; water is drawn through the gravel, a bacterial colony is set up which breaks down the debris pulled into the gravel, and clean water is released at the surface, or just below it.

This type of filter needs the minimum of attention; the only thing I have needed to do is unblock the airline tube to the filter. I have certain reservations about this type of filter and, as readers of "What's Your Opinion?" will know, this system of filtration is the subject of many conflicting opinions as to its merits.

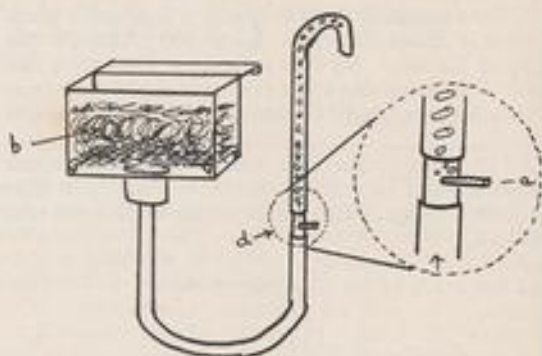
It needs a good depth of gravel above it, and I believe the secret of its success (as a biological filter) is to run it *slow* enough or it becomes merely a mechanical type pulling water through a filter medium, at the same time drawing nourishment past the roots of the plants too quickly for them to benefit from this type of filtration. This system of filtration certainly keeps the water clear providing of course, that suitable fish are chosen, but I have had no experience of improved plant-growth despite experimenting with various depths of gravel and rates of water flow through the filter.

Sub-gravel filters are often used, coupled up to an outside power filter, in marine aquaria and "jumbo" versions are regularly advocated with this use in mind; whether or not they function "biologically" or "mechanically" in this mode is debatable, bearing in mind the much faster water turnover rate. Can anyone tell us at what rate the changeover occurs? A figure is quoted later which is used by water-works through their filter beds.

As I have said, most filters are required to be quiet in operation and unobtrusive—this leads to that old adage, "Out of sight, out of mind"; how many of us fit the filter at the back of the tank and promptly forget it? This may well account for reports of finding fry in the filter box, where eggs from spontaneous spawnings have been siphoned, hatched and flourished. Ironic isn't it? We go to great lengths to spawn some fish, often to no avail when all we

Key to diagrams

- a—air supply to airlift
- b—filter medium
- c—sucker attachment
- d—airlift
- e—intake guard



need is a filter box left unattended for a while!

From this it follows that not all filters get the regular attention they should and the tank-water is circulated over and over again through a box full of concentrated dirt. In his book, *How to Keep and Breed Tropical Fish*, Dr. C. W. Emmens makes the point that "the filter not only removes mulm from the tank but ensures that this matter is very efficiently bathed in a constant flow of water which will dissolve out anything that can be dissolved. Waste material which would otherwise collect in a still corner of the tank is constantly extracted and presumably yields more of itself up to the tank water than would be the case in an unfiltered tank." Food for thought indeed. Another point to look out for—when removing water from the tank either prior to topping-up or for use at Shows, should the tank water level fall below the level of water in the filter then the filter box contents *will empty back* into the tank.

Apart from being used for the designed purpose, filters, or rather filter equipment, can be utilised to alter water chemistry. Water-softening crystals can be substituted for the filtering medium to adjust the water hardness, and peat can be similarly used to adjust the pH value. Again, the outside filter can be used as a "biological" filter similar to the filter beds at the water works; in this case, not only has the correct water rate through the filter to be found (the Water Board uses a rate of about 4 inches per hour), but the chemical properties of the gravel used must be taken into account. If this is not done then the water conditions may be affected over a period of time, and this may be critically important if specialist species are to be kept. I have used filter boxes hung *inside* the tank to hatch brine shrimps, and also used

unwanted sub-gravel filter tubes as extension tubes for sponge type filters ("Improvisations," R. C. Mills, *Aquarist*, Oct. 1968).

The filter is probably a useful piece of equipment if used properly and not neglected; many aquarists no doubt feel more at ease if there is one in use on their tanks and they may point out that because of the action of the filter a uniform temperature is ensured and the water surface is kept turned over. Whilst the former is true, it is hardly a natural state of affairs (some plants may not like warm water circulating past their roots for instance), and an airstone will attend to the second requirement, helping (with the circulating action of the heater) to throw off carbon dioxide at night and absorb oxygen at the water's surface during the day.

Regarding the removal of waste products dissolved in the water, unless the tank is overcrowded this build-up is quite slow and can be kept at a low level anyway by periodic, partial changes of water. Still on the subject of this virtue of removing dissolved minerals, is it not possible that *useful* minerals are also being removed by a super-efficient filtration system? It would be rather galling to think that there's a filter-box full of contented bacteria having a beano whilst back in the tank (spotlessly clean, I grant you!) the plants are starving! I must admit that

all the filters I have used have maintained clean tanks, but against this I have had excellent plant growth and healthy fish in tanks without filters.

This raises another point—can filters initiate or accelerate the spread of unwanted organisms or diseases? In one location some of my tanks get a good deal of sunlight during the summer months, and whilst I shade them to stop *algae* growing I find that any outside filter boxes used quickly fill with green *algae* and I am wondering if these spores can be passed on via the filter system to the tank; the risk of contamination is certainly run by anyone using a master filter to serve many tanks.

There can be no clear-cut answer to the question posed; obviously with boisterous or digging fish, where a lot of suspended matter is the price one pays for keeping the species of one's choice, then a filter can help the aquarist to see his fish at least! Certain water conditions can be stabilised using a filter if necessary for those delicate species and marines seem to require a filtration system as a basis to exist, but for the average freshwater collection—well, why not try doing without a filter for a time, (it may be advisable to substitute an airstone so that fish acclimatised to moving water do not suffer) and see if there's any deterioration in your tank—you may well be surprised by an improvement.

Coldwater Fishkeeping

by A. Boarder

DURING the breeding season many pondkeepers and aquarists come up against a few problems and it does not seem to matter how many years one has been breeding goldfish, there are almost sure to be either problems which crop up or that one learns a little more each season. The person who knows it all is not yet born and the recurring oddities which one has to deal with make the hobby so much more interesting. Having been connected with the fishy world for many years (I must have had my first goldfish at least seventy years ago). I still come up against happenings which are new to me. My memories of troubles in the early days which were always connected with leaking tanks and one was often asking all kinds of people for recipes for sealing the tanks. As for the intricacies of breeding goldfish, these did not require my serious attention until many years later. My first attempts to breed frogs was when I was only about seven years old. I had a female frog only, and this one was full of spawn. I could not make out why it did not shed the spawn; I did not know then that a male had to be in contact at

the time. After waiting impatiently for a week or two, I performed a Caesarian operation. Although I got the spawn, of course I never had any tadpoles.

For many years now I have been breeding goldfish and although I have gained extensive experience with the procedures, something fresh can occur each year to cause food for thought. My latest queries about the subject are mostly confined to the temperatures needed for hatching the eggs. I feel that there may be a definite connection between the warmth of the water and the formation of the embryos. I shall be making some experiments with this side of the breeding and hope to be able to give some definite opinions when my experiments have been completed. I am concerned mainly with fancy goldfish as it is in this section that so many problems can arise. I breed fantail goldfish and as with all the varieties with double tails, there are usually many fish with varied shapes to the caudal fin. Whether the warmth of the hatching water has anything to do with the ultimate formation of the fish and their fins is what I want to find out.

For many years I used no form of artificial heating for my hatching tanks and had a goodly number of well formed fish from my spawnings. Later on I placed the hatching tanks in a garden frame which used to warm up considerably when there was any sunshine. However, this warmth was very erratic and so the rate of hatching varied with the weather. For several years now I have used some artificial heating for the tanks. I use 100 watt heaters controlled by thermostats and since using warmer water I have also used aeration. I have aimed at a temperature of 70°F, for the hatchings and early weeks of rearing. However, although I was able to control the minimum temperature I had little control on the maximum warmth. This was, of course, owing to the fact that when the sun shone brightly the frame would warm up considerably and so the water temperature could rise to well over 80°F.

This fluctuating warmth was difficult to control and I was getting a three and a half day hatch. This quick hatching had its advantage as fewer eggs were likely to be destroyed by any pests which may have been present on the spawning weed. I did find, however, that the quality of the fry was not as good as it was when less heat was used. If one could be sure that it did not rise much above 70°F, for all the time of incubation, then there should be no ill effects. With the warm water I have certainly found that many of the youngsters are not as good fish as I would like. Not that the fish have been what might be called runts, but the main failing has been with the caudal fin. I always got a few fish with an indifferent tail, but lately the number of fish with a badly formed tail has increased.

The caudal fin, instead of being double, has been single, tri-tail or webbed—that is not divided. All types of tail have been appearing, some with the top lobe single and the lower double, and some with the top double and the bottom lobe single. Whether the odd formation of this fin in particular has anything to do with the warmth of the hatching water is what I hope to prove during this breeding season. I have heard that too high a temperature during incubation can adversely affect the embryos and from what I have experienced myself during the past few years, I am inclined to agree with this suggestion.

I shall divide certain spawnings so that I can treat them differently as to the temperatures of water. I have several tanks out of doors which I shall not artificially heat. Some I can cover with glass to slightly increase the warmth and other portions of eggs will be treated with the heat in the frame as I have been doing recently. The results should prove very interesting, and I hope to be able to give these in later articles.

I usually make one or two experiments each year and last autumn I decided to test the degree of cold which very young goldfish could stand. I used some fish from late hatchings for the test. Some were kept in the frame with a regulated temperature of not less

than 58°F, others were put in a small garden pond with no heating, others were placed in outside tanks with just a glass cover. The fish in the frame all came through the winter in perfect condition, as could be expected. The fish put in the small pond, were fully coloured but only an inch long over all, have come through the winter in perfect health, and in March appear to be growing, although not fed by me. Some very small ones, not more than half an inch long, were housed in outside tanks with a glass cover. Only a few of these appear to have survived, but a few are quite all right.

This experiment was rather constricted by the weather, as the past winter was not nearly as severe as some we have had. My district is in north west Middlesex, only a few miles from the Bucks and Herts borders. There have been two occasions when the ponds and tanks have been frozen over. The longest was from Christmas into January, 1971, when quite a thick layer of ice was on the pond. Only on one other occasion was there any thickness of ice on the ponds. The small pond with the little fish was left undisturbed and the ice was not broken. This pond has a quantity of dead leaves and a fair amount of water plants. The water in this small pond is practically always clear whereas the larger pond, only a foot away, is nearly always green with *algae*. This can be explained largely by the fact that the breeding takes place in the larger pond and so to prevent the loss of eggs, I keep the water plant growth down to a minimum. Whether the presence of dead leaves in the small pond indicates that the water may be more acid than the larger pond I do not know, but there is a noticeable difference in the colour of the water in the two ponds.

I used a 100 watt heater in the larger pond, to be switched on only during freezing weather. This kept open a small hole but this was where the goldfish appeared to keep during most of the time when the pond was frozen over. One day during a hard spell I found a young fantail, which had been bred in the pond, in trouble at the surface where the water was open. It was on its side, but when removed to a tank in the garden frame, it soon recovered. It is rather unusual to find any fry in the breeding pond, but this one had escaped the attentions of the parent fish and it was evident that it had not grown large enough to withstand the extreme cold. For those who want to know how large their fish should be to withstand the winter out of doors, I would suggest that a size of at least an inch body length would be advisable. However, one must realise that the district where the fish are kept must make a lot of difference as temperatures can vary so much according to the locality of the pond.

I have, in the past, recommended that dead leaves should be cleared from the pond, but at least during the last winter, my small pond had not been cleaned of fallen leaves and yet it has kept clear and the small fantails I put in last autumn have survived in perfect

health. This does not indicate that all leaves are harmless in the pond, one especially dangerous is the Laburnum, which is poisonous in all its parts. The leaves in my pond are:— Apple, clematic, wistaria and rose. No leaves should be allowed to remain in the pond if any insecticides have been sprayed on them as even small quantities of some of the pesticides can be extremely dangerous to fishes.

I shall always be very glad to hear from any goldfish breeders as to their experiences with forms of artificial heating when breeding any of the fancy goldfish varieties, as it is only by exchanging views that we shall be able to pin point the advantages or otherwise of the procedure.

FIND THE DISEASE

By Hilary Maynard

My first is in WINTER but not in SPRING,
My second is in FETCH but not in BRING.
My third is in FILTER and also in FISH,
My fourth is in PLATE but not in DISH.
My fifth is in WATER but not in MILK,
My sixth is in SATIN and also in SILK.
My seventh is in HAPPY but not in SAD,
My eighth is in GOOD but not in BAD.
My ninth is in DAYTIME and also in NIGHT,
My whole isn't nice, but it can be put right!

Answer: 10DS 311HM

British Freshwater Fish

THE POPE OR RUFFE

by A. Boarder

THE POPE or Ruffe (*Acerina cernua*) is a small Perch-like fish found in many waters of the British Isles, especially in the Midlands and south of England. Although mainly a freshwater species it is often to be found in brackish waters of Europe. In general shape of finnage this fish is rather similar to the Perch but has a more shallow body and does not show the distinct black vertical bars on the body of that fish. The adult fish is very much smaller than the Perch and a fish of over three oz., would be considered a good specimen.

The colour of the Ruffe is a dark greyish-green above fading to a paler colour on the flanks. The underside is yellow with sometimes a pinkish-red colouring. All the upper parts of the fish are speckled with black. There are two dorsal fins, the first large and well spiked and the second smaller with the rays unspiked. These two fins are joined, unlike those of the Perch which are separate although very close to each other. The rays of the front dorsal fin are so sharp and pronounced that they can inflict a nasty wound on the hand if one is handled carelessly. Many of these fish are caught in canals in the more southern parts of England by fishermen angling for Perch. They have an enormous mouth and can swallow a large worm together with a good-sized hook which is often difficult to extract without killing the fish. Small boys used to catch these fish and push a cork on the dorsal fin and then return the fish to the water where it would swim on the surface until it could get rid of the cork.

The Ruffe can often be found in shoals in streams. It prefers slow-running waters but can also be found in ponds. The fish spawn fairly early in the year, from March to May, and many eggs are laid. The eggs are adhesive and stick to water plants and stones and it is said that they are sometimes laid in strings. The number of eggs which are said to be laid by an adult female vary from 100,000 to 205,000 according to different authorities. The fry hatch out in about twelve days at a temperature of 50°F.

The food of the Ruffe consists of various larvae of water creatures and any small crustaceans. Worms which fall into the water are soon taken and anything in the form of live foods as given to aquarium fishes will be eaten greedily by them. To keep them in tanks it is necessary to have well-oxygenated water and some aeration is essential. Although many fish may be found in some waters it appears to be rather unusual to find any small specimens which would be suitable for introducing into an indoor tank. Although I have known and caught these fish for very many years I have never found any fry or young ones and so must conclude that they keep well hidden among dense water plants, at least until they become almost adult.

As this fish is carnivorous it is unwise to try to keep it with other very small fishes. When hungry, even if it was unable to swallow a fish, it could injure it badly so that it would probably die. Young Perch of a similar size would be the best occupants for a tank containing Ruffe.

KEEPING SOME BRITISH SEA ANEMONES

by D. S. BUNN

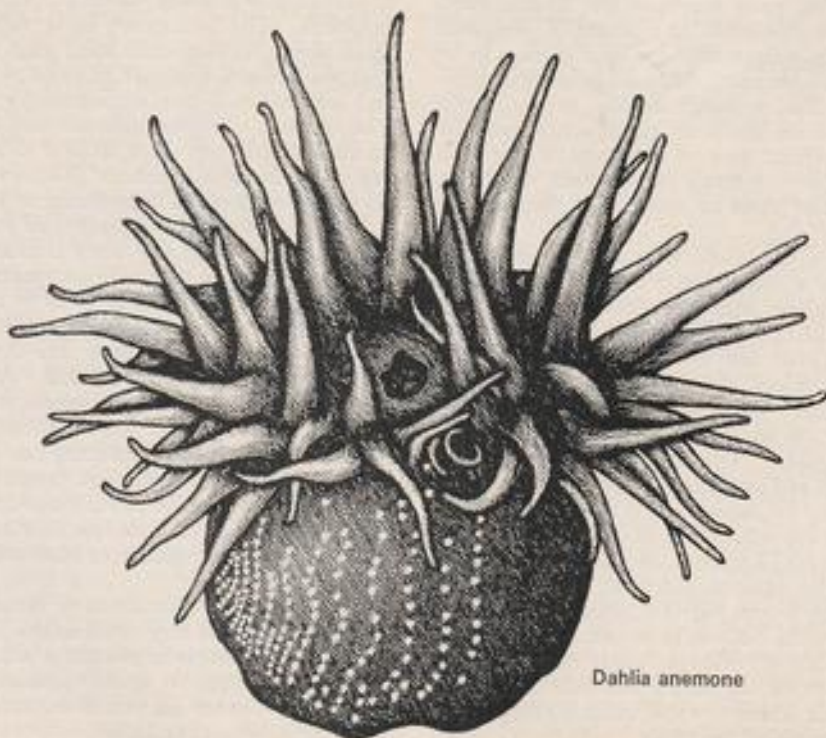
Illustrated by Bill Simms

WHILE SOME of the tropical sea anemones now available in the shops are striking by their size and appearance, most of the British species are extremely beautiful and are an attraction to any coldwater marine aquarium. There is also the added satisfaction of being able to collect the specimens oneself. Many species occur in several varieties of colour and pattern, and a patient search for the most beautiful individuals can be most rewarding. There are, however, some do's and don'ts to remember when choosing sea anemones for the aquarium.

First—and this goes for all species—do not collect

too many. An aquarium can only support a certain number of animals relative to its size and anemones are not particularly clean feeders. All waste products are regurgitated into the water and if too many are kept the water will quickly become foul with disastrous results. The temptation with species like the Dahlia (*Tealia felina*) which has many varieties, most of them very beautiful, is to include one of each, but this just cannot be done.

Let us start then with the Dahlia. This is a very powerful species with a very strong grip. It is quite capable of dragging crabs and other robust



Dahlia anemone

Beadlet anemone
and sea slug



creatures into its stomach and may have to be excluded from the aquarium for this reason. Small specimens are less dangerous to other inmates and if fed sparingly will remain small without any loss of health. Indeed large specimens will diminish in size if kept unfed for long periods and still remain in what appears to be good condition. The Dahlia is perhaps a little more sensitive than most to pollution in the water and reacts first by not taking food and losing the "stickiness" of its tentacles. Later it has the somewhat revolting habit of everting the stomach and remaining in this condition until the aquarium is thoroughly cleaned out. Despite this bizarre reaction to unclean water, the anemones will survive for months like this and will recover as soon as the water is changed. Another reaction to dirty conditions is the growth after a time of forked tentacles or of side-branches on the main ones. Once grown these deformities tend to persist.

A healthy Dahlia has not only very sticky tentacles but a sticky column, and after a time will gather a lot of gravel about itself, the pieces adhering to the many "warts" along its sides. Its habit is to attach itself to a rock beneath the gravel and raise itself when open so that the disc and tentacles lie level with the surface. When alarmed it contracts strongly, retracting the tentacles and drawing the rim of the disc tightly together over the mouth (this is also what happens when it catches a crab). The result is

that one only sees the column, which is thickly encrusted with gravel and is virtually unrecognisable. In the aquarium a healthy specimen will find its way to a hold beneath the gravel and will settle down as it would in its natural habitat. The Dahlia does not appear to be able to reproduce itself in the aquarium which, as will be explained later, is an advantage to the aquarist.

One last point to mention is that the species grips the substratum very strongly and it is usually very difficult to remove without injuring the base. However, this is not such a problem as may be at first thought because if other conditions are favourable it will quickly repair itself. Once settled on a particular rock it seldom wanders as some other species are inclined to do.

Feeding the Dahlia is very easy and there is little that it cannot deal with. Healthy specimens will even swallow full-grown and unopened mussels, throwing out the empty shells a day or two later.

Perhaps the most similar species to the Dahlia that I have kept is the common Beadlet (*Actinia equina*) which can be collected in any locality where there are rocks. As anemones go, it is not very handsome but is certainly hardy. It is usually a uniform green red or brown and I have known a red specimen turn green after a few days in the aquarium. Sometimes a green specimen has a blue edge to the base and some blue marks around the mouth. The

so-called beads around the rim of the column are usually hidden and do not add much to its attractiveness. A beautiful variety that I have never myself seen outside an aquarium is the "strawberry" beadlet, which has dots on its red column like the seeds of a strawberry.

Unlike most anemones, the Beadlet lives high up on the shore as well as in deeper water and consequently a large part of its time is spent out of the water. In the aquarium it will reproduce freely, regurgitating small replicas of itself through the mouth. When roughly handled it is particularly prone to do this, when some of the offspring are apparently premature, being without fully developed tentacles. The normal young ones can be reared quite easily.

Beadlet anemones are very hardy and I believe have been kept in aquaria for around 50 years. At any rate it is now eleven years ago that I collected my present specimen.

A favourite anemone for the aquarium is the Plumose (*Metridium senile*), the feathery tentacles of which give it a particularly attractive appearance. It occurs in a variety of colours, including white, pink, orange and brown with sometimes the disc and tentacles being the same as the column and sometimes white. It seems to me that Plumose anemones vary individually in the way they settle to aquarium life. The aquarist generally has to come to terms with the fact that most filter feeders, attractive though they may be, cannot be maintained for long in the aquarium. The Plumose anemone is virtually a filter feeder, its tiny tentacles having very little power to hold prey. Nevertheless, some specimens I have had would readily draw in small pieces of soft food, e.g., mussel, when these were placed gently on the tentacles, while others proved more difficult to feed. Another disadvantage of the species is that they are apt to close up for long periods, presumably because they miss the stimulation of plankton in the water. A partial change of water is often sufficient to get them to open again but such individuals can be a little difficult to feed and are certainly disappointing as an attraction to the aquarium.

Whilst on the subject of closing up, it is worth mentioning that the Plumose has a more than usual ability to expand and contract itself. A specimen which one day has a column three or more inches long may be found on another occasion as nothing more than a flattened mass on the glass.

When a Plumose anemone has been in one place for several months small fragments of the edge of the base become detached and develop into tiny anemones. I have paid little attention to these as the trouble involved in feeding them seems hardly worthwhile.

Another very easy species to keep is the Opelet

or Snakelock anemone (*Anemonia sulcata*), named because of its long, continually writhing tentacles which never completely retract. This is a local species which is usually either numerous or completely absent. It appears to appreciate good light and tends to accumulate in masses around the edges of rock pools. Some individuals are a uniform sepia brown and not at all attractive, but many are green with violet tips to the tentacles. Others are more beautiful still and I have a specimen at the moment which has a mauvish-coloured column, and green tentacles with violet tips and a line of red along their bases.

The Opelet is very easy to maintain and to breed. Most specimens, when about an inch across the disc, divide themselves in a most startling manner. Many lowly creatures reproduce asexually by splitting in half, but the way in which the Opelet anemone does so has to be seen to be believed: the two halves of the anemone simply commence to move in opposite directions and eventually the creature literally tears itself into two parts. "Tears" is the only word to describe the process—the appearance is just as if the animal were being pulled apart by some predator. For a few days the two anemones look very sorry for themselves, the tentacles hanging down limply and the body in tatters, but soon the latter heals and a week or so later there are two perfect anemones, replicas of each other in colour and markings.

This habit of splitting proves rather a nuisance to the aquarist who is trying to "cultivate" a large fine specimen. I have had some success in preventing splitting by feeding the anemone when I see the process beginning. When this failed an aquarist friend won the day by detaching one half of the base from the glass so as to relieve the tension. Thus the anemone found itself unable to pull itself in half and gave up the struggle. If they do not divide Opelet anemones can grow very large and make fine specimens for the aquarium—even if their long-reaching tentacles do make life unpleasant for the rest of the inmates!

A common species in Morecambe Bay is the so-called "Cave" anemone (*Sagartia troglodytes*). It affixes itself to a rock beneath the sand and, like the Dahlia, waits for prey with its disc and tentacles level with the surface. Its column is capable of considerable extension and enables it to secure itself to a rock quite a distance beneath the sand. When disturbed it contracts and performs a very effective disappearing trick. It is a small species, the disc of which is variously speckled brown to match the sand. It does well in the aquarium but after my one experience with it, it has been banned for ever. The specimen I had produced so many that life became utterly miserable for everything else in the tank. Prawns and crabs, etc., were walking about covered with

minute anemones and fish were being stung whenever they stopped to rest on the bottom.

Better by far for the aquarist to keep its relative, *S. elegans*, which so far as I know, has not been given an English name. Some of the specimens are very similar in colour and markings to *S. troglodytes*, but it is a species with a very large number of colour varieties—white, orange, pink and red being among the commonest and very attractive. The disc is frequently strikingly different in colour from the tentacles. I have never known the species reproduce in aquaria.

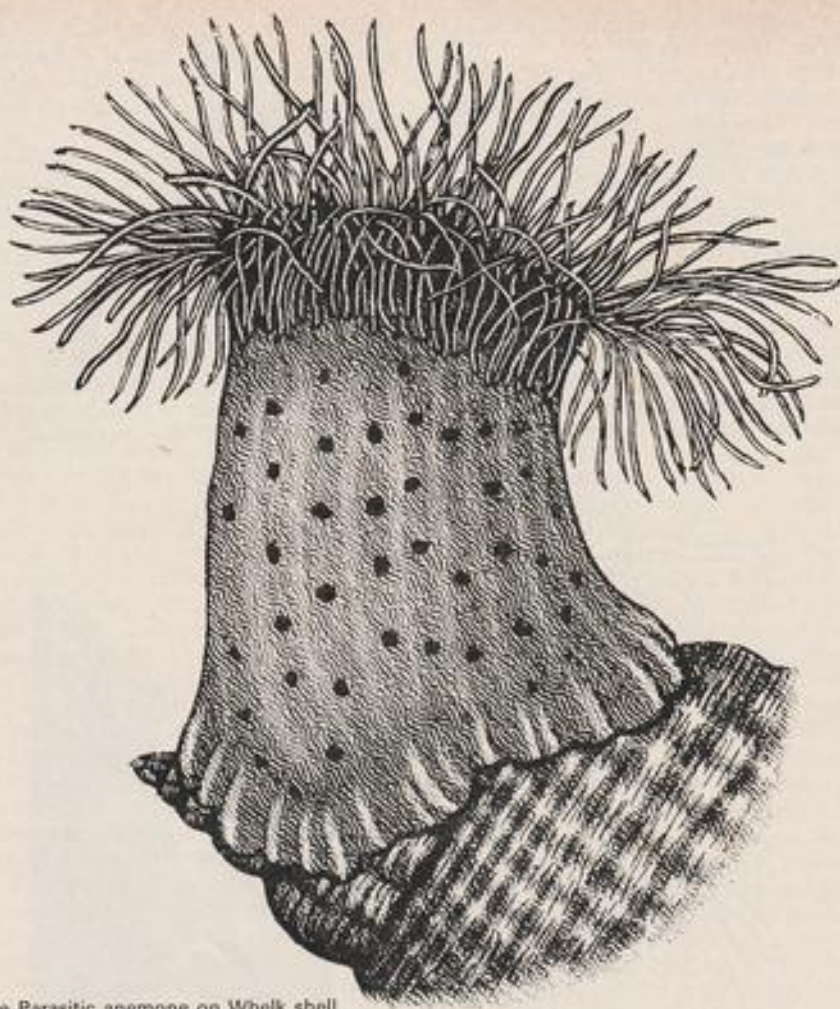
Finally, we come to the most interesting of all the British sea anemones, *Calliactis parasitica*, the so-called Parasitic anemone, and *Adamsia palliata*, the Cloak anemone. Both live in association with hermit crabs, the former with the Common Hermit, *Eupagurus*

bernhardus, and the latter with a rarer species, *E. prideauxi*. As both species occur mainly offshore, they may have to be purchased through a marine research laboratory, but their interest makes this well worthwhile.

C. parasitica, despite its scientific title, is often quoted as an example of symbiosis, whereas my observations suggest there is little gain to the crab. The anemones gather, sometimes in numbers, on the shells of large hermits. As the crab sifts through the sand for food the anemones bend over and open widely, sweeping the surface of the gravel for any small fragments of edible matter exposed. They are unusually sensitive and fast in their movements, and it is fascinating to watch them closing and opening again, all in a matter of seconds, as the hermit bumps them about on the rocks as it moves. When weighed



Opelet or Snakelock anemone



The Parasitic anemone on Whelk shell

down by three large anemones the hermit moves about with difficulty and one wonders whether there is much advantage to it. When this anemone is treated roughly it readily emits long white stings from the mouth and this may have the effect of discouraging enemies to interfere with either anemone or crab. When hermit crabs are given alternative shells of suitable size they frequently make a change, but it is not long before the anemones transfer themselves also. In those cases which I have observed the crab makes no effort to help them and, in fact, I have seen a crab lift a leg to sweep off an anemone that was in process of transferring itself. It seems that when a shell carrying anemones has been vacated by a crab the anemones, appreciating this probably by the lack of movement, seize with their tentacles the first hermit shell that approaches.

They then quickly release their hold of the vacated shell and press the base on to the new shell. They take hold very quickly and, provided the crab makes no sudden movements, are soon gripping securely. It is rather strange that some of my anemones which had been deprived of the opportunity to live with a hermit crab for some time apparently lost the desire to do so, because when hermit crabs were again put into the aquarium the anemones took no notice of them.

The "Parasitic" anemone has a brown column with dull yellow, longitudinal stripes near the base. The tentacles are usually grey flecked darker, though I have had a specimen with white tentacles. It does extremely well in aquaria and grows quite large, provided the water is not allowed to get really cold. Being an offshore species it is not accustomed to

near-freezing temperatures and will die if exposed to them. I have never known it reproduce itself in any way.

In *Adamsia palliata* the association between crab and anemone is much more interesting. In this case the association is permanent and much more close. I have not witnessed how they initially come together but in aquaria for some reason they tend to move to new shells quite often and one can then witness the close "understanding" that exists between them.

The anemone is a pale brown with a white disc and tentacles, and red spots on the column. When living alone it has a flattened appearance but when settled on a shell with a crab in it the base gradually enlarges into two flaps at either side until they meet over the top of the shell, the disc being beneath the shell very near the mouth of the crab—the grip of the tentacles is very strong and the anemone is capable often of forcibly depriving the crab of food. These flaps appear to fuse together after a time but this is not so and they can separate if need be. Judging from the size of the shells this crab carries about, the association begins when both are quite small. However, as the crab grows the anemone grows. Some anemones, such as the *Dahlia*, accumulate a horny substance beneath the base when they have been settled on a particular spot for some time and in this case *A. palliata* produces this horny substance to form a framework around the crab's abdomen and carapace, covered by its expanded base. When the crab is full grown the original shell only covers the tip of the abdomen, the rest being protected by the anemone. When molested the anemone produces sting-threads from the body which presumably would make it very unpleasant for some small predator to touch.

I am not sure why the crabs in my aquaria changed shells but I think it was possibly because as the crabs moved about they banged the anemones against the rocks and glass, causing them to retract and breaking the horny "framework" which is not very strong. The crab then felt "uncomfortable" and reacted by moving to a larger shell which would cover them better. Abnormal though this was, it at least provided me with the opportunity to make the most interesting observations. First, the crab moves into the new shell. Then it takes hold of the anemone with its claws and begins a rhythmic convulsive movement. After some minutes the base of the anemone begins to billow out and release its grip on the shell and horny substance. After a period of about an hour the anemone is completely detached and the crab carries and manipulates it like a blanket, removing any fragments of the horny substance that are still clinging to it. Finally, it ceases the rhythmic movements and presses the anemone to

the underside of the new shell. The anemone takes hold and soon fastens itself down securely. A truly remarkable relationship which is fascinating to observe in one's home. I expect since the crabs occur in nature mostly on sand, the anemones are not subjected to such rough treatment and there is never any need for a change of shell. Certainly, those specimens I have had were occupying tiny shells which must have been selected when the crab was very small, probably some years rather than months before judging from the growth rate of these crabs.

Presumably all these anemones have a sexual reproduction but where the ova are released freely into the sea there can be little chance of their surviving in the filtered water of an aquarium. As I have explained, however, this is no disadvantage.

Anemones can be given almost any animal matter—flesh of mussels, prawns, crabs, fish and worms all provide satisfactory food. I would repeat, however, that one should err on the cautious side and feed them infrequently—not more than twice a week and they will take no harm if fed only once a fortnight.



THE BRITISH AQUARIST FESTIVAL

will be held this year at
Belle Vue Zoological Gardens
Manchester
on Saturday 9th October and
Sunday 10th October

WHAT IS YOUR OPINION?

by B. Whiteside



WITH THE POSTAL STRIKE over, I'm pleased to have your letters reaching me again, and to be able to post my copy to the Editor. The first letter is from Mr. D. McDougall, of 213a Amesbury Avenue, London, S.W.2, and he writes to ask if I can supply him with the addresses of anyone who can supply him with coldwater fish such as gudgeon, bitterling, loach, moors, veiltails or orandas. Unfortunately I do not know of anyone who can supply such coldwater fish. Perhaps other readers can help. Having had several such requests recently I should be pleased if anyone could supply me with names and addresses of people willing to sell such fish.

I was more than pleased to receive the next letter which, due to the postal strike, has only just reached me. Its from Mr. S. Jackson, of 11 The Rally, Arlesey, Bedfordshire, a gentleman about whom I have had a lot of letters recently—all asking for his address. Before you all rush off to write to Mr. Jackson, please read what he wrote to me. He writes: "I have only just received my January issue of *The Aquarist* and was surprised to see the demands for my address. Actually I have received a few letters, including one from Mr. Walker, of Higher Roynton, Cheshire, which reached me O.K., despite having only my name, and Arlesey, Beds. on the envelope. I have answered all the letters which I have received." Mr. Jackson goes on to say that, unfortunately, since he first wrote to me, he had the great misfortune to lose almost all his aquaria and veiltail breeding stock during one night when his stands collapsed. A main railway line runs past the bottom of his garden and he thinks that excessive vibrations from the trains were responsible for the calamity, which has, more or less, put him back to square one as regards calico veiltails. Fortunately he did not lose his fantails and shubunkins as they were living in an outdoor pond at the time. Mr. Jackson asks me to make it clear to readers that now, of course, he has no veiltails for disposal, and is not likely to have for a few seasons to come. This will save unnecessary correspondence or personal visits to Mr. Jackson. He also points out that he may possibly be moving house soon and gives the address of the hospital where he works as a Charge Nurse: Mr. S. Jackson, Charge Nurse, M5 Ward, Fairfield Hospital, Stotford, Hitchin, Herts.

Mr. P. M. Goodwin writes from 58 Hobs Hey, Thornton via Crosby, L23 1UU. He begins: "In all the years I have been reading *The Aquarist*, my first stop has always been W.Y.O. ? as I think this is a most informative column. This is the first time I have been prompted to put pen to paper." Mr. Goodwin goes on to say that he has successfully raised whiteworms for a number of years on a staple diet of wheatmeal, wholemeal biscuits and brown and white bread. In eleven years he has only lost one culture—due to letting the culture medium dry out. He uses a mixture of 80 per cent peat and 20 per cent soil, kept slightly moist. Mr. Goodwin has had a great deal of success in growing hairgrass, weighted down strips of lead, in his killi tanks, which have 5 in.—7 in. of water, and a $\frac{1}{2}$ -in. layer of peat on the bottom. Incidentally, while searching through his fish cabinet last week, he found a plastic bag containing two hairgrass plants which, casting his mind back, had been there for two months. On opening the bag he found, as one would imagine, a brown, soggy, smelly mess, but, on closer inspection, and a swirl under the tap, he found that each plant had six to eight new, bright green spikelets, about 2 in. in length. The bag had contained no water and had been in more or less permanent darkness. (I find hairgrass to be a very useful plant when grown in front of more "solid" plants. Its fine needle-like spikes add variety in texture to the aquatic scene, and the plant is quite a fast grower, given good lighting. It will form little "hedges" as it grown in lines across, and around, the tank.)

Mr. Goodwin continues by saying that, about three years ago, he bought some Riccia to shade one of his tanks. (At the moment I'm throwing it out in handfuls!) Amongst the Riccia he found a single, darkish green leaf, about 2 in. long. Rather than throw it away, he added it to his aquarium. Some weeks later he noticed that the leaf had grown some small roots so he decided to plant it and see what developed. Some nine months later it had a root system about 3 in. long with eight to ten leaves, 2 in.—3 in. in length. He then moved the plant to his forty-gallon community tank where it developed at an astonishing rate until it reached about 12 in. in length when, in Mr. Goodwin's words, "it started to march." What happened was that about $\frac{1}{2}$ in. on the left-hand side died away to be

replaced by $\frac{1}{2}$ in. of new growth on the right-hand side—hence the "marching." The growth rate of the plant—*Microsorium pteropus*, as it turned out to be—slowed down then and since then the plant has been producing new plantlets, which he has been planting in various parts of the tank, the most eye-catching one being anchored to a large piece of bark at the rear of the tank. (I have found small plants growing in the glass joints of my tanks, and under the edge of the upper frame.) He thinks that the plant should be called the Soldier Plant and hopes that it will "march" for many more years in his tanks. (The plant is sometimes called Java fern.) Regarding the use of methylene blue Mr. Goodwin has only used it on his killis, in small tanks, as he had found that it has a most damaging effect on plants, and stains any porous object. He would recommend malachite green for the treatment of diseases, in preference to methylene blue. He finds garden worms to be a really first-class food for conditioning fish, but he only uses them with larger fishes. He has had smaller fish choke to death on even the smallest of worms, chopped very small. A friend gave Mr. Goodwin a large *C. severum* which was promptly named Caesar by his wife. Mrs. Goodwin and Caesar became very friendly and he would do tricks for her, beg for food and show off his best colours, making Mr. Goodwin jealous. Unfortunately the fish hated children and would dash at the front glass, frightening visiting children. He had to go. Mr. Goodwin would like to know where the fish is now. Like another reader, he would like to hear of readers' experiences with "micro eels."

"This is the first article I turn to when I receive my new *Aquarist*, as it is certain to be the most interesting," writes Mr. D. J. Ballard, of Morningside, Summer Drive, Hoveton St. John, Norwich, NOR 06Z. He finds this column to contain valuable information and says that it is profitable to consider the opinions of other readers, and of myself, and rewarding when someone else's practices are tried and found to be sound. He has two densely planted 36 in. show tanks in his lounge and they are in first-class condition. Like myself, he prefers smaller fish and would not keep certain big Cichlids; however, he does have two large angels and finds that they do have a certain "personality." He finds it difficult to obtain good quality plants and thinks that either the public are indiscriminating or the dealers are failing to capitalise on a lucrative market. He has found few fish shops which keep a good selection of plants, space being devoted to fish—and it is difficult for a dealer to catch fish in a well-planted tank. He says that in Norfolk one can travel long distances to find a decent selection of fish too. His favourite Characin is the red-eyed tetra. He had not yet bred any Characins. Plants which he finds difficult to grow are *Anacharis*, *Cobomba*, *Myriophyllum* and *Cryptocoryne affinis*—while *C.*

nevillei and *C. wendtii* grow profusely. He does not use filters and does not believe that his plants would grow any better with water circulating as, under Gro-Lux, they flourish and need frequent pruning. His fishes adore whiteworms; he does not feed tubifex. He has noticed advantages in using rain water as the tap water in his area is very hard, and leaves a white powder on plants and glass—and in the gill filters of fish? he asks. He finds that neons thrive in rain fish like Tetramin foods best, together with chicken, pork, fresh herring, liver, etc., all carefully washed and fed in small quantities which can be quickly consumed. Mr. Ballard ends by saying: "What a splendid photograph on page 389 of the February issue." (Thank you!)

Mrs. Eva Parsons lives at "Windfelsen," 31 Redcross Road, Nigg, Aberdeen AB1 4JD, and states that she treated white spot very successfully with a solution of methylene blue. The fish were all clear the next day. Mrs. Parsons does not like the idea of chopping up garden worms, and thinks it cruel. She tried chloroforming the worms before chopping them up but found that the worms went quite flat and limp, like slimy ribbons. They were useless for feeding, she says. She feeds her fish on freeze-dried tubifex and they love it. She thinks Mr. Chorley of Bradford wrong in stating that Amazon swords only grow in tanks with peat. Her tank has never seen peat yet her Amazon sword grows and grows, although she keeps pulling leaves off it because it gets too big. The tap-water in her area is naturally soft. She thinks that the idea of a postal club for those interested in aquarium plants is a good idea, but wonders if she would qualify, having kept only one tank for six months. She finds that Riccia grows very well with her and she can regularly sell quantities of it to her dealer—who cannot grow it in any of his tanks. Mrs. Parsons cannot grow *Cryptocorynes*; they just quietly rot away. She asks why. During the electricity strikes, in December, her fish either died or went into a coma, and she wonders that no one else wrote in to say that their fish had suffered. She does not think that Mr. Chorley's fish like the cold water poured over them but rather that they like the sensation of the bubbles. Her smaller fish always play in the stream of bubbles from the air stone, using the bubbles like a parachute in reverse, by allowing themselves to be carried up by the bubbles, hour after hour.

Fourteen-year-old Andrew Patterson writes from 4 Springwell Road, North End, Durham, to say that he regularly changes one-third of the water in each of his five 3-ft. aquaria every week or fortnight. He finds that this greatly freshens up the look of his tanks and makes his fish more eager to eat. He considers that the build-up of excreta and urea has a lot to do with split fins in guppies, as he had noticed. A couple

of years ago Andrew set up his first 3 ft. tank and installed two undergravel filters. He was enthralled at all the marvellous things which the filters were to do, with no maintenance whatever. However, until a few months ago, the plant growth in this tank had always been poor, and the water cloudy—although all the fish seemed happy (monos, bumblebees, angels, cats, etc.). The other four tanks had outside filters, were always crystal clear and had luxuriant plant growth. When Andrew removed the undergravel filters from the first tank the plants grew wonderfully and the water became very clear. He will never use an undergravel filter again. Master Patterson's favourite Characin is the cardinal tetra, which makes a marvellous display with red wag platies and angels, and is quite easy to please. His second choice is the neon, with the flame tetra third. He has spawned the latter fish and raised seventeen young. His fish seem to like tubifex worms best and are very keen to get them. Whiteworms, bloodworms and daphnia hold less appeal for his fish. He had always used flake foods until the invention of "Multifreeze." He does not mind what foods his fish eat as long as they do them good. The tamest fish which he has kept have been a pair of Oscars, 5½ in. in length. They like to be hand fed and to have their dorsals tickled. Some of his other tame fish are blue acaras, red-tailed black sharks, large mollies and angels. His fish give him great pleasure.

"I have kept fish for eight years, most of the time with just one 3-ft. tank, and have not indulged in serious fish breeding. I find that there is always plenty of interest in W.Y.O.? but have not written in before," writes Mr. M. J. Hinchliff, of 79 Greensted Road, Loughton, Essex. He has treated white spot with methylene blue and, although successful, has found it necessary to remove the infected fish to a spare tank to prevent damage to the plants. He also notes that the strength of "blue" required is such that it makes the water so dark that one cannot see the progress of the cure. He now uses malachite green, sold under the name of "Magicure." He finds this very successful as it does not darken the water and it does not damage his plants when used in the correct proportions. He was not bothered by the power cuts in December as he knew that they would only last two or three hours, but, if necessary, he would cover the tanks with blankets, use paraffin heaters in the room, and even float containers of very hot water in the tanks. His favourite Characin is a 5-in. *Leporinus striatus*, which he has had for three-and-a-half years. It is rather nervous but colourful and peaceful. Some of the other Characins which he likes, because of their bright colours and lively dispositions, are harlequins, cardinals, rosaceous and *Anomala* pencil fish. He has found *Cabomba* difficult to grow, although *Cryptocorynes* do well. His *Myriophyllum* soon gets choked up with algae and mulm. He

recently changed from feeding ordinary granular dried foods to Tetramin flakes and he finds many fish avid for them. He has Cichlids and catfish eating from the surface.

5 Almond Place, Kirkcaldy, Fife, Scotland, is the home of 14-year-old Robert Robinson who writes: "I always look forward to reading W.Y.O.? so I thought I would have a bash at answering some questions." He only kept whiteworms once and fed them on brown bread dipped in milk. The worms did well but, because he removed worms from the culture too often, they did not have a chance to multiply. He has been unable to grow plants successfully in gravel-free tanks, weighted down with lead strips. For diseases he normally uses malachite green which he finds very good. His fish are all keen on garden worms and they have no ill effects. His tamest fish was an Oscar, which rolled its eyes and wagged its tail. His present tamest fish is a scat which is always looking for food and follows him round the tank hopefully. The fish is the healthiest which he had got and eats a lot of seaweed, which seems to make it grow. Robert would like to hear of other readers' experiences of fish going blind as no one in his area knows anything about it.

I'm always pleased to hear from Mr. J. A. Higham of 112 Kiln Lane, St. Helens, Lancs., and he starts by saying that he is sure that the postal strike will have upset contributions. (True, Mr. Higham! At the moment I am receiving letters dated January, February and March but, at least, they are reaching me.) Regarding whiteworms: Mr. Higham takes a plastic tea-strainer and scoops out a mass of soil and worms; he sets this across a jar of cold water; he places an Anglepoise lamp above, with the bulb close to the surface. In about fifteen minutes the heat and light have driven the worms through the strainer into the water. When enough have passed through they can be removed with a dip tube and placed in the aquarium. This is also a good way to start a new culture, with clean stock from a contaminated or worn out one, he says. Mr. Higham uses two 75-watt heaters, in parallel, in his 3-ft. tank, and recently one failed without his noticing. Over a period of weeks the temperature gradually dropped to 70°F. without any signs of distress amongst the fish. He first got the alert from the plants—the *Cryptos* began to rot away, and when he put his hand into the water to remove the dead leaves, he noticed the chill. The magical effect of extra heat on the *Cryptos* converted him from the idea of minimal temperature for long life of the fish to 80°F. for flourishing plants. Like myself he has yet to see a really satisfactory hood for sale. He made a small 27-in. hood for himself—out of wood and hardboard, in the standard "roof" shape, but with the cover glass incorporated in it in a removable frame, giving easy access to the light fittings. Mr. Higham uses a

**THE AQUARIST
& PONDKEEPER
FISHKEEPING
EXHIBITION**

SHOW SCHEDULE

**Friday 9th—Sunday 11th
July 1971**

Sponsored by The Aquarist & Pondkeeper
and organised with the co-operation of
the Federation of British Aquatic Societies.

Palm Court, Alexandra Palace, Wood Green, London, N.22

Open to the Public: Friday, 9th July, and Saturday, 10th July, 10 a.m.—9 p.m. Sunday, 11th July, 10 a.m.—6 p.m.

Schedule of Classes

Aa Society Furnished Aquaria Tropical 24" x 12" x 15"	E A.O.S. Labyrinths	Wb A.V. Centrarchidae
Ab Society Furnished Aquaria Coldwater 24" x 12" x 15"	F A.V. Egg-laying Toothcarps	W A.O.S. Coldwater
Ad Individual Furnished Aquaria Tropical 24" x 12" x 15"	G A.O.S. Tropical Catfish	Za A.V. Rooted Plants (one plant will comprise an entry)
Ae Individual Furnished Aquaria Coldwater 24" x 12" x 15"	H A.V. Corydoras and Brochis	Zb A.V. Plant Cutting (three cuttings of same species or variety will comprise an entry)
Agh Junior Furnished Aquaria Coldwater or Tropical 18" x 10" x 10"	J A.V. Rasbora	Zc A.V. Floating Plants
Am Individual Aquascape (exhibitors may supply their own tank) 24" x 12" x 15"	K A.V. Danio and W.C.M.M.	NB A.V. Barb Pairs
B A.V. Barb	L A.V. Loach	NC A.V. Characin Pairs
C A.V. Characin	M A.O.S. Egglayer	ND A.V. Cichlid Pairs
Da A.V. Angel	O A.V. Guppy, Male	NE A.V. Labyrinth Pairs
Db A.V. Apistogramma, Pelmatochromis and Nannacara	P A.V. Guppy, Female	NF A.V. Toothcarp Pairs
D A.O.S. Cichlid	Q A.V. Swordtail	NGHL A.V. Catfish and Loach Pairs
Ea Betta Splendens	R A.V. Platy	NJK A.V. Rasbora, Danio and W.C.M.M. Pairs
	S A.V. Molly	NM A.O.S. Tropical Egglayer Pairs
	T A.O.S. Livebearer	NOP A.V. Guppy Pairs
	Uad A.V. Common Goldfish and Comet	NQR A.V. Swordtail and Platy Pairs
	Ubc A.V. London Shubunkin and Singletail (G.S.G.B. Shubunkin)	NS A.V. Molly Pairs
	V A.V. Twintail Goldfish with (a-g) Dorsals	NT A.O.S. Livebearer Pairs
	V A.V. Twintail Goldfish with- (h-l) out Dorsals	

In addition to the competitive classes above there will be displays of fishes representing specialist society interests.

ENTRY FEES: Furnished Aquaria Classes Free
All other Classes 10p per entry

One free pass will be supplied to any exhibitor with four or more entries

CLOSING DATE: 14th June, or before if sufficient entries have been received for a particular class

BENCHING: from 12 noon, Wednesday, 7th July to 12 noon, Thursday, 8th July

JUDGING: 1 p.m., Thursday, 8th July

PRESENTATION OF AWARDS: 5 p.m., Sunday, 11th July

BREAKDOWN: from 6 p.m., Sunday, 11th July

SHOW SECRETARY: Mr. G. Greenhalf, 39 Garth Close, Morden, Surrey. Telephone: 01-337 4042

Entries

Please complete in
BLOCK LETTERS and
return both pages with
the entry fee

Name _____

Address _____

Society _____

I have read the Show Rules and I accept these.

Signature _____

Class Letter	Tank No.	Description of Entry	Overall Length (in.)	Entry Fee
Total				

P.O. No. _____

Cheque No. _____

Cheques and postal orders should be made payable to:
The Aquarist & Pondkeeper and sent to Mr. G. Greenhalf, Show Secretary,
39 Garth Close, Morden, Surrey.

General Information

All lighting, heating and tanks will be provided by the organisers.

Aquarium gravel may only be used in the Furnished Aquaria and Aquascape classes (Aa-Am) and is to be supplied by the exhibitor.

Classes Za and Zb must be exhibited in pots.

Dividers will be permitted in all Pairs Classes (Prefix N), but must be of clear glass and be supplied by the exhibitor.

All classes will be judged to current F.B.A.S. Show Rules and Standards by Federation Approved Judges.

JUDGES: Classes O, P, NOP—G. Goodall (F.G.A.).

All other classes—Messrs. B. Baker, F.B.A.S., C. A. T. Brown, F.B.A.S., D. W. Ellis, F.B.A.S., K. Nutt, F.B.A.S., E. Nicoll, F.B.A.S., J. Stillwell, F.B.A.S., R. D. Esson, G.S.G.B., D. Thompson, M.A.A.S., E. Wood, M.A.A.S., C. Walker, F.N.A.S., G. Holmes, F.N.A.S.

Awards

The Aquarist and Pondkeeper Fishkeeping Award cards will be given to the First, Second, Third and Fourth in each class. The first three in each class will also receive a souvenir trophy.

The Aquarist Gold Pin and Special Trophy will be awarded for the Best Fish in Show.

Challenge trophies are being donated by leading members of the Trade and Hobby.

FBAS Open Show Rules

Relating to The Aquarist & Pondkeeper Fishkeeping Exhibition

All advertised classes and awards shall be in open competition. All sections of the Show shall be run in accordance with the F.B.A.S. Show Rules.

All exhibits shall be shown and judged to F.B.A.S. Show Rules.

Exhibits shall be the property of the exhibitor.

In all fish classes there will be nothing in the container other than the fish and water. Aeration may be used in an emergency.

Fish will not be fed on the Show Bench prior to judging.

An exhibit can only be entered in one class and will automatically qualify for any special class or award without further fee.

Advertised classes can be divided.

Advertised classes will not be amalgamated or awards withheld.

Exhibitors will not interfere with their entries after the show has commenced, without the permission of the show manager.

No exhibit will be removed before the end of the show unless written permission is obtained from the show manager.

Fish will be shown singly in their classes unless otherwise stated.

Show organisers have the right to refuse any entry from an intending exhibitor.

Whilst reasonable care will be taken of exhibits, the show organisers will not be held liable for loss or damage in whole or in part of any exhibit.

Only judges recognised by the F.B.A.S. and graded for open shows will be employed.

During judging only stewards on duty and F.B.A.S. officials may enter the benching area and then will remain clear of the judges.

Class labels will be fixed to the front top left of the container and any award labels to the front top right.

Award labels will either be coloured or printed, 1st Red, 2nd Blue, 3rd Yellow, 4th Green.

Where points are allotted to winning exhibitors or their societies they will apply to the award cards thus: 1st four points, 2nd three points,

3rd two points, 4th one point. Furnished Aquaria and breeders' cards will carry double points, i.e., 1st eight points, 2nd six points, etc.

Points will not be allotted to cards other than 1st, 2nd, 3rd and 4th.

Juniors are those under sixteen at the time of the show.

Submitting an entry implies acceptance of all the show rules.

With any complaint regarding an open show the person with the complaint should approach the show manager who will try to resolve the matter with all the parties concerned. If this does not satisfy the person complaining they can then write to the F.B.A.S. Judges and Standards Committee who will investigate and make a report to the Council who will give a verdict. A final appeal can be made to an F.B.A.S. General Assembly.

Only shows conforming to the F.B.A.S. rules will be sponsored and advertised.

Any exhibitor who fails to comply with the F.B.A.S. Show Rules will have his exhibit disqualified.

Providing a copy of the F.B.A.S. Open Show Rules are openly exhibited at the show it is sufficient to state on the schedule "The show will be run in accordance with F.B.A.S. rules."

Furnished Aquaria and Aquascape Rules

Only Furnished Aquaria and Aquascapes of the size stated on the show schedule will be used.

Furnished Aquaria and Aquascapes of differing sizes will not be classed together.

The minimum size of Furnished Aquaria will be: Club 24 x 12 x 12 in.; Individual 18 x 10 x 10 in.; Junior and miniature 10 x 8 x 6 in., plus or minus one half-inch.

The minimum size of Aquascapes will be: Club 24 x 15 x 12 in.; Individual 18 x 10 x 10 in., plus or minus one half-inch. The container may be constructed of any suitable material and may be open fronted to any degree. The back and sides may be either transparent, coloured or decorated in any way.

Fish, plants and/or rockwork will be supplied by the exhibitor. Gravel

may be supplied by the show organisers. Choice of gravel rests with the exhibitor.

Choice of fish rests with the exhibitor.

Only plants which flourish under aquatic conditions will be used in Furnished Aquaria.

Where any model is used in an Aquascape this will automatically class it as a Novelty Aquascape.

The lighting of each class of Furnished Aquaria and Aquascape will be uniform. Coloured lighting is prohibited.

No appliance will be used in conjunction with a Furnished Aquaria, heaters and thermostats excepted. (Excluding marine aquaria which may use water conditioning appliance).

Furnished Aquaria sides and back may be covered with a monochrome material only.

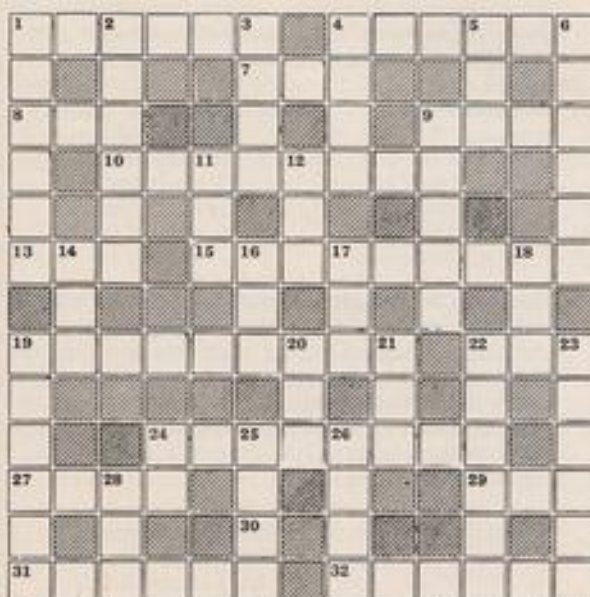
fluorescent tube, with the choke assembly housed in a cupboard below, out of the way. The edge which stands upon the tank is lined with plastic foam draught excluder strip, leaving just a small space for the heater lead. Loss of water by evaporation is low and the hood is easily lifted off. By using "reeded" hardboard for the long sides, and finishing the whole in aluminium paint, it is quite neat and attractive. The inside has aluminium foil to provide a good light reflector.

Regarding aquarium books Mr. Higham asks if fish books are dearer than any other category of reading matter. He has found that price alone is no guarantee of excellence; he has in mind certain American publications with poor colour printing and repetitious material, together with vulgar binding, etc. Some of the books which he values are: Sterba's *Freshwater Fishes of the World*, "still a bargain although £1 up on the original price," he says; also its companion *Aquarium Care*; and Van den Nieuwenhuizen's *Tropical Aquarium Fish*—"beautiful plates and a pleasure to read," he states. He has also enjoyed the Studio Vista series of paperbacks although he enjoys the physical pleasure of handling big books. What he would really appreciate in advertisements is a really comprehensive list of fish books, instead of the familiar few we find month after month in the journals of the hobby. (How I agree! I must say that I am quite sorry to see the "headline" type of advertisements have taken over from the more

formal—but much more useful—advertisements which gave long lists of various items of equipment, fish, plants, accessories, etc. for sale. Now, in most cases, one has to write to advertisers to ask if they stock various items and, if so, how much they cost. Certainly, if I want a certain item, by post, I'll go through *The Aquarist* and find the advertiser who gives "the long list," in the hope of seeing the item which I require. In the February issue, for example, I only found one large advertisement giving a wide list of plants, fish and accessories, together with their prices. What do other readers, and advertisers, think about my point?)

Well, that's all I have room for this month. Please let me have your opinions on the following: (1) What is your favourite large aquarium book? (2) How do you deal with green water in a tropical aquarium? (3) Have you had any success with aquarium plant photography? (4) What are the chances, after three months together, of two large tailed male guppies fertilizing the ten virgin females in the tank with them? None is yet pregnant. (5) Do you notice any special effects of the longer days on your fishes' behaviour? (6) Assuming that you have learned "to think decimal" by now, have you yet learned "to think centigrade", unlike me? What are the advantages? As I'll be leaving for a week in Switzerland tomorrow, I'll be keeping an eye for anything which would interest readers.

The AQUARIST Crossword Compiled by R. MONAN



Solution on page 91.

CLUES ACROSS

1. Words could be mightier than these fish (6).
4. The "get rich fly-by-night" sort of fish (6).
7. This one is found in steel as well as water (3).
8. Insect (3).
9. Catchment for water (4).
10. A hen-like fish? (8).
13. Owls (3).
15. Subtraction (9).
19. Colourful cichlid (9).
22. Father, on losing her? (3).
24. Type of fish generally (8).
27. Meteorological force (4).
29. Type of water so often used (3).
31. At rest, they add colour to your tank (6).
32. Often used for a double effect (6).

CLUES DOWN

1. An act performed when one of your fish does not appear (6).
2. Nature's own angler (6).
3. Marine version of above? (4).
4. Kill (4).
5. Grain (3).
6. Too big for our tanks (6).
9. Sounds correct on paper (5).
11. Maker (3).
12. With first, can be more than useful (3).
14. Just as essential to them as water (3).
16. Long period of time (3).
17. National Takeover (1, 1, 1).
18. Egg (3).
19. Sir (6).
20. Found in plants (3).
21. Bag like, often containing liquid (5).
22. Useful addition to your tank (6).
23. Don't lose it (6).
25. It is on us (4).
26. Time will show it as a singular thing (4).
28. Tanks look nicer like this (3).



Terrapins

I have read W. J. Wright's article on keeping terrapins in the December issue of *The Aquarist*. I hate to appear unduly critical, but at the same time I must conclude that his advice must depend to a great extent on guesswork rather than practical experience.

I cannot remember just when my article "Success with Sub-tropical Terrapins" appeared in *The Aquarist*, it must have been around 10 years ago. At that time I had raised healthy terrapins, five inches over the carapace, in four years from pet store hatchlings. I still have most of the individuals that figure in my article, and have kept both painted (*Chrysemys sp.*) and red ears (*Pseudemys sp.*) continuously since. I cannot claim to have had no losses, but since deaths have been mainly among the native Canadian painted terrapins, it is certainly not my practice of letting them winter outdoors that has killed them. I consider that the painted terrapin is somewhat more delicate than the red ear; when both are kept together the former may die from viruses of which the red ears are carriers without showing any symptoms.

My first difference of opinion with Mr. Wright is over his claim that terrapins may be fed meat. I have had many small terrapins brought to me, dying, with shells like putty, and in many cases I have traced the trouble directly to a diet of minced raw beef. Now Mr. Wright will at once object that he does not advocate a straight diet of meat only. But in the face of this inescapable evidence that meat does terrapins no good, why feed it to them? The natural diet of terrapins consists of invertebrates, fish, tadpoles, and succulent green-stuff. Surely most people can supply this natural diet in some form or other. If a large proportion of Arthropods can be supplied, this will take care of the calcium needs of the terrapins. The best of all are woodlice, they are usually easy to obtain, and are always relished by terrapins. Cod liver oil or any other vitamin supplements are quite unnecessary if the animals get direct sunlight and a good varied diet.

The red ear, which, in this country at least, is most commonly seen in pet shops, is much harder than Mr. Wright admits. I kept my red ears away from frost for a number of years, but eventually one of these in a large pond got out of sight in the mud and I had to let it stay. This pond is about two feet deep. That winter the temperature dropped to 5°F, the ice on the pond would bear my weight. The terrapin showed up in

the spring, hale and hearty. Since then I have left my red ears outdoors all the year round with no losses. But ponds for wintering terrapins (and to my mind for anything else, including goldfish), should have a great deal of soft mud at the bottom including some decaying organic matter.

My ponds all have clay bottoms. Mr. Wright's objections to clay appear to stem from his idea of wintering terrapins without water. I think that this is a serious mistake. Before I learned to leave my terrapins outdoors, I used to winter them in a shed that could be protected from frost. I kept them in various containers from plastic lined boxes to old bathtubs, anything that would give them a bit of space to crawl around. I used no compost under these circumstances, only some "houses" built of bricks and flat stones, providing sufficient space for the animals to hide. When wintered under shelter terrapins are active to some extent most of the time, in fact at temperatures over 40°F they must come to the surface to breathe quite frequently. Hence coming out of hibernation is not a sudden process, and there is no stage at which the eye-bathing process suggested by Mr. Wright would be indicated.

I agree that sickly and very young terrapins should not be hibernated. But red ears in their second winter will not be harmed by three months at 40° to 45°F, without food. So far as sickly terrapins are concerned, I recommend that they should be painlessly destroyed, and another start made. My experience has been that a terrapin must be brought right along under optimum conditions from a few weeks after hatching. They should grow rapidly reaching four inches or more over the carapace in four years. After that growth slows down a great deal. The prospective terrapin owner should remember that a four inch terrapin requires quite a tank. Unless one is prepared to provide such accommodation it is hardly advisable to acquire a terrapin.

RICHARD GUPPY,
Thetis Island,
British Columbia,
Canada.

Notice to Secretaries of Local Clubs and Societies

In the interest of your activity and to help the residents of your area to get the maximum pleasure from their leisure time, I request you to notify me of your club's name, the address of your meeting place, and your own name and address. Required for inclusion in a combined Leisure Pleasure guide.

Please write to:—

A. DIXON,
(Business Manager),
Dixon Know Limited,
3 St. Andrews Road,
Coulston, Surrey.

The Fascination of Piranhas

With reference to Mr. Tummes letter (Jan. issue 1971) concerning "Piranhas."

I, too, have been following Mr. Mellors' articles on piranhas, and I too, was disappointed not to find any more of them in past issues. However, I also have some nattereris and would be only too pleased to correspond with either Mr. Tummes or Mr. Mellors.

I have learnt quite a lot about them, both as fish in the wild, and the totally different character they appear to have in the aquarium. This, to me, is the most amazing fact about them, their Jeckyl and Hyde characteristic. When "non fish-keeping" friends are shown a tank which holds piranhas they more often than not remark, "I bet you don't put your hand in the tank very often." When, to their disappointment, I do and the fish dart away to hide, the blood-thirsty look on their faces disappears.

Yes, they are truly amazing fish, but what a disappointment that they do not reveal their natural character in the aquarium.

MR. K. A. JOEL,
Cleethorpes, Lincs.

One-Way Glass

Those of us who know anything of the game of squash, even the very basic fact that it is played in a room completely enclosed on all sides, will appreciate that it is not a spectator-sport because not very many people can watch the game at any one time. However, on the radio recently I heard that one had been installed in Wembley made of a special glass which enables the spectators to look in and watch the players, but to the players the room appears quite normal. Do readers think that this type of glass has a future for aquaria, i.e. so that you can see the fish, but they cannot see you?

I have not seen the courts yet, but if the manufacturers could make the glass clear enough I am sure we hobbyists could use it either for the keeping of timid species or for photographing spawning fishes.

R. H. BIRCHALL,
University of Keele,
Newcastle, Staffs.

Algae Remover

I would like to tell you about a good way of cleaning algae from the sides of fish-tanks. Instead of a razor blade, which is clumsy and inclined to scratch, a piece of clean nylon netting, such as is used in dresses, removes algae with very little trouble and does not scratch either plastic or glass-sided tanks. I have used this for over a year and have had no trouble at all in removing the most stubborn patches of algae. It is better than white cloth, as it is of stiffer material and therefore removes the algae quicker.

MISS LESLEY HORDON,
Leeds 16, Yorks.

F.B.A.S. Bulletin

May I, through the medium of your publication, bring to your readers' notice the fact that the Federation of British Aquatic Societies has recommenced publication of a quarterly Bulletin?

This newly-resurrected venture is seen as an additional service to the Societies and their support is sought to keep the two-way traffic of information flowing between the Societies and the Federation; as the Editorial says, the aim of the Bulletin is "F.B.A.S."—For Better Aquatic Societies.

May I appeal to the Societies to help the Federation help *them* by sending contributions of articles, news and views (many!), criticisms, moans and groans (few!), to the Editor (me)!

R. C. MILLS,
(Editor, F.B.A.S. Bulletin),
70 Lee Road,
Perivale, Middlesex.

Where have all the (solid) parts gone?

As a hobby in the early 1930s I built a tropical house with over 70 tanks, importing, breeding and setting up aquaria built by my men. Hobby, did I say? Well, I was starting and building up a family business at the same time till one day my tank-frame maker came to me and said he had just made his one thousandth aquaria for me. These ranged from 18 in. x 12 in. x 15 in. to seven feet long tanks in stainless steel and armour plate glass for Atlantic Liners and elaborate showrooms.

Last year I decided to have just a few tanks, but—now I come to the point—where are all the reliable fittings and apparatus I could buy then? The heavily plated metal screw air controls. I've already broken or stranded the thread of these cheap plastic affairs. Where is the rubber air tubing which does not stick together when squeezed up for a day or two? Where are the metal-cased heaters which went on year after year? Where are the thermostats I could fit and forget for years, sometimes putting a dozen tanks, of the same size, on the one instrument. They screwed on the wall with a little cylinder in the tank and a capillary tube connection, and magnetic make and break. Already one out of three of these test-tube affairs has stuck, just as they did when I tested samples from American and Germany nearly forty years ago. I want to look at my fish every morning NOT the thermometer! Who was it that wrote: "There is nothing in this world but what some man can make a little worse and a little cheaper and a certain public is this man's prey".

I admit that a cheap outfit puts the grand hobby within the reach of many, but there must be many others who are prepared to pay for the best and thus make the first expense the last.

Naturally, plastic is a boon when setting up a Marine Tropical tank. I am just starting a 5 ft. 6 in.

one and bless those who have evolved a synthetic sea water. When I last attempted it the National Marine Biological Society sent me water in carboys from either Plymouth or Port Erin, and I managed to keep *Amphiprion percula* for a year with a real "Heath Robinson" filter. Then I put in some anemones which didn't understand their job!

Forgive me, Mr. Editor, if I have missed any advertisements of the articles I want, but I don't think I've missed any advertisements giving the price of Marine Tropicals. Why the secret? Surely the importers by this time know what the average deathrate is and can fix an approximate price. On some imports one makes a good profit and on others a poor one or may be a loss. It's a business risk. My biggest job was for Cambridge University and cost about £500. The first book I could buy on the subject of tropical fish was, "Life & Love in the Aquarium" by C. H. Peters and published in America. They sent me a copy and I ordered a gross, quite certain they'd sell rapidly, and they did. It was published in 1934.

To sum up, where can I buy apparatus as in the old days? What's the use of a year's guarantee on a thermostat? Just when one is beginning to trust it, it may let one down, or what's the use of a replacement when one has a tank full of dead fish? One wants "things" as well as people one can trust. Yes, tell me I'm lazy. Well, since those days I've had many hobbies, many strange animals as well as horses, herds of deer and wallabies, coloured donkeys, exotic birds, etc., but never, NEVER, have I worked so hard as I did with my tropical fish.

V. V. PEDLAR,
Parbold, Lancs.

European Catfish in Britain

I trust no reader thinks I am carrying on a personal feud with Mr. Boarder regarding *Silurus glanis*. For many years I have read his works with interest and appreciation. I merely wish to establish the truth.

Mr. Boarder wishes me to state categorically that no European catfish have ever been sold in this country. That would be very rash, since we already know that in the last century several attempts were made to acclimatise this fish, and that, today, they can be seen in some public aquaria. It is probable that some specimens were paid for.

I have visited dealers' establishments for fifty years and have never seen these fish on sale. Before and after the war I was employed by one of Britain's biggest importers of fish of all sorts and never saw *Silurus* offered by any European exporter, though before the war there was a much larger range of coldwater fish available (mostly American species of bass).

I will state, rashly perhaps, that this fish has never been advertised in either *The Aquarist* or the late *Water Life* from the inception of either journal.

If I can be proved wrong by any reader (with Chapter and Verse) I will willingly send a cheque for two guineas (through you, Sir) to Mr. Boarder's favourite charity, if he, in turn, will do likewise if I am correct. I suggest a time limit of six months and that your decision on the matter shall be final.

I agree entirely with Mr. Boarder's closing remarks on coldwater catfish which, apart from swallowing smaller species, will damage the fins of fishes larger than themselves. Their dorsal spines can also inflict painful injuries to people who handle them carelessly.

JOHN S. VINDEN,
Brecon, Wales.

Mr. Boarder's Reply

In his letter in the April issue of *The Aquarist*, Mr. Vinden appears to have missed the point about the publication in a newspaper of the catching of a European catfish. It arose solely because of the size of the fish, which, as stated in the article, was only half a pound less in weight than the largest freshwater fish ever caught in England on rod and line.

As for the advertisement of a European catfish I just cannot remember ever having seen any but Catfish as scavengers for the pond, advertised in aquarist papers. Apart from the experienced aquarist dealers I suggest that the hundreds of pet shop dealers would not know a European catfish, when young, from an American one. I am also fairly certain that if the staff of any of the lesser shops were asked if they had either a *Silurus glanis*, or *Ameiurus nebulosus* in stock, a blank expression would soon appear. I am sure this would be the case in my local pet shop.

My original mention of catfish was to warn pond-keepers as to placing them in the pond. I am pleased to note, at least, Mr. Vinden agrees with me that the American catfish can also be dangerous to other fishes. On that note I have no more to say and now consider the correspondence closed.

A. BOARDER.

How to Hatch Oscar-eggs?

After reading a number of articles in books and magazines explaining the difficulties of spawning Oscars, I was most surprised when my own pair spawned for the first time.

Five spawnings later I am still having difficulty in hatching more than a very small proportion of the eggs laid. Up to now the average time between spawnings has been about 12 days and the number of eggs laid 1,000 to 1,800 at each spawning.

I would be pleased to hear from any of your readers who have successfully bred Oscars and who could give me some advice on this matter.

K. A. M. KIRK,
100 Woodlands Avenue,
Eastcote, Ruislip,
Middlesex, HA4 9RH.

Continued on Page 93

From a Naturalist's Notebook

by Eric Hardy

I WAS interested to find recently that several well-known water-plants declining in Britain in recent years are also declining on the Continent. The cause may be ecological rather than human problems. *Butomus*, the pink flowering rush (which isn't a rush) is in regression across the Channel. Water-solider, which you will find along the border dykes of Norfolk's Upton Broad, along with the holly-leafed naiad (which grows also in Barton Broad) for example, is also declining on the Continent. Other examples include the fen-orchid, which grows by Stolman Dyke at Thurne as well as a slack on the Whitford reserve of the South Wales Gower and at Braunton Burrows in north Devon, as well as its famous haunt on Wicken Fen.

Once again the proposed Wild Plant Protection Bill of the BSBI and the Council for Nature has been delayed. Originally it left out Scotland because they usually have their own conservation laws; but at a recent committee of the latter I learned that it is being redrafted to include Scotland. So it isn't likely to be introduced to the Lords before the end of this year, or early next.

A lady who early in March bought some watercress from her greengrocer in the Crosby area of Lancashire, was so surprised at what came out of it when she put it into water that she bottled it and sent it along to me. There were *Limnaea* and *Planorbis* snails by the dozen, a large dragonfly larva, several leeches and specimens of Hydra—enough waterlife for her teaching daughter to take it along to school and start an aquarium with it.

How many aquarists appreciate that out of 350,000,000 cubic miles of water on Earth, only 1 per cent is available freshwater? 97 per cent is salt and 2 per cent locked up in polar ice and alpine glaciers. Yet we continue to pollute it. Reading a new English edition of a recent American pollution book, *Your World Your Survival* by Matt Warner (Aberlaid-Schuman), which is mainly material already well known, I noticed p.39 states that 70 per cent of the oxygen in the atmosphere comes from photosynthesis by the phytoplankton (microscopic plant-life, like diatoms) in the oceans. Then on p. 64 I see the statement that over a quarter of the fresh oxygen of the atmosphere comes from land plants. This is an inconsistency from rapidly-compiled journalistic work, playing up a topical theme.

More concern to us is that the average residue of organochlorine insecticides in British rainfall is now 15 parts in one hundred thousand million. This rain-

fall is a source of pesticides reaching inland waters, whereas the soil absorbs much from the rain falling on land. Fish losses due to these residues have been small; localised incidents more often were due to applications like sheep-dipping, or mist-spraying in wind which, with care, could have been avoided. More sensitive to pesticides in drainage are the aquatic insects on which fish live, and their reduction has a long-term effect on fish size and condition.

In some coastal waters off S.E. England, 10 to 20 parts per million-million of gamma-BHC and dieldrin together have been detected. Lecturing at a recent symposium on pollution at Liverpool Polytechnic, I pointed out how the increase of nitrates and phosphates from sewage effluents in Liverpool Bay in recent years appeared to be the cause of increasing algal blooms in summer—miles of massive, jelly-like scum from the rapid reproduction of dinoflagellates like *Phaeocystis* and *Noctiluca*. Similar algal blooms off the N.E. coast the other year caused the death of shellfish and seabirds feeding on them, from the poisonous bacteria produced at the death of the dinoflagellates.

It is curious that while one requires both licence and police permit to carry firearms in this country, and must sign a chemist's register to obtain poison, even a child may keep the most deadly of poisonous snakes without any permit or adequate precaution against its escape. So said a well-known expert to me after an amateur dealer visiting him opened a portmanteau of deadly serpents for him to pick his choice—just like that. Rattlesnake venom has proved still lethal after 26 years' storage!

Snakes are much more interesting than mere material for anti-snake bite inoculations. At Macdonald College, Quebec, G. C. Weary found branding them with an electric needle to be superior to tattooing and scale-clipping as a method of marking them in field-studies. Trigger-operated tongs are used for catching them, and amphibians by American collectors. Methoxyflurane is used as a safe anaesthetic for snakes. Research workers immobilise them by putting them into a long, rigid, clear plastic pipe, flattened at one end for taping specimens, and with ventilation holes. Then they cut openings for surgery, or to make injections. Some snakes have parasitic mites, like *Ophionyssus natricis*.

We don't usually think of snakes as predators on bats, yet five species have been shown to prey on bats in Texas: whipsnakes, copper-heads and rat-snakes.

Lizards are a common prey, but many snakes are aquatic for hunting fish as well as amphibians, shedding their skins too, especially in our *Natrix* genus, from here to Jordan and Cuba. They are long-lived, a male *Natrix* living 15 years in captivity. The stomach-contents of 37 watersnakes of 6 species taken by sportsmen in a snake-elimination programme in Lake McAlester, Oklahoma, showed upon examination at the University of Texas to contain nothing to justify their control as pests. 79 per cent of the food of the northern American water snake, *Natrix sipedon*, is shown to be mostly minnows, darters, sculpins and sucker-fish, and 21 per cent amphibians. Newts were all rejected, and pickerel frogs frequently, because of their repellent secretions. Crayfish were not found in 207 water-snakes examined, so they are seldom taken. No reptiles, bird or mammals were found in them. They hunt largely by sight, their activity depending

much upon temperature, whether it be diurnal or nocturnal. 40 per cent of the snake's weight formed the largest meal, but average meals were smaller.

A sub-species of this snake, called *clarki*, inhabits coastal salt-waters, but its freshwater sub-species called *confluens*, cannot live long in salt-waters, though the permeability of the skin and kidney structure are the same in both snakes, according to studies by Pettus at Colorado State University. Both kinds prefer freshwater by choice, and Pettus concluded that the brackish water form maintains its water-balance by using preformed water, from the body of its prey, plus water derived from oxidative metabolism. The marine form *clarki* won't drink water of 30 parts per thousand salinity, whereas the freshwater *confluens* will drink this, and then succumbs to its effect. Because of the latter's indiscretion, it cannot occupy the haunts of *clarki*!

BOOK REVIEWS

A Handbook of Water Plants by Eva M. Bursche, illustrated by Paul Richter and Renate Brauner. Published by Frederick Warne at 65p.

THIS compact volume is just what it sets out to be—a simple guide to the identification of water plants embracing floating, submerged and marginal species. The plants covered are those to be found in European ponds and waterways and the book is aimed at anglers, naturalists, botanists and all whose recreation depends upon the presence of water. The drawings which illustrate the hundred or more species dealt with are beautifully executed in great detail and make the book a pleasure to browse through.

Livebearing Aquarium Fishes by Kurt Jacobs.

Published in the U.K. by Studio Vista and translated by Gwynne Vevers. Price £6.00.

THE first book to deal thoroughly with the live-bearing group of fishes, this work is divided into two main parts, the first dealing with the general biology of livebearers and their discovery, and the second affording a comprehensive account of the 156 live-bearing species now recognised and giving details of distribution, habitat, form and coloration. Further information is included on the best methods of keeping, breeding and feeding.

The author has paid particular attention to the confusion which has built up over the years concerning the correct nomenclature of species and supplies a complete list of species and subspecies, giving their valid scientific names and their synonyms.

In his preface Gunther Sterba states: "The conciseness and accuracy of the contents of this book will not only ensure it a place in general aquarium literature but also as a work of reference for the professional ichthyologist. This work certainly provides an invaluable account of our knowledge on the subject and will also give much encouragement and stimulation." To this it is unnecessary to add any further recommendation. The majority of the photographic plates are in colour and of the excellent quality we have come to expect from German sources.

Ocean Life by Doctor N. B. Marshall. Published by Blandford Press at £1.25.

THIS is one of the popular Blandford Colour Series and is in the tradition of its companion volumes with the middle of the book devoted to excellent colour drawings by the author's wife with numbered references linked with concise notes at the end of the book. Chapters cover the make-up of the seas as an environment, development of marine science, nature of the ocean, etc. Another section deals in considerable detail with the nature of oceanic life. Others cover patterns of reproduction and diversity of life in the ocean.

Although a tremendous amount of information is packed into this book, information of a scientific nature, it is extremely readable and especially so to the aquarist who has already been hooked by the marine bug. Dr. Marshall is the Curator of Marine Fishes at the Natural History Museum, London.

SPAWNING

Pelmatachromis kribensis

by Ivor Dennis

I WAS extremely pleased recently when I managed to acquire a particularly handsome pair of *Pelmatachromis kribensis*. After a few weeks in a community tank the female, who was distinctly full with spawn, began her attempt to seduce her companion (the female continuously took the initiative during the spawning preliminaries). Gleaming gold and rich brown shone from her sides, only to be surpassed by the vibrant wine red of her belly and green of her gill plates. During her erotic dance the colour scheme was set off to perfection by her rear portions becoming a sooty black. Dressed thus she ventured forth to stimulate her mate—alas he appeared not to notice.

By this time I was completely captivated by *P. kribensis* I became determined at all cost to spawn them and raise the brood. Setting up a well-planted 24×15×12 tank I placed a flower pot in the darkest corner with the bottom uppermost, allowing access through the small hole in the base. Within minutes of being introduced into the tank the male made himself at home in the flower pot; the female continued her unrewarding dance of love. This situation continued for several days, the male only rarely vacating his flower pot. Both fish were becoming increasingly nervous and shy, any fright such as lifting the hood would send them into hiding for up to an hour. Success seemed unlikely unless a change was made. On a hunch but without a great deal of confidence I added two smaller *P. kribensis* to the tank. The effect was immediate, the male at once left the flower pot and with fins erect and a bright red belly the colour extending to his jaws, he patrolled his domain. The flower pot now empty the female seized her opportunity and began cleaning the inside. Both fish lost much of their shyness and spent the time between cleaning the inside wall of the flower pot and excavating a pit outside. This behaviour continued for two days without change, on the next day I decided that another stimulus was needed. This time I would leave the tank light off. On returning from work that day I was delighted to find that the spawning had taken place, the female now guarding the eggs inside the flower pot.

Not wishing to risk the spawning I removed the parent fishes, also the two smaller ones. I placed the

flower pot, complete with eggs, in a floating container in the same tank, added methylene blue and an air stone and anxiously waited. Three days later they were wriggling and a further five days saw the fry swimming.

Right from the start the fry ate ravenously, brine shrimp, chopped white worms, garden worms and tubifex; flaked and freeze-dried foods were rejected until several weeks had passed. Two weeks after becoming free swimming the fry measured $\frac{1}{2}$ inch including their tiny but perfectly formed tails. Their colouring did not at this time resemble the parents, but consisted of brown blotches and spots. The constantly moving shoal of small *kribensis* defied all attempts to count them and lead to much speculation as to their numbers. In order to satisfy my own mounting curiosity I netted the entire brood into a bucket and counted them back into the tank. The result was 167 fish, as about twenty eggs fungused the spawning was close to 190 eggs. This was a much larger spawning than I had been lead to expect from some books on the subject. At four weeks the brown blotches on the young *kribensis* had formed into the dark line running from nose to tail which is characteristic of the adult fish. The size differential in the brood was only slight, the larger fish at five weeks being $\frac{1}{2}$ in. in overall length.

The conditions which I supplied for the spawning were not as the text book as the water came from the tap supply at a hardness of 290 p.p.m. The pH was unknown. The water temperature was maintained at 80°F. As the adult fish are showing a desire to spawn again I am anxious for them to have the opportunity so that I may compare their behaviour with the previous spawning.

Crossword Solution

S	W	O	R	D	S	S	H	A	R	K	S
E	T	E	E	L	Y	A					
A	N	T	A	A	W	E	L	L			
R	E	G	G	L	A	E	R	M			
C	R	O	T	I	O						
H	A	S	D	E	D	U	C	T	I	O	N
I	O	D	E	V							
K	R	I	B	E	N	S	I	S	F	A	T
N	A	A	I	E							
I	T	R	O	P	I	C	A	L	M		
G	A	L	E	N	T	T	A	P			
H	I	U	E	E	E						
T	E	T	R	A	S	M	I	R	R	O	R

COCKLES ON THE BRITISH COAST

Junior Aquarist

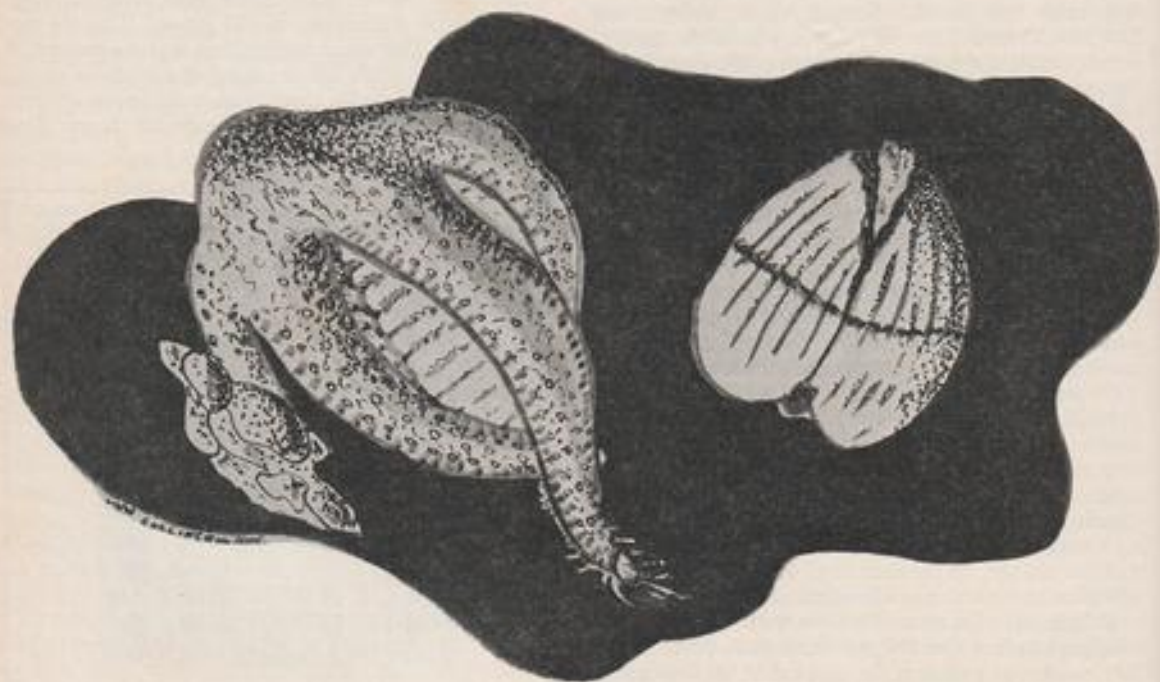
by Huw Collingbourne

A MUCH MALIGNED little mollusc is the cockle. Most people would consider it to be a totally uninteresting little shellfish. However, in actual fact the ten British species of cockle are a very interesting group of bivalves indeed.

When viewed from the side, the edible cockle looks to be heart shaped, hence the old generic name, *Cardium*. Now, however, the edible cockle has been re-classified as *Cerastoderma edule*. It grows to about five or six cms. at most and 20-24 ribs radiate out from the valves to the margin of the shell. The shell colour varies through shades of white, cream, brown or even pink and the darker bands running along the shells are caused by seasonal growth variations; the shell

growing quickly in the warm waters of summer when the sea is well lit by the sun and an abundance of micro-organic food is present in the water. Growth is much slower in the icy conditions of winter when the days are short, the nights long and the plankton scarce. There may be as many as six growth rings on any one specimen, indicating the cockle's age.

When the ligaments expand, allowing the shells to open, the edible cockle may protrude its two joined siphons. These are small pink structures fringed with tentacles, the siphon further from the shell's apex acting as an intake for food and oxygen, the other siphon being the outgoing jet taking carbon dioxide and waste matter from the cockle's body.



Starfish engulfing edible cockle and (right) edible cockle viewed from side

From the other side of the shell a strong muscular foot may be projected. This foot is curved and sickle shaped and it enables the cockle to dig deep into mud or sand where it lives. The foot has a second purpose, though, for it can help the cockle to escape from enemies like the shell-boring dog Whelk or the carnivorous starfish.

The edible cockle has many enemies, but perhaps the greatest predator is the Common Starfish, *Asterias rubens*. The starfish, which has hundreds of little hydraulically operated sucker feet on the underside of its five arms, creeps up slowly, ever so slowly towards its intended prey. Gradually, inch by inch, second by second, the sea star's arms creep up onto the shells of the cockle, its sucker feet attaching themselves to its prey. The starfish wraps its broad arms about its captive and, using its suckers, it wrenches the two shells apart until finally the ligaments which keep the shells closed, are snapped and the cockle shells gape open. The starfish then vomits its stomach through its mouth aperture and engulfs the tough cockle flesh in this. The starfish will digest the meat in this manner.

Not all cockles are caught so easily. An alert cockle has eyes, well equipped with lenses, with which to spot the approaching starfish and, by thrusting out its powerful foot, the cockle may effect a hasty retreat, leaping over the sandy ocean bed. Even when stranded on the beach after the tide has drawn the roaring ocean's water from the shore, the little cockle

can leap some inches off the sand to escape an enemy.

Although this leaping action can help the cockle in avoiding predators it is not only *Asterias rubens* and shell-boring seasnails with which these bivalves must contend. In the water many large fish are capable of crushing the hard limey shell and some flatfishes in particular eat large numbers of cockles. Even ashore the gulls are waiting for the shellfish to be exposed by the receding tide.

However, the cockle, like the mussel and the scallop, is not free of smaller enemies. Indeed, its gut is full of harmful bacteria and parasitic animals. Apart from adversely affecting the cockle itself, these parasites could be passed on to the creature which uses the cockle as food. An aquarist, therefore, who keeps starfish and feeds them on cockles, will find it necessary to first clean the cockles in a jar of fresh sea water, when, after a few hours, they will have ejected most of the filth which has collected inside them.

One really beautiful variety of cockle is *Acanthocardia aculeata*, a Devonshire species of Prickly Cockle whose colour variations are notable. Its large shell (up to 10 cms.) is decorated by great spines along its broad ribbed surface.

Cockles are abundant all over Britain, and despite the large numbers killed naturally, and the vast quantity yearly eaten by man, the population along our shores is very great. One survey along a beach in South Wales showed that in its 320 acre area, there lived about 462 million cockles.

OUR READERS WRITE—continued

Increase in Scottish Societies

I have just read—with amazement—A. A. Spence's letter in your March issue, complaining of a decline of interest in tropical fish-keeping in Scotland.

My own experience supports the opposite view. In my work I meet quite a large number of people and it is really amazing how many of them keep fish.

However, Mr. Spence's complaint would appear to be about a lack of Societies. (In 1946 only two clubs). Many of these clubs hold open shows annually, details being circulated to all other club secretaries. In addition, the Federation holds a Convention each year in two parts, the first in March, the other in September. There are also inter-club shows held between two or three local clubs and the East of Scotland Show which is held by about half-a-dozen clubs.

I would say to Mr. Spence that tropical fish-keeping in Scotland is definitely on the increase. The aquarists are here. Come and meet them, and benefit yourself.

I. BRUCE,
Dumfermline, Fife.

Show Jars

I read in your April issue, of the problem of M. Harris, Ashton, as regards obtaining Show Jars.

There is a way round this difficulty—ALL-GLASS TANKS made at home. These are very easy to make, very reasonable and show your fish to better advantage.

Have the glass cut to the size required, hold it together with Sellotape and seal on the inside with Silicone Seal (Datam or King British are both very good). Let it set for 24 hours. Remove Sellotape and then leave for 5 or 6 days.

These tanks are made to any size and shape as required. Tanks up to and including 24 in. × 12 in. × 12 in. can be made in 32 oz. glass for a few shillings. So they can be made, not only for Shows, but extra tanks, breeding tanks, fry-raising tanks, etc.

I have just made two tanks 8 in. × 8 in. × 8 in., with cover-glass (for Shows), and they cost less than 75p each. Glass may be bought for a 24 in. × 12 in. × 12 in. (32 oz.) for about 75p, and Silicone Seal 65p. So this tank costs only £1.40 plus a little Sellotape and time. Very reasonable I think. Of course, the price of the glass may vary from district to district.

C. THACKER,
Manchester, Lancs.



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.

COLDWATER QUERIES

by Arthur Boarder

I have a garden pond about six feet square and the surface of the water is covered with oil. I have tried freshening it up with a hose but it seems to reappear. What is the cause please?

I can think of two reasons why the oil appears on the surface. One is that you are not far from the flight path of aeroplanes circling for permission to land at Heathrow Airport, and these could shed oil with exhausts. The other reason is that the oil may be from decaying water lilies. You state that you have water lilies and King cups in the pond and I know of few things which, when decaying, produce such an amount of floating oily substance on the surface of the pond. Try to clear out as much as you can of any dead leaves, freshen up and the trouble should clear, unless it is caused by my first suggestion.

I have seen it written in books that frog tadpoles take from twelve weeks to three months to develop into frogs from the time of hatching. I had some frog spawn and the tadpoles are growing so quickly that at 2 to 2½ weeks from hatching they are developing their hind legs. At this rate I think they will be complete frogs in 1 to 3 weeks. Is this not unusual?

It might sound a little unusual if one did not know that you had been keeping the spawn and tadpoles at a temperature of 60°F., and that you have been feeding the tadpoles on bruised lettuce leaves, chopped worms, bits of meat, water plants and soft green Algae. Your temperature is probably at least 10 degrees higher than would be the water in a natural pond, and the type of food would also increase the rate of growth. I think that they are lucky tadpoles and expect that they will never want to leave you. I have had readers say that some of their tadpoles had not changed to frogs all through last year, and this is because they had insufficient food during that time. Tadpoles are like fishes, when young if you give them warmth, food,

oxygen and space, they will grow much faster than without any of these conditions.

I have a garden pond about 8 by 6 feet, and the plants are covered with a grey film. What is the cause and cure?

I suspect that the water in your pond gives off a nasty smell. It is obvious that there has been something decaying in the pond and this has polluted the water. You may have continued feeding your fish with dried food too late in the season. Once the water becomes colder the appetites of the fish decrease considerably and so much of the food given would remain uneaten and so cause the water to turn foul. You will have to clear out the pond. In any fairly well planted pond a few goldfish would survive in good health without having to be artificially fed at all.

I have some goldfish in a tank and after I had added one which I got from a fair, most of the fish appear to be suffering from tail-rot. What is this disease and the cure please? I have put some Tidmans sea salt in the tank.

Tail-rot is a form of Fungus disease, but it is believed to be caused mainly by a form of Bacteria. It does not appear to be known which particular bacteria is the cause but the effect of an infection seems to be very similar to that of Fungus. If fin-rot is not treated in good time and it spreads to the body of the fish it can be fatal. I have found that this trouble can be cured by the salt treatment but it should not be used as you have done. Never put sea salt directly into a tank of fish to cure one or two of them. Diseased fish should always be removed from the community tank and be dealt with in a separate container. The type of plastic washing up bowl is very good as a hospital tank as it does not need to be too deep. The shallower the water the better is the oxygen content likely to remain. A solution of a tablespoonful of sea salt to the gallon

of water is a good dose. When the fish is in the container, add the salt but do not stir it, but allow it to dissolve gradually. Do not use table salt from a packet as magnesium carbonate has been added to keep it free running. Leave the fish in the solution, out of the sunshine, until it is cured. Change the water to a similar solution if it appears to turn foul, and once the fish is cured gradually weaken the solution.

Some of the fish in my tanks have become out of condition. Their skins look whitish and they appear to be irritated. They rub themselves on rocks and plants and I have seen blood streaks on some of them. What is the trouble and the cure please?

It is obvious that the fish are suffering from a parasitic disease. Most of the symptoms indicate an attack of flukes. These are usually brought in from outside with either live foods or water plants from the wild. A fresh fish which was infested could also be a cause. The general condition in the tank can have an effect on the health of the fish as once the water condition falls below a healthy level the fish are subject to many troubles which they could otherwise shake off. If flukes are the cause you might be able to see them with the aid of a strong magnifying glass. They appear as almost transparent worm-like creatures which attach themselves to a fish but can move with a looper-like movement. I have found that an immersion in a solution of Dettol or T.C.P. will usually effect a cure. The point to watch is that the solution must not be very strong, a quarter teaspoonful to a gallon of water is enough. The fish must never be left in the solution unattended and then in it for not more than five minutes. If the fish turns over before this time it must be returned to fresh water when it will soon recover.

I have three goldfish in a tank with a filter but still cannot keep the water clear. I have tried snails as scavengers but they soon die. What other scavengers can you recommend?

I have never found a better scavenger than a goldfish. If it is not fed too much it will soon clear up anything

edible or which could pollute the water if left in the tank. Your problem seems to be the effect of feeding too much dried food. A tank should keep clear for ever if properly looked after without either filter or aeration. Snails never kept a tank clean yet. Cut out a lot of the dried food and after the tank has been cleaned out it should function with little trouble apart from a weekly servicing.

I am planning to move to a new house and although I have had a goldfish pond for some time I would like to make a new one complete with waterfall or fountain. Can you recommend a good book on the subject please?

Get the book "Coldwater Fishkeeping," as advertised in *The Aquarist*, or "Garden Ponds," by Arthur Boarder, published by Foyles at 30p. You will find all the information necessary on construction, planting, maintaining and breeding of fish which you require in the books mentioned.

I have a kind of disease which is attacking the goldfish in my garden pond. The fish have their scales standing out from the body and they have white spots on them. I am treating them with Anti maladin and the scales seem to be returning to normal. What is the cause please?

The description as to the outstanding scales on the goldfish inclines one to think that the trouble is Dropsy, but if the scales are going back into position after your treatment of the fish, it suggests that this is not Dropsy. As the fish show white spots I think that without further information I consider that it is the white spot disease or infestation of pests which is the root cause of the trouble. If any of the pests are developing under the scales it is possible for the scales to be forced out somewhat. Try to raise the water to 70°F., and give some aeration. If it is possible to wash out the hospital tank every day, you will eventually get rid of the white spot as you will then wash away all the cysts as they develop from fallen pests before they can hatch out fresh young pests.

TROPICAL QUERIES

I have just bought a small air-breathing fish called a honey gourami. I should like to know the scientific name of this species and its country of origin?

The scientific name of the honey gourami is *Colisa chuna*. It is native to India.

Please can you tell a beginner why two *Corydoras aeneus* in a balanced community tank dash to

by Jack Hems

the surface every now and again for what appears to be a supply of air?

Quite a number of catfish can breathe atmospheric air when the necessity for it arises as, for example, when the water is low in oxygen. Shortage of oxygen is usually brought about by overcrowding or pollution. If there is nothing decaying in your aquarium, then turn your attention to the number of fish you have in your aquarium. You can ascertain

how many fish your size aquarium will support without the employment of an air pump by looking up "stocking with fish" in any good reference book.

I have a botia loach which has bluish green sides, red fins and some dark spots in the tail base. Have you any idea which botia this one might be?

Your description fits *B. pulchripinnis*, which attains a length of about 3½ in.

I would appreciate some information on growing aquarium plants in a two-foot tank. Though I have always planted healthy-looking specimens of various species none has lasted more than a month or two. The foliage just yellows or turns light brown and withers away. My compost is well-washed fine grit. My lighting is a 15 watt Gro-Lux lamp which I switch on every night.

You require a 20 or 30 watt warm white or Gro-Lux type fluorescent lamp to grow plants. Keep it switched on for at least 10 hours a day.

Please give me some information about a cichlid known by the formal name of *Tilapia mariae*.

I have not come across this cichlid yet, but reference to the books tells me that this species is from West Africa and grows to some 7½ in. in length. It is said to be aggressive, well-coloured, and likely to be confused with *Hemichromis fasciatus*. (Both species at some time of their lives sport five blotches on the sides). An American authority writes that it spawns on rocks and thereafter adopts the same procedure with regard to the fry as other rock-spawning cichlids. But a German authority observes that it is a mouth-breeder. *T. mariae* flourishes at the usual range of temperature.

If I construct a cement and sand background for my decorative tropical aquarium will it create conditions inimical to the health of the fish?

Not if you give the artificial rockwork several prolonged soakings in several changes of acidified (vinegar) water.

What wattage heater and size of fluorescent lamp will I need for a 36 in. by 12 in. by 15 in. tank?

Fit a 100 watt heater controlled by a good thermostat and light the aquarium with a 20 or 30 watt warm white lamp.

I was under the impression that the guppy was everyman's fish, yet I have never been able to keep one alive for more than a few days in my

community tank. As the tetras and other fishes are thriving, I think it is reasonable to assume that the guppy is a rather delicate or difficult fish. What is your opinion?

I do wish you had mentioned the names of the fishes in your aquarium. More than likely you have some species that pick on guppies and worry them to death. Kept under proper conditions (and guppies demand nothing very special), this poeciliid should live at least 18 months to two years in the aquarium. Mine do, anyway, and not a few are living in a tank with neons, platinum tetras, and various gouramis.

I am experiencing great difficulty in breeding angel fish and wonder whether you could give me some help with regard to the preferred temperature, quality of water, general furnishing of the breeding tank, and after-care of the eggs and fry?

The best advice I can give you is to send 27½p to this office for a copy of *Angel Fish—King of the Aquarium*, by Dr. F. Ghadially, a well-known and clever breeder of this lovely cichlid.

I have been told that a filter should never be operated after methylene blue (for the treatment of whitespot disease) has been introduced into a tank. Please give me a reason for this piece of advice.

The curative properties of many medicaments used in the treatment of disease affecting fish are rendered valueless if they are passed through a layer of carbon (charcoal). Consequently if continuous filtration is regarded as necessary while drugs are in use, then it is the proper thing to remove the carbon from the filter and run it with dirt-retaining well-washed sand or man-made filtering fibres alone.

What is a Surinam pearl fish?

The Surinam pearl fish is an uncommon cichlid known to science as *Geophagus surinamensis*. It attains a length of about 8 in. and its predominant colours are green, blue, silvery olive and red (in the fins). It is a pugnacious species.

In a recent issue you referred to the killifish popularly known as Ladige's gaucho under the scientific name of *Cynopocilus ladigesi*. Permit me to inform you that the correct name of this species is *Cynolebias ladigesi*.

The subject of nomenclature is deep, shifting as quicksand, exhausting and, at times, unintelligible to the ordinary aquarist. Ladige's gaucho is described under the formal name of *Cynopocilus ladigesi* by (a) Klaus Paysan in his *Welcher Zierfisch ist Das?* (b) Professor Gunther Sterba in his *Freshwater Fishes of the World*, and (c) by Dr. Herbert Axelrod and others in *Exotic Tropical Fishes* (loose-leaf edition).



from AQUARISTS' SOCIETIES

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

THE forthcoming Open Show was the main item under discussion at the May meeting of the **Bournemouth A.S.** There was a good attendance, and there were many willing helpers when the chairman, B. Coombes, called for volunteers.

There were two Table Show Classes, the one for Common Goldfish being judged by J. Jeffery, and the Characins by R. Mantley. The results were: Common Goldfish: 1, Mr. Brown; 2, Mr. Greenhalgh; 3, Mr. Coombes. Characins: 1, Mr. Cox; 2, Mr. Mansbridge; 3, Mr. Jeffery. A pleasant evening was concluded by Mr. Coombes, who spoke in detail of the work to be done in the garden pond at this time of the year. He advised members how best to divide their water lilies, and plant them correctly, and which plants were most suitable for the average pond. He then suggested some fish which could be kept in the pond, other than the Common Goldfish.

CONGRATULATIONS were extended to two Junior members at the April meeting of the **Castleford and District A.S.**, who were so successful at Newton Aycliffe Open Show. L. Heptinstall competed in adult classes and once again won the Aquarist Gold Pin, for Best in Show, with a Weather Loach. This makes it four Best in Show wins for him. G. Thickbroom competed in the Junior classes and won seven firsts and Best Fish in Juniors with a Blind Cave fish. Mr. and Mrs. Cohen were awarded Best in Show at York Open Show. Anyone interested may wish to attend the inter-club show on 16th June. Eight clubs have been invited. The results of the Table Show were: Rigglayers Pairs: 1 and 2, S. Clowes (Junior); 3, P. Keith. Novice: 1, A. Thomas (Junior); 2, L. Barrett; 3, B. Hunter. Livebearers (pairs): 1, A. Thomas; 2, L. Barrett; 3, B. Hunter.

MEMBERS of **Corby and District A.S.** were recently given an excellent evening by Frank Vicker and his colleagues from E.L.A.P.A. The members of Corby supplied the questions whilst East London gave very professional answers on subjects ranging from Characins to Coldwater. Mr. Vicker was also presented with a trophy awarded to E.L.A.P.A. members by Corby and Wellingborough for A/V Egg-laying Pairs.

RECENTLY **Weymouth and District A.S.** has been busy with slide and tape lectures quiz and well-supported Table Show. At the annual general meeting the following officers were elected: Secretary, D. Rogers; Chairman, Mr. Turner; Vice-chairman, Mr. Cox; Show Secretary, Mr. Hatton. The Open Show will be held on 5th September at the Small Sidney Hall, Weymouth. For information please write to Mr. Hatton, 53 Brownlow Street, Weymouth. Winners of the March Table Show were Mr. Hatton, Mr. Medway and Mr. Carter.

THE guest speaker for the evening at the **Gloucester Fishkeeping and Social Club** March meeting was F. W. Rowbotham of the Severn River Authority, Brunswick Road, Gloucester, who gave a talk, illustrated with colour slides, on the theme "Severn Scenes and Stories." During March an additional item of interest was forthcoming to club members when they were issued with a challenge from the fish-

keeping section of the I.C.L. Fibres at Brockworth. The large number of entries for fish and reptiles was judged by Tony Artus, of Gotherington, Glos., and resulted in an eleven point win for the I.C.L. John Williamson was the most successful exhibitor for Gloucester.

At the April meeting, the guest speaker was Bernard Hewlett, former chairman of the Stroud and District A.S., who gave an interesting talk aimed at the newcomers to the hobby of tropical fishkeeping. Any person interested in joining the club are cordially invited to attend any of the club's meetings which are held on the last Monday of every month at the above venue or alternatively to contact the Secretary, Brian H. Stoneham, The Flat, Police Station, Barton Street, Gloucester.

THE **Sheffield and District A.S.** eleventh Open Show results-Guppies: 1, Mr. Whiteham (Ind.); 2, I. Stevenson (York); 3, Mrs. Stephens (Castleford). Platies: 1 and 2, N. Fleet (Stockton on Tees); 3, P. Spittlehouse (Workshop). Swordtails: 1 and 2, Mr. and Mrs. Cohen (Castleford); 3, N. R. Gibson (Huddersfield). Mollies: 1, Mrs. Stephens (Castleford); 2, R. Ellis (Ind.); 3, D. Ailton (Rotherham). A.O.V. Livebearers: 1, J. S. Hall (Aireborough); 2, Mrs. Davies (Privateers); 3, I. Hepinstall (Castleford); Characins (under 3 in.): 1, Master D. Brook (Huddersfield); 2, M. Aloop (Alfreton); 3, E. Parker (Grimsby). Characins (over 3 in.): 1, Mr. Kennedy (Bradford); 2, C. Thickbroom (Castleford); 3, N. Jackson (Workshop). Dwarf Cichlids: 1 and 2, I. Hepinstall (Castleford); 3, Mr. Hubert (Derby R.). Large Cichlids: 1, Mr. Hubert (Derby R.); 2, Mr. Muggleton (Workshop); 3, Mr. Lloyd (Grimsby). Anguils: 1, D. Sewell (Sherwood); 2, E. Smith (Sheffield); 3, N. R. Gibson (Huddersfield). Barbs (under 3 in.): 1, J. Derris (Dukeries); 2, John and Stella (Sheffield); 3, Mr. Stoad (Swillington). Barbs (over 3 in.): 1 and 2, Mr. Hubert (Derby R.); 3, E. Smith, jr. (Sheffield). Rigglayer Toothcarps: 1, I. Stevenson (York); 2, M. M. and A. Crowther (Swillington); 3, P. Spittlehouse (Workshop). Carps and Minnows: 1, Mr. Kennedy (Bradford); 2, Master S. Rhodes (4 Star); 3, J. Derris (Dukeries). Labrets, Sharks and Foxes: 1, C. Thickbroom (Castleford); 2, Mrs. G. Moore (Doncaster); 3, R. Harlow (Derby). Fighters: 1, 2 and 3, Mr. and Mrs. Cohen (Castleford). Labyrinths: 1, K. Thomas (Lucas); 2, Mr. Sand (Boston); 3, Mr. and Mrs. Cohen (Castleford). Danies and Rasboras: 1, S. Hill (Alfreton); 2, I. Hepinstall (Castleford); 3, Mr. and Mrs. Cohen (Castleford). Pairs (Livebearers): 1, J. Derris (Dukeries); 2, Mr. Gaschin (Ind.); 3, N. R. Gibson (Huddersfield). Pairs Egg-layers: 1, Mr. and Mrs. Cohen (Castleford); 2, Mr. Aloop (Alfreton); 3, A. Higginbottom (Sheffield). Breeders (Livebearers): 1, Mr. and Mrs. Cohen (Castleford); 2, N. R. Gibson (Huddersfield); 3, C. Thickbroom (Castleford). Breeders (Egg-layers): 1, Mr. and Mrs. Cohen (Castleford); 2, Mr. and Mrs. Buxton (Aireborough); 3, H. Kuhn (Lincoln). Catfish and Loach (under 3 in.): 1, E. Smith (Sheffield); 2, D. Sewell (Sherwood); 3, A. Higginbottom (Sheffield). Catfish and Loach (over 3 in.): 1, Mrs. D. Davis (Privateers); 2, D. Sewell (Sherwood); 3, A. Aubrey (Bradford). Corydoras: 1 and 2, D. Sewell (Sherwood); 3, D. Ellis (Ind.).

A.O.V. Tropical: 1 and Best Fish in Show, A. Kennedy (Bradford); 2, R. Harlow (Derby); 3, J. Derris (Dukeries). Coldwater Goldfish (Fancy): 1, E. Fearnough (Chapelthorn); 2, H. Deakin (Nuneston); 3, J. S. Hall (Aireborough). Coldwater Goldfish: 1, J. S. Hall (Aireborough); 2, F. Toyne (Sheffield); 3, M. Mangham (Workshop). A.O.V. (Coldwater): 1, C. Hill (Nottingham); 2, I. Stevenson (York); 3, N. Jackson (Workshop). Shubunkins: 1, K. Coulton (Sheffield); 2, J. S. Hall (Aireborough); 3, F. Toyne (Sheffield). Junior: A.O.V. Egg-layers: 1, Master A. Bull (Derby); 2, M. Buxton (Sheffield); 3, Willay (Bradford). Junior: A.O.V. Livebearers: 1 and 2, Master Hislop (Swillington); 3, M. Cook (Doncaster). Plants (Rococo): 1 and 2, S. Hill (Alfreton); 3, M. Kilham (Sheffield). There were 670 entries.

THE speaker at the first meeting in April of **Bracknell A.S.** was Mr. John Newby, the education officer from Safari Park, Windsor, who gave an excellent talk on fish and animal life in mid-Africa. The table show was for egg-laying tooth carps and R. Armstrong won all three places. A.O.S.: 1, M. Carter; 2, R. Armstrong; 3, L. Little. During April some club members were at Reading A.S. Open Show, and the tableau was won by Bracknell club.

On the second meeting in April J. Salachta returned to give part two of his talk on water, which all found very interesting. The Table Show that evening was for Rasboras: 1, 2 and 3, M. Carter. A.O.S.: 1 and 3, M. Carter; 2, R. Smith.

THE **Whitley A.S.** meet fortnightly at the "Railway Inn," Hillhead Road, Whitley Bay, Northumberland. Further information can be obtained from Secretary, F. Coleman, at 6 Burnside Road, Cullercoats, Tyne, or at the Tropical Fish Centre, Esplanade, Whitley Bay.

RESULTS of the **Houghton District A.S.** Open Challenge Show: F. Jars: 1, Mr. Proser (Priory); 2 and 3, Mr. Duncanson (Priory). Guppies: 1, A. Bebbington (Peterlee); 2, N. Crowther (Willington); 3, Mr. Gough (B. Auckland). Mollies: 1, Mr. Kinafick (Mt. Pleasant); 2, Mr. Boodis (Mt. Pleasant); 3, Mr. Newworthy (Peterlee). Swordtails: 1 and 3, Mr. and Mrs. Cohen (Castleford); 2, Mr. Atkinson (Mt. Pleasant). Platies: 1, Mr. Atkinson (Mt. Pleasant); 2, Mr. Duncanson (Priory); 3, Mr. Elliott (B. Auckland). S. Barbs: 1 and 2, Mr. Newsome (Cleveland); 3, W. Warrrel (Peterlee). A.O.V. Barbs: 1, J. D. Ambrases (Mt. Pleasant); 2, Mr. Drummond (Washington); 3, Mr. Davidson (Mt. Pleasant). S. Characins: 1, I. Hepinstall (Castleford); 2, B. Walker (Houghton); 3, Mr. Atkinson (Mt. Pleasant). A.O.V. Characins: 1 and 3, Mr. Duncanson (Priory); 2, I. Hepinstall (Castleford). S. Cichlids: 1, S. Hill (Aireborough); 2, J. Tate (Peterlee); 3, I. Hepinstall (Castleford). A.O.V. Cichlids: 1, Mr. Drummond (Washington); 2, K. Meek (Houghton); 3, A. Bebbington (Peterlee). A.V. Fighters: 1, 2 and 3, Mr. and Mrs. Cohen (Castleford). A.O.V. Labyrinth: 1, J. Tate (Peterlee); 2, Mr. Atkinson (Mt. Pleasant); 3, Mr. Morton (Independent). Sharks: 1, J. Hellens (Houghton); 2, Mr. Adams (Hartlepool); 3, Mr. Lee (Priory). Rasboras and Danis: 1, Mr. Watson (Hartlepool); 2, Mr. Arwell (Peterlee); 3, Mr. Buck (Stockton). E.L. Toothcarps: 1 and 3, N. Crowther (Swillington); 2, Mr. Hollis (Hemton). Corydoras: 1, Mr. Arwell (Peterlee); 2, A. Bebbington (Peterlee); 3, Mr. Cohen (Castleford). Catfish and Loach: 1, Mr. Lowthian (Priory); 2, Mr. Gates (Castleford); 3, Mr. Dixon (Priory). Breeding Pairs (L.): 1, Mr. and Mrs. Cohen (Castleford); 2, A. Bebbington (Peterlee); 3, Mr. Adams (Hartlepool). Breeding Pairs (E.): 1, Mr. McCrystal (Priory); 2, Mr. Hollis (Hemton); 3, Mr. Dixon (Priory). Breeders (E.): 1, J. Tate (Peterlee); 2, N. Crowther (Swillington); 3, W. Warrrel (Peterlee). Breeders (L.): Mr. Scothern (Peterlee); 2, Mr. Cohen (Castleford); 3, Mr. and Mrs. Cohen (Castleford). A.O.V. Fish: 1, J. Whitley (Aireborough); 2, Mr. Cohen (Castleford); 3, C. A. Enright (Houghton). A.O.V. Coldwater: 1, S. Hill

(Aireborough); 2, C. Gregory (Jarrow); 3, R. Elliott (Independent). Best in Show: J. D. Ambrases (Tinfold Barb). Competitor with most points for President's Trophy: Mr. and Mrs. Cohen (Castleford) with 19 points. The Blue Riband Trophy shared for 6 months each: Castleford and Peterlee, both with 27 points. 411 entries. Trophies and prizes presented by Mrs. H. Leighton.

THERE was a change in committee at the April meeting of the **Carshalton and District A.S.** due to the resignation of the Show Secretary on business grounds. This place is being filled temporarily by the Secretary, and future communications to the Show Secretary should be sent to C. Lamb, 8 Reading Road, Sutton, Surrey.

Members who attended the meeting were given an interesting talk by Gerry Greenhalf of Kingston who also judged the Table Show. The results were: Anabantids: 1, R. Wiltshire; 2 and 3, J. Begbie. A.V. Cats: 1 and 3, C. Lamb; 2, J. Begbie.

THE **Torbay A.S.** held their annual dinner recently and among the guests were Mr. Towell and Mr. Ellis of the F.B.A.S. The newly formed British Marine Aquarists Association was also represented and the new President, T. Hassall, presented the trophies for 1970. The Open Show will be held at Torquay Town Hall on the 26th September.

A SOCIAL evening was held by the **Accrington and District A.S.** recently when a presentation was made to M. Scalf on his retirement as President and Treasurer after twenty years' service. A film show was also given by the Accrington Camera Club.

At the monthly meeting in April a very interesting lecture on "Feeding Fish" was given by R. French of Warrington Society. A Table Show was held and the results were as follows: Large Cichlid: 1, J. Boothman. Medium Barb: 1, T. Hallett. Small Characin: 1, D. Carr. Catfish: 1, T. Hallett; Livebearer: 1, D. Bailey; Pairs: 1, T. Hallett; Breeder: 1, T. Hallett.

THE **Grimby and Cleethorpes A.S.** held its first annual dinner and dance recently and was voted a great success. After dinner the President, Les Stone, presented the awards for the year, as follows: Aquarist of the Year: C. Easton. President's Cup: Champion of Champions Cup: R. Kirk. Breeders Section Cup: P. Jensen. Junice Cup: D. Kirk.

Other trophies were presented to: R. Jennings, L. Dearden, A. Metcalf, who were second, third and fourth in the Aquarist of the Year competition.

At the Annual General Meeting, the treasurer, L. Evans reported a very successful year's working, with the Society in a very sound position. The following officers were elected: Chairman: P. Jensen. Secretary: L. Dearden. Show Secretary: A. Metcalf.

Meetings are held second Wednesday, and Table Show last Thursday, of each month. New members are cordially invited at the Club Room, Newby Centre, Wealsby Woods, Grimby.

THE results of the annual show of **Belle Vue A.S.** were as follows: Livebearers: Class 1: 1, C. Parnell; 2, E. Cartwright; 3, Mr. Walse. Class 2: 1, K. Thomas; 2, K. Callow; 3, A. Locke. Class 3: 1, Mrs. Webb; 2, S. Harrop; 3, Mr. and Mrs. Grimshaw. Class 4: 1, N. R. Gibson; 2, P. Danielson; 3, S. Cohen. Class 5: 1, S. Hall; 2, L. Kaye; 3, J. Turnbull. Fighters and Anabantids: Class 6: 1, J. S. Booth; 2, R. Mayer; 3, J. Turnbull. Class 7: 1, Mrs. J. King; 2, Mr. and Mrs. Warburton; 3, S. Locke. Angels and Cichlids: Class 8: 1 and 2, Mr. Martin; 3, E. Hooper. Class 9: 1 and 2, Mr. and Mrs. Wilkes; 3, J. Thompson. Class 10: 1, H. Lees; 2, N. R. Gibson; 3, H. and R. McKenna. Barbs: Class 11: 1, A. Thomas; 2, K. Stafford; 3, Mr. and Mrs. Wild. Class 12: 1, Mr. Sewell; 2, P. Rodgers; 3, R. Bowling. Characins: Class 13: 1, V. Knowles; 2, G. W. and A. K. Jackson; 3, Mr. and Mrs. Bewick. Class 14: 1, K. Parkes; 2, S. Locke; 3, Mr. and

Mrs. Morris. Toothcarp, Rasboras, Minnows and Flying Foxes: Class 15: 1, G. Allen; 2, E. Hooper; 3, Mr. and Mrs. Hory. Class 16: 1, Mrs. Ashton; 2, Mr. and Mrs. Bewick; 3, H. and R. McKenna. Class 17: 1, A. Lock; 2, Mr. Tonge; 3, Mr. and Mrs. Smith. Corydoras, Loaches and A.O.V. Cats: Class 18: 1, K. Ankers; 2, Mr. and Mrs. Grimshaw; 3, Mr. Sewell. Class 19: 1, R. Barber; 2, Mr. and Mrs. Faulkner; 3, A. Higginbottom. Class 20: 1, C. Parnell; 2, A. Thomas; 3, R. Antonio. A.O.V. Tropical: Class 21: 1, A. R. Wilkie; 2, K. Ankers; 3, K. Parkes. Pairs: Class 22: 1, Mr. and Mrs. Grimshaw; 2, Mr. Tibbott; 3, N. R. Gibson. Class 23: 1, G. Howard; 2, A. Higginbottom; 3, Mr. and Mrs. Ashton. Coldwater: Class 24: 1, S. Hall; 2, A. Kaye; 3, F. Toyne. Class 25: 1, A. Kaye; 2, Mr. Whitney; 3, Mr. Walsh. Class 26: 1, Mr. Walsh; 2, Mr. Whitney; 3, A. Pointon. Furnished mini-jars: Class 27: 1, E. Birchwood; 2, J. Turnbull; 3, G. Stout. Breeders: Class 28: 1, C. Greenwood; 2, P. Danielson; 3, T. Hardman. Class 29: 1, E. Wells; 2, J. Barton; 3, D. Shaw. Juniors: Class 30: 1, Master L. Lock; 2, Miss B. Kaye; 3, Class 31: 1, A. Kaye; 2, Miss J. Smith; 3, A. Higginbottom. Best in Show: C. Parnell (A.O.V. Cat). Society with most points: Middleton. Lady with the highest points: Mrs. M. Wild. Exhibitor with the highest points: N. R. Gibson. Junior with the highest points: A. Kaye. Entries: 582.

ALL future meetings of the **High Wycombe A.S. (F.B.A.S.)** will be held at the White Horse, Oxford Road, High Wycombe. The Society meets every other Thursday.

So far this year the members have enjoyed some excellent talks. Bob Esso (chairman P.B.A.S.) gave a very interesting slide show and talk on coldwater fish. Roy Skipper spoke on all aspects of breeding and keeping Discus and recently Frank Tompkins discussed water conditions and breeding fish. A visit from Uxbridge A.S. for a twelve-a-side match resulted in a very narrow win for High Wycombe. On Easter Saturday some of the members visited Runnymede A.S. and came away with sixteen awards. The Society offers its congratulations to Runnymede A.S. for a very good first show. The club visited Basingstoke A.S. in April to meet the other Three Counties clubs for the first six-a-side league match of the year. Wycombe A.S. was narrowly beaten into second place by Basingstoke A.S. Anyone interested in club activities please contact P. Newman, secretary, 6 Ashley Drive, Tylers Green, Penn, Bucks. Phone Penn 2942.

THE results of the Inter-Society Table Show and Quiz between **Northwich A.S.** and **Chester A.S.** were as follows: Chester A.S. 180 pts, Northwich A.S. 194 pts. The trophy is retained by Northwich. Show results: Platies: 1, H. Bowman (N); 2, L. and D. J. Thorne (N); 3, C. Bowyer (C). Barbs (up to 3 in.): 1, K. Davies (N); 2, H. Bowman (N); 3, R. Dutton (C). Barbs (over 3 in.): 1, 2 and 3, H. Bowman (N). Dwarf Cichlids: 1, E. Dawson (C); 2, C. Bowyer (C); 3, L. and D. J. Thorne (N). Killifish: 1, R. Knowles (N); 2, L. Bradley (N); 3, R. and I. Antonio (N). Catfish: 1 and 2, R. and I. Antonio (N); 3, K. Davies (N). Rasboras: 1 and 2, R. Dutton (C); 3, H. Bowman (N). Carps and Minnows: 1, N. R. Thompson (N); 2, E. V. Stokes (C); 3, B. Dawson (C). Swordtails: 1, B. Pearson (N). Pairs Egg-layers: 1, K. Davies (N); 2, C. Bowyer (C); 3, L. and D. J. Thorne (N). Pairs Livebearers: 1, H. Bowman (N); 2, E. V. Stokes (C); 3, B. Pearson (N). A.O.V.: 1, C. Bowyer (C) (Tiger Fish). Best in Show.

AN interesting talk was given at the April meeting of the **Wednesbury and District A.S.** by L. Healey, on his experiences in breeding fish. Table Show results: Catfish (Class A): 1 and 3, A. Mawby; 2, W. Tyson. (Class B): 1, R. Groves; 2, Mr. Hickman-Ward; 3, M. Smith. Novice A.O.V.: 1, A. Healey; 2, R. Groves; 3, A. Healey. A Mawby had Best Fish in Show and the fish were judged by D. Johnstone of M.A.A.S. The monthly meetings are held at the Midland Vaults,

Upper High Street, Wednesbury, at 8 p.m., the first Monday each month. New and old members always made welcome.

AT the April meeting of the **Coventry Pool and Aquarium Society**, members were treated to some really excellent colour slides of pond plants. The plants illustrated were very varied and colourful. In the Table Show, which was an eliminator for the M.A.L. Show at Loughborough, the winners were: A.V. Livebearer: M. Lewis. Pairs Egg-layers: E. Sheehy. Catfish and Loaches: T. Scott.

THE **Croydon A.S.** members enjoyed a lecture and slide show on Barbs by P. Gingers at the last meeting in April. The club was to have had a lecture by Brian Baker, but unfortunately he could not attend, and P. Gingers substituted at short notice. The meetings are held on the second and fourth Tuesdays in the month at the Woodside Social Club, Enmore Road, South Norwood, S.E.25.

THE **Maldstone Society** has now been formed and is officially titled **Mid-Kent A.S.** Officers elected are: chairman, L. Getley; treasurer, G. Regan; secretary, H. Simpson, 69 Quarry Road, Maldstone. Phone 65836; show secretary, K. Bovis. Meeting place: Armstrong Hall, Armstrong Road, Maldstone. Dates of meetings, first and third Wednesdays of the month. Time 7.45 p.m.

THE speaker at the **Llantwit Major A.S.** April meeting was J. Wheeler (Trowbridge), who gave an extremely interesting and informative talk on his "Personal Experiences with Tropical Marines." This was voted one of the club's best lectures, giving members an insight into all aspects of Marine Keeping and emphasising the expensive pitfalls and the money saving points one could adopt. Results of Table Show for Catfish and Loaches, judged by P. Wheeler was as follows: 1, Miss H. Jones; 2, A. Ibbertson; 3, Master J. Edwards. The Society meets first Tuesday in each month and the secretary is J. A. Thomson, 12 Yew Tree Grove, St. Athan, Nr. Barry, Glam.

RECENTLY **Porthcawl A.S.** had a very successful inter-club show with Port Talbot A.S. The results of the two matches were as follows: Away: Port Talbot 463; points; Porthcawl 454; points. Home: Port Talbot 460; points; Porthcawl 452; points. Both nights were very interesting and the standard of fish was very good with Port Talbot taking Best Fish of the Show both times.

AT the twenty-first annual general meeting of the **Smethwick and District A.S.** the following members were elected for the committee: President: L. Stokes; Chairman: J. Woodward; Vice-Chairman: Mrs. M. Scott; Secretary: W. Downes; Show Secretary: J. Hodgetts; Committee: D. Johnstone; J. Lowe, F. Smith.

The meetings, at which the Society has lectures, shows, colour slides and cine films, have been appreciated by the members and a hearty welcome is extended to anyone interested in the hobby to visit the bright and pleasant club room at Arden Road School, Arden Road, Smethwick. Meetings are held fortnightly and any information will be gladly given on application to W. E. Downes, Hon. Secretary, 173 Arden Road, Smethwick, Warley, Worcs.

THE evening's entertainment at the April meeting of the **Kettering A.S.** was a slide show on tropical water plants, with a short lecture by A. Johnson, the chairman. The Table Show

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consisted of Corydoras, the result being: 1 and 2, I. Simmons; 3, S. Tite and the placings in Any Variety Livebearer were: 1, R. Wright; 2, A. Weatherley; 3, J. Springham.

THE South Western Group of the British Marine A.A. held its second monthly meeting at the home of Buxton members Mr. and Mrs. Colin Fidoek. Among items discussed was the interesting Fish House of C. Fidoek and the wonderful display of tanks and superb fish. He has succeeded in establishing in a 4 ft. tank a considerable growth of *Ulva lactuca* (Sea Lettuce) and *Rynggiosa Molluscata* (Mermaids Hair). Members were asked to support the newsletter by forwarding queries, needs and tips, and articles based upon local knowledge of Marine Geography. It was decided that a diving expedition in the Brixham area be arranged in late July.

Mr. John Haynes expounded some interesting tips on Photographing Fish and Fauna and members were asked to consider things that they consider most essential in Judging Marine Fish, and to send their comments to the Group Secretary for forwarding to the Standards and Judging Committee. Any Marine enthusiast who would like to join please get in touch with: Hon. Secretary, South Western Group, Lewis Doubleday, BMAA 14, 69A Newton Road, Torquay, Devon.

RESULTS of the York and District A.S. Open Show were as follows: Guppies: 1, R. Hishop, Senior (Swillington); 2, J. Stephenson (York); 3, P. Parnell (Crestwell). Swordtails: Mr. and Mrs. Cohen (Castleford); 2, M. R. Gibson (Huddersfield); 3, T. Douglas (Hull). Mollies: 1, K. Ellis (Independent); 2, T. Collingwood (Hull); 3, Mrs. J. Stephens (Castleford). Platies: 1, D. and B. Keat (Castleford); 2, K. Few (Castleford); 3, W. Baston (Castleford). A.O.V. Livebearers: 1, J. Thickbroom (Castleford); 2, J. S. Hall (Aireborough); 3, I. Stephenson (York). Small Barbs: 1, J. A. Whiteley (Aireborough); 2, P. Carey (York); 3, Mr. Martin (Alfreton). Large Barbs: 1, Mrs. Davis (Privateers); 2, N. R. Gibson (Huddersfield); 3, J. Scarll (Selby). Small Characins: 1, Mrs. B. Maughan (Worksop); 2, I. Heptonstall (Castleford); 3, K. J. Wilson (Castleford). Medium Characins: 1, I. Heptonstall (Castleford); 2, A. Wigglesworth (Independent); 3, I. Stephenson (York). Large Characins: 1, J. A. Whiteley (Aireborough); 2 and 3, J. Thickbroom (Castleford). Carps and Minnows: 1, I. Stephenson (York); 2, M. Hough (York); 3, M. Donaldson (York). Rasboras and Danios: 1, I. Heptonstall (Castleford); 2, R. Swallow (York); 3, T. Douglas (Hull). Sharks and Flying Fox: 1, J. Scarll (Selby); 2, J. A. Whiteley (Aireborough); 3, D. Hockley (York). Siamese Fighters: 1 and 2, Mr. and Mrs. Cohen (Castleford); 3, Mrs. Davis (Privateers). Small Anabantids: 1, I. Stephenson (York); 2, Mr. Whitelock (Tadcaster); 3, K. Ellis (Independent). Large Anabantids: 1, Mr. and Mrs. Cohen (Castleford); 2, J. Scarll (Selby); 3, Mr. Conlon (Alfreton). Dwarf Cichlids: 1, Mr. Martin (Alfreton); 2, I. Heptonstall (Castleford); 3, H. Kuhn (Lincoln). Large Cichlids: 1, E. Hall (Independent); 2, J. A. Whiteley (Aireborough); 3, Mr. Bateman (Independent). Angels: 1, Mrs. S. Hoyte (Independent); 2, N. R. Gibson (Huddersfield); 3, J. A. Whiteley (Aireborough). Corydoras: 1, B. M. Booth (Leeds); 2, Mr. Stabler (Hull); 3, G. N. Moor (Doncaster). Loach and Botia: 1, I. Heptonstall (Castleford); 2, M. Maughan (Worksop); 3, A. Higginbottom (Sheffield). A.O.V. Catfish: 1, P. Shipley (Selby); 2, A. J. Allison (York); 3, Mr. and Mrs. Gates (Castleford). E.L. Toothcarps: 1, I. Stephenson (York); 2 and 3, J. Rhodes (Scunthorpe). Breeders (Livebearers): 1, Mr. and Mrs. Cohen (Castleford); 2, P. Danielson (Huddersfield); 3, P. Simpson (York). Breeders (Egglayers): 1, Mrs. Gear (Keithley); 2, Mr. and Mrs. P. Buxton (Aireborough); 3, Mr. and Mrs. Cohen (Castleford). Pairs (Livebearers): 1, Master M. Hishop (Swillington); 2, N. R. Gibson (Huddersfield); 3, Mr. and Mrs. Cohen (Castleford). Pairs (Egglayers): 1, Mr. Andrews (Hull); 2, Mr. and Mrs. Cohen (Castleford); 3, Mrs. J. Fields

(York). Common Goldfish: 1, J. S. Hall (Aireborough); 2, Mr. and Mrs. Toyne (Sheffield); 3, L. Danielson (Huddersfield). Fancy Goldfish: 1, 2 and 3, J. S. Hall (Aireborough). A.O.V. Goldwater: 1, J. Thickbroom (Castleford); 2, I. Stephenson (York); 3, K. Colton (Sheffield). Juniors: 1, J. Thickbroom (Castleford); 2, Master Booth (Leeds); 3, Miss D. Stephens (Castleford). A.V. Female: 1, Thickbroom (Castleford); 2, Master M. Hishop (Swillington); 3, T. Douglas (Hull). A.O.V. Tropical: 1, Mr. Martin (Alfreton); 2, Mrs. Hields (York); 3, Mr. R. Green (Doncaster). Furnished Show Jars: 1 and 2, B. Megson (Aireborough); 3, Mrs. Hardman (Cleveland). Plants: 1, Master A. Barrett (Castleford); 2, A. Turner (York); 3, E. Leadley (York). Best in Show: Mr. and Mrs. Cohen (Castleford). Best Exhibitor: Mr. and Mrs. Cohen (Castleford).

THE Edmonton Section of the Fancy Guppy Association, which draws its members from all over North London and the surrounding area, recently held their Spring Open Show at their new meeting place: The Four Hills Hall, Brigadier Hill, Lancaster Road, Enfield. The premier award winners were: Best Fish in Show which was won by Ken Lee with his Metropolitan Female. Best Opposite Sex went to a Short Dorsal Veil male entered by Alan Fowles and Henry Vinal. Best Breeders Award went to Don and Babs Phillimore for their Advanced Master Breeders team. This entry also took the award for the Best Overall Entry in the show.

The following are the class award winners: Males—Della: A. Fowles and H. Vinal (Edmonton). Pansai: L. Weller (Radlett). Long Dorsal Veil: Don and Babs Phillimore (Edmonton). Short Dorsal Veil: A. Fowles and H. Vinal (Edmonton). Original Veil: A. Fowles and H. Vinal (Edmonton). Dove-tail: A. Fowles and H. Vinal (Edmonton). Cofer: D. Barker (Radlett). Lyretail: Ken Lee (Edmonton). Roundtail: Ken Lee (Edmonton). Pintail: S. Croft (Birmingham). Top Sword: T. Hall (Radlett). Bottom Sword: D. Barker (Radlett). Double Sword: M. Delingpole (Birmingham). Colour Male: Mr. and Mrs. Brock (South London). Experimental Male: Don and Babs Phillimore (Edmonton). Junior Male: K. Haynes, Jun. (Mid-Sussex). Ladies Male: Mrs. Moriarty (Radlett). Female—Superba: Ken Lee (Edmonton). Scallops: Don and Babs Phillimore (Edmonton). Wedge: T. Hall (Radlett). Metropolitan: Ken Lee (Edmonton). Roundtail: M. H. Delingpole (Birmingham). Natural: Ken Lee (Edmonton). Cofer: M. H. Delingpole (Birmingham). Colour: P. and I. Smith. Junior: B. Elmes, Jun. (Mid-Sussex). Ladies: Mrs. Blakeman. Breeders—Males: A. Fowles and H. Vinal (Edmonton). Females: P. Moriarty (Radlett). Matched Pairs, A. Fowles and H. Vinal (Edmonton). Master: Don and Babs Phillimore (Edmonton). Advanced Master: Don and Babs Phillimore (Edmonton). Ladies Breeders: Mrs. E. Smith (Edmonton). Anybody interested in Guppies can obtain further details from the section secretary, Don Phillimore, 103 Wilbury Way, Edmonton, London, N18 1BX. Tel. 01-803 3012.

NEW officers elected at The Goldfish Society of Great Britain annual general meeting were: president, M. Chase; chairman (re-elected), G. H. O'Neil; assistant secretary, Mrs. M. Dudley; P.R.O., R. H. Dudley; Lay member, R. Dodkins. Capt. L. Betts, M.B.E., the retiring president and founder member was given a life membership by the society. Owing to this moving to the West Country he will no longer be taking an active part in the society, but it is hoped that he will be able to keep in close contact with the society. The second year Breeders Class was for Singletails and Bubble-eyes. Results: Singletails: 1 and 2, R. Whittington; 3, P. Kadwell. Bubble-eyes: 1 and 2, A. Tagg; 3, A. Sutton. The twenty-first Anniversary Rosebowl presented for the most attractive fish was won by M. Dudley. The date of 1971 Convention is 25th September, to be held at Farringdon House, Stonecot Hill, Sutton.

RESULTS of Hetton County Aquatics first Bi-Annual Show were as follows: Guppies: 1, L. Drummond (Washington); 2, A. Bebbington (Peterlee); 3, H. Hubbert (Peterlee). Platies: 1, A. Bebbington (Peterlee); 2, Mr. Duncanson (Priory); 3, A. Naisbett (Hetton). Swordtails: 1, T. Southern (Peterlee); 2, E. W. Robinson (Cleveland); 3, Mr. Duncanson (Priory). Mollies: 1, W. Warrall (Peterlee); 2, Mr. Nessworthy (Peterlee); 3, A. Naisbett (Hetton). Small Barbs: 1 and 2, W. Warrall (Peterlee); 3, E. Monkaster (Mount Pleasant). Large Barbs: 1 and 3, W. Warrall (Peterlee); 2, D. Amerasas (Mount Pleasant). A.V. Goldwater: 1, M. Turnbull (Kello); 2, W. Dixon (Priory). A.O.V. Tropical: 1, A. B. Whitelock (Tadcaster); 2, L. Drummond (Washington); 3, R. Wilde (Hetton). Small Characins: 1, J. Robertson (Mount Pleasant); 2, W. Hollis (Hetton); 3, R. A. Walker (Houghton). Large Characins: 1, Mr. Duncanson (Priory); 2, R. A. Walker (Houghton); 3, Mrs. Duncanson (Priory). Dwarf Cichlids: 1, I. Gardner (Houghton); 2, R. Atherton (Mount Pleasant); 3, W. A. Jackson (Mount Pleasant). Large Cichlids: 1 and 3, A. Bebbington (Peterlee); 2, L. Drummond (Washington). Sharks and Labrets: 1, L. Drummond (Washington); 2, K. Adams (Hartlepool); 3, C. A. Enright (Houghton). Danios and Rasboras: Walk over for N. Watson (Hartlepool). Catfish and Loach: 1, W. Dixon (Priory); 2, A. Bebbington (Peterlee); 3, W. Warrall (Peterlee). Breeders Livebearers: 1, T. Southern (Peterlee); 2, R. Joyce (Priory). Breeders Egglayers: 1, T. Southern (Peterlee); 2, J. Tate (Peterlee); 3, W. A. Jackson (Mount Pleasant). Pairs (Livebearers): 1, Mr. Duncanson (Priory); 2, J. Tate (Peterlee); 3, W. Dixon (Priory). Pairs (Egglayers): 1, W. Hollis (Hetton); 2, A. Bebbington (Peterlee); 3, W. Warrall (Peterlee). A. V. Fighter: 1, R. T. Wilde (Hetton); 2, H. Leighton (Houghton); 3, F. Sonley (Ind.). A.O.V. Labyrinth: 1, J. Tate (Peterlee); 2, A. B. Whitelock (Tadcaster); 3, W. Dixon (Priory). Egg laying Toothcarps: 1, W. Hollis (Hetton); 2 and 3, F. Sonley (Ind.). Junior Section: 1, R. Millson (Hetton); 2, P. Benson (Priory); 3, N. Hogg (Mount Pleasant). Furnished Jars: 1, J. Robertson (Mount Pleasant); 2, R. Sharps (Mount Pleasant); 3, W. Hollis (Hetton). Best Fish in Show: Silver Shark, L. Drummond (Washington).

NEWS from Didcot and District A.S. gives details back to February when they met Reading A.S. for a friendly six-a-side which Reading won by 14 points, 479 to 465. The individual results were: 1, P. Merritt (Reading); 2, R. Turner (Didcot); 3, P. Merritt (Reading). At the second meeting in February the club was given a slide show and talk on fish photography by W. Wilson, which proved both instructive and interesting. The Table Show was for Characins, 1 and 3, J. Davidson; 2, J. Trinder. The two meetings held in March were disrupted by the postal strike. The secretary did not receive the slide show as ordered. The first meeting was a discussion on general fishkeeping topics. At the second meeting a slide show was held using slides owned by members. The meeting for April was cancelled as the members were at Basingstoke for the Three Counties fish league. New members and visitors are welcome at the meetings on the 4th or 18th June at the Esso Research Centre on the A34 near Abingdon.

THE second Inter-Society of M.A.A.S. organised by Society of Aquarists of South Staffs attracted entries from twenty-four affiliated societies. The winners of each class were: A.O.V. Livebearer: 1, Mr. and Mrs. Malcombe (Bedworth); 2, M. B. Street (Loughborough); 3, A. Cashmore (S.A.S.S.); 4,

DISINFECT NEW PLANTS AND FISH WITH  **Hillside Aquatics London N12**

Messrs. Atwood and Williams (Rubery). A.V. Barb: 1, A. Massey (Wednesbury); 2 and 3, Messrs. Whitfield and Massey (Rubery); 4, G. Parker (S.A.S.S.). Cichlids: 1 and 4, T. Gregory (Haden); 2, S. Afford (Tamworth); 3, A. Massey (Wednesbury). A.V. Guppy: 1, Mr. Russell (Tube Products); 2, Mrs. Whitfield (Rubery); 3, Messrs. Atwood and Williams (Rubery); 4, A. Davies (M.A.P.S.). Characins: 1 and 2, Messrs. Atwood and Williams (Rubery); 3, Mr. Hooper (Tube Products); 4, K. Brown (M.T.A.S.). A.V. Labyrinth: 1, B. Pryor (Loughborough); 2, Mr. and Mrs. Haines (Nuneaton); 3, G. Steed (Tamworth); 4, Mr. Taylor (Tube Products). A.V. Catfish or Loach: 1, T. Gregory (Haden); 2, Mrs. Smith (Wednesbury A.S.); 3, G. Turner (Binks Bullows A.S.); 4, Mr. and Mrs. Allcott (Nuneaton). A.V. Rasbora: 1, R. Norbury (Wombourne); 2, T. Lowe (G.K.N.); 3, Mrs. Leigh (Nuneaton); 4, Messrs. Whitfield and Massey (Rubery). A.V. Killie Fish: 1, Mr. Russell (Tube Products); 2, D. Thompson (M.A.P.S.); 3, M. Furness (Rubery); 4, K. Thomas (M.A.P.S.). A.O.V.: 1, Messrs. Whitfield and Massey (Rubery); 2, W. Devlin (Wednesbury); 3, Mr. and Mrs. Carter (Bedworth); 4, North Works. The Best Fish in Show award was won by Messrs. Atwood and Williams, Piranha Brandt and the Society achieving the highest points Rubery Select with Wednesbury and District A.S. second and Tube Products, third.

The evening's entertainment at the April meeting of G.K.N. A.S. was provided by a talk on Killifish by Mr. Bob Heap. Considering that very few of the members have any inclination towards Killies, the speaker made the talk very interesting and made several converts. Results of the Table Shows were as follows: Guppies: 1, 2 and 3, A. Wright. Livebearers: 1, 2 and 3, A. Wright. A.O.V.: 1 and 3, K. Hall; 2, D. Highfield. Juniors: 1, A. Aston; 2 and 3, A. Rowley. Best in Show: A. Wright (Female Vellera Molly).

JUNE will be a busy month for the Aberdeen A.S. with another Daphnia hunt, the normal club meeting on the 15th June, and also the Social evening.

The Annual General Meeting was held in April when the election of a new Committee took place. The new Secretary is A. Souter, 88 Sunnyside Road, Aberdeen.

The results of the **Hendon and District A.S.** Open Show were as follows: Club Furnished Aquaria: 1, Harlow A.S.; 2, Hendon D.A.S.; 3 and 4, Hemel Hempstead A.S. Barbs: 1, T. F. Butler; 2, A. Blake; 3, P. A. Grosvenor; 4, R. Leslie. Characins: 1, S. G. Cowell; 2, R. C. Mills; 3 and 4, S. J. Collins. Cichlids: 1, A. Kinsey; 2 and 3, A. Withers; 4, D. Marshall. Dwarf Cichlids: 1, R. Bowers; 2, K. Purbrick; 3 and 4, A. Blake. Angels: 1 and 2, D. M. Dare; 3, R. Bowers; 4, J. Howe. Labyrinth: 1, S. G. Cowell; 2, A. Blake; 3, L. J. Brazier; 4, H. Watts. S. Fighters: 1, P. Watson; 2 and 4, Mr. and Mrs. Applin; 3, R. Bowers. E.L.T.C.: 1 and 2, S. G. Tarrant; 3, C. Withers; 4, T. W. Glass. A.V. Catfish: 1, B. Bullock; 2, H. Watts; 3, L. J. Brazier; 4, D. Marshall. Corydoras: 1, D. E. Schramm; 2, R. Maynard; 3, J. Howe; 4, C. Withers. Rasbora: 1, J. Bannan; 2, A. Blake; 3, R. C. Mills; 4, R. Bowers. Danios W.C.M.M.: 1 and 2, G. J. Betts; 3, Mrs. G. Watts; 4, S. G. Tarrant. Loaches: 1, R. Leslie; 2, L. J. Brazier; 3, T. A. Cruickshank; 4, D. V. Larder. A.O.S. Egglayer: 1, A. Kinsey; 2, T. W. Glass; 3, J. K. East; 4, J. Howe. Pairs: 1 and 3, P. A. Grosvenor; 2, J. Bannan; 4, A. Blake. Male

Guppy: 1 and 3, R. Bowers; 2, A. Blake; 4, P. Coyle. Female Guppy: 1 and 2, R. Bowers; 3, J. Howe; 4, L. J. Brazier. Swordtails: 1, Master D. Stood; 2, Mrs. A. Withers; 3, T. A. Cruickshank; 4, T.A.C. Platy; 1, A. Kinsey; 2, M. R. Allen; 3, H. Watts; 4, D. E. Schramm. Mollies: 1, 2 and 3, J. Howe; 4, B. E. Manson. A.O.V. Livebearers: 1, R. Bowers; 2, R. Cooper; 3, A. Kinsey; 4, A. Blake. Breeders E/L: 1, Mr. and Mrs. S. Fagan; 2, C. Withers; 3, R. G. Cox; 4, T. W. Glass. Breeders L/B: 1 and 4, H. Watts; 2, A. Tufts; 3, Mrs. O. Leslie. Aquarist Gold Pin and Duplex Shield (Hendon D.A.S.) for Best in Show was won by S. G. Cowell (Ctenopoma Kinsleye). F.B.A.S. Championship Trophy (Pairs) won by P. A. Grosvenor (Stoliczka Barbs).

RESULTS of the Independent A.S. first Open Show: Barbs: 1, T. Butler (Anson); 2, R. Bowers (Ind.); 3, D. Armour (Riverside). Characins: 1, G. Greenhalf (Kingston); 2, J. Pollard (Kingston); 3, J. Connolly (Bethnal Green). A.O.S. Cichlids: 1, T. Kinsey (Ind.); 2, P. Arnold (Bethnal Green); 3, M. Strauss (Basingstoke). Angels: R. Bowers (Ind.); 2, D. Dare (Walthamstow); 3, J. Wilson (Catford). Appt.: 1, R. Bowers (Ind.); 2, J. Pollard (Kingston); 3, A. Blake (Basingstoke). A.O.S. Labyrinth: 1, F. Caffell; 2, T. Islip (Ind.); 3, Mr. Mackay (Kingston). Fighters: 1, R. Bowers (Ind.); 2, Mr. Watson (Anson); 3, S. Applin (Ind.). E.L.T.C.: 1, R. Longstaff (Kingston); 2 and 3, F. Caffell. Cats: 1, G. Greenhalf (Kingston); 2, F. Caffell; 3, R. Kerridge (Harlow). Corydoras and Brochia: 1, J. Pollard (Kingston); 2 and 3, G. Greenhalf (Kingston). Rasbora: 1, 2 and 3, Mr. Mackay (Kingston). Danios & WCMM: 1, T. Kinsey (Ind.); 2, A. Wood (Anson); 3, J. Connolly (Bethnal Green). Loach: 1, P. Arnold (Bethnal Green); 2, Mr. Mackay (Kingston); 3, A. Wood (Anson). A.O.S. Tropical Egglayer: 1, R. Kerridge (Harlow); 2, P. Arnold (Bethnal Green); 3, D. Dare (Walthamstow). Guppy (Male): 1, R. Bowers (Ind.); 2, Mrs. Sawford (Kingston); 3, P. Coyle. Guppy (Female): 1 and 2, R. Bowers (Ind.); 3, J. Howe (Anson). Swordtails: 1, G. Greenhalf (Kingston); 2, E. Bartlett (Chingford); 3, R. Longstaff (Kingston). Platy: 1, D. Reilly (Anson); 3, T. Kinsey (Ind.). Molly: 1, T. Tomkins (Ind.); 2, Mrs. Hedges (Bethnal Green); 3, J. Betts (Haling). A.O.S. Livebearer: 1, J. Pollard (Kingston); 2, G. Greenhalf (Kingston); 3, R. Bowers (Ind.). Singletail Goldfish: 1 and 2, D. Goodbody (Walthamstow); 3, Mrs. Hedges (Bethnal Green). A.O.S. Coldwater: 1, A. Wood (Anson); 2, J. Pollard (Kingston); 3, Mrs. Hedges (Bethnal Green). Breeders Tropical Egglayer: 1, M. Strange (Basingstoke); 2, A. Chardier (Walthamstow); 3, R. Johnson (Enterprise). Breeders Tropical Livebearer: 1, E. Bartlett (Chingford); 2, R. Longstaff (Kingston); 3, G. Greenhalf (Kingston). Best Fish in Show was won by R. Kerridge of Harlow with a Siamese Tiger Fish (84 points) out of 409 fish benched.

The first leg of the Inter-Society Table Shows between Sheffield, Worksop, Rotherham and Doncaster resulted as follows: Pairs: 1, R. Senior (Sheffield); 2, L. Higginbottom (Sheffield); 3, W. Downing (Rotherham). Guppies: 1 and 3, A. Freeman (Sheffield); 2, E. Smith (Sheffield). Rasbora and Danios: 1 and 2, K. Rowles (Worksop); 3, E. Smith, Sen. (Sheffield). Anabantids: 1, N. Jackson (Worksop); 2, R. Senior (Sheffield); 3, E. Smith, Sen. (Sheffield). The points to date are as follows: Sheffield, 15 pts.; Worksop, 8 pts.; Rotherham, 1 pt.; Doncaster, 0 pts., and this leg was held at Worksop.

A GREAT success is enough to describe the **Medway A.S. Open Show** held in April, attracting 444 entries. Results were as follows: Barbs: 1, Mrs. D. Cruickshank (Kingston); 2, J. Bellingham (Tonbridge); 3, Mr. Kinsey (Independent). Large Barbs: 1 and 3, J. Bellingham (Tonbridge); 2, Mr. Kinsey (Independent). Characins: 1, T. R. Hine (Tonbridge); 2, L. Getley (Mid Kent); 3, Mrs. J. Rood (Tonbridge). Hyphess, Hemigram, Cheir-

drodon: 1, A. J. H. Smith (Croydon); 2, Roger Bowers (Independent); 3, Mrs. M. Nethersell (Riverside). Cichlids: 1, Mr. Kinsey (Independent); 2, A. Withers (Mid Herts); 3, J. Gamble (Sittingbourne). Angels: 1, D. M. Dare (Walthamstow); 2, J. Wilson (Catford); 3, Mrs. M. Fletcher (Medway). Dwarf Cichlids: 1, R. Bowers (Independent); 2, D. V. Larder (Mid Herts); 3, B. Sims (Medway). Labyrinth: 1, Mrs. M. Tucker; 2, J. Marshall (Medway); 3, C. Hunter (North Kent). Beta Splendens: 1, C. Elliott (Medway); 2, L. Hunter (North Kent); 3, J. Marshall (Medway). Egg-layer Toothcarp: 1, C. Withers (Mid Herts); 2, J. Parker (N. Kent); 3, Mrs. A. Simpson (Mid Kent). A.O.V. Catfish: 1, Mrs. M. Nethersell (Riverside); 2, C. Hunter (N. Kent); 3, L. Hunter (N. Kent). Corydoras and Brochia: 1, C. Withers (Mid Herts); 2, C. Woods (N. Kent); 3, D. V. Larder (Mid Herts). Rasbora: 1, Mrs. D. Mathieson (Tonbridge); 2, A. J. H. Smith (Croydon); 3, C. Wood (N. Kent). Danio and WCMM: 1 and 2, Mr. Kinsey (Independent); 3, R. Bowers (Independent). Loach: 1, D. Simpson (Medway); 2, L. Getley (Mid Kent); 3, P. W. Cottle (N. Kent). A.O.V. Tropical Egg-layer: 1, Mrs. S. Hedges; 2, Mr. Kinsey (Independent); 3, D. M. Dare (Walthamstow). BT Pairs: 1, E. Woods (Elliotts); 2, J. D. Wilson (Catford); 3, L. Wood (Croydon). Male Guppy: 1, R. Bowers (Independent); 2, Mrs. M. Nethersell (Riverside); 3, Mrs. M. Quenell (East Dulwich). Female Guppy: 1, R. Bowers (Independent); 2, A. J. H. Smith (Croydon); 3, Mrs. M. Tucker. Swordtails: 1, T. A. Cruickshank (Kingston); 2, J. Stephens (N. Kent); 3, L. Laming (Medway). Platy: 1, Mr. Quenell (E. Dulwich); 2, Mr. Kinsey (Independent); 3, Mrs. J. Rood (Tonbridge). Molly: 1, J. D. Wilson (Catford); 2, Mrs. S. Hedges; 3, Mrs. I. Mappin (Independent). A.O.V. Livebearer: 1, L. Mathieson (Tonbridge); 2, Mrs. D. Cruickshank (Kingston); 3, R. Bowers (Independent). Singletail Goldfish: 1, Mrs. S. Hedges; 2 and 3, W. F. Woodward. A.O.S. Coldwater: 1, W. F. Woodward; 2, I. Mathieson (Tonbridge); 3, T. Cruickshank (Kingston). Breeders (Egg-layer): 1, A. Clark (Medway); 2, C. Withers (Mid Herts); 3, R. Leslie (High Wycombe). Breeders (Livebearer): 1, Mrs. O. Leslie (High Wycombe); 2, P. W. Cottle (N. Kent); 3, A. J. H. Smith (Croydon). Plants: 1, C. Elliott (Medway); 2, I. Mathieson (Tonbridge); 3, J. Marshall (Medway).

GUEST speaker for the April meeting of the **Bristol Tropical Fish Club** was Gordon Churchill and the slide show he provided of personal coverage of various national Open Shows was extremely entertaining and well received. During the interval a Table Show was held with the following results: Barbs (Open): 1, 2 and 3, R. Lawrence. Killies (Open): 1, 2 and 3, R. A. Chapman. (Novice): 1 and 3, R. Lawrence; 2, W. Holland. Clubs are reminded that schedules are now available from show secretary for the Open Show on 24th-26th June.

The first of the Inter-Club shows between **Bristol Aero A.S.** and the Yate and District A.S. was held in April and resulted in a resounding win for the home team—Corydoras and Characins (any variety). In the former, Bristol Aero took all but the first place and all but the second in the latter.

NEARLY eighty fish were benched by the members of the **Bedworth A. and P.S.** in the ten classes that formed the evening's Table Show. Results: A.V. Guppy: 1 and 3, Mr. and Mrs. Balcombe; 2, Mr. and Mrs. Simpson. A.V. Cichlid: 1, R. Tedds; 2, Mr. and Mrs. Simpson; 3, Mr. and Mrs. Gibbs; 4, Mr. and Mrs. Hardy. A.O.V. Livebearer: 1 and 2, Mr. and Mrs. Balcombe; 3, K. Pratt; 4, J. Hunsinger. Catfish and Loach: 1, R. Shakespeare; 2, J. Housden; 3, Mr. and Mrs. Pratt; 4, Master D. Hardy. Killies: 1 and 2, R. Shakespeare; 3, R. Tedds; 4, Mr. and Mrs. Pratt. Rasbora: 1, J. Hunsinger; 2, R. Tedds. A.V. Barb: 1, 2 and 4, Mr. and Mrs. Carter; 3, Master C. Pratt. A.V. Characin: 1 and 2, R. Tedds; 3,

halamid A TABLET A DAY, SENDS WHITE SPOT AWAY
Hillside Aquatics London N12

Master C. Pratt; 4, M. Goddard. A.V. Labyrinth: 1, Mr. and Mrs. Simpson; 2, Master C. Pratt; 3, R. Tedds; 4, G. Goddard. A.O.V. Tropical: 1 and 2, Mr. and Mrs. Carter; 3, Mr. and Mrs. Pratt; 4, R. Tedds.

THE Houslow and District A.S. recently held their annual Spring Dance at the Houslow Town Hall. The function was organised by the Social Secretary, Bob Nelhams, who was especially thanked for his effort and hard work in making it such a successful evening. Approximately 140 members and guests attended.

The Society's Table Shows continue to be well supported. The results for Corydoras and Brochias were: 1, S. Parrish; 2 and 3, W. Dew; 4, J. Bannon. The results for A.O.S. were: 1, C. Walker; 2, 3 and 4, L. Matthews. The Society meets fortnightly at the Public Hall, Isleworth and visitors are most welcome.

Ealing and District A.S. began their contest against Riverside and Runnymede Societies recently. The first leg was at Riverside, where Ealing emerged as winners by the good margin of twenty points over the other two rivals, and also took the Best Fish in Show award. Points total: Ealing 30; Riverside 10; Runnymede 10. Straight from this victory Ealing took on Bracknell the following evening in a twelve-a-side match. While the fish were being judged Dr. Neville Carrington of Inter-Pet Ltd, addressed the meeting on the subject of Modern Fishkeeping Techniques. The result of the match was a win for Ealing by 908 points to 898.

Speakers for June will include R.O.B. List on Aquatic Plants (1st June) and it is hoped that P. Bird of Mid-Herts will talk on Characins on the 15th June. With Aquascapes coming on to the showbench this season John Batts has been enlightening local Societies on this subject; he gives an excellent talk/demonstration and only needs a strong table, a jug of water and an invitation! M. Carter (Bracknell) who took Best Fish in Show award at the Ealing v. Bracknell encounter returned to the scene of his triumph to give Ealing a talk on showing fish.

AT the A.G.M. of the Fancy Guppy Association held in Birmingham in April the new chairman elected was George Goodall. He takes over from Jim Kelly who has been the Association's only Chairman since the formation of the F.G.A. in 1960.

Visitors to the annual shows in London will have seen the new Chairman on the F.G.A. stands. A member of the Radlett Section, holder of the Golden Jewelled Badge, Stock Control Officer, member of the J. and S. Committee, and an accepted authority on Guppy breeding.

A new General Secretary was elected to the Management Committee, Mrs. Rosemary Fletcher, 47 Maple Road, Pelsall, nr. Walsall. The other members of the Management Committee are: Treasurer: G. Fletcher; Show Secretary: D. Beacham; Asst. Show Secretary: M. Browning; P.R.O.: S. Croft; Members' Rep.: D. Phillimore.

THE Keighley A.S. recent Open Show results were as follows: Section 1.—Guppies: 1, Mrs. J. Stephens (Castleford) (Section winner); 2, D. Moylan (Blakeborough); 3, K. Shaw (Blakeborough). Sweettails: 1, Mrs. Burnap (Keighley); 2, A. and C. Lofthouse (Huddersfield); 3, D. H. Hartley (Scarborough). Mollies: 1, D. M. and S. Stephens (Castleford); 2, M. Anthony (York); 3, H. Boyes (South Leeds). Platies: 1, H. Gardner (Aireborough); 2, G. Kilvington (Doncaster); 3, R. Clough (Skipton). A.O.V. Livebearers: 1 and 3, S. Hall (Aireborough); 2, G. Thickbroom (Castleford). Section 2.—Barbs (up to and including Rosy): 1, H. Studd (Swillington) (Section winner); 2, J. A. Whiteley (Aireborough); 3, G. Thickbroom (Castleford). Barbys (over Rosy): 1, Mrs. S. Barry (Swillington); 2, A. Ashbery (Bradford); 3, M. E. Donaldson (York). Section 3.—Characins (up to and including 3 in.): 1, F. Buxton (Aireborough); 2, H. and R. McKenna (Nelson); 3, D. and R. Standow (Leynce). Characins (over 3 in.): 1, G. Thickbroom (Castleford) (Section winner); 2, D. Clark

(Morecambe); 3, H. Smith (Keighley). (Section 4.—Rasboras and Danios: 1, D. Truby (Nelson) (Section winner); 2, K. Frew (Castleford); 3, A. S. Allison (York). Carps and Minnows: 1, Mrs. L. Smith (Keighley); 2, H. and R. McKenna (Nelson); 3, H. Stephenson (York). Sharks and Flying Fox: 1, D. and R. Standow (Leynce); 2, J. A. Whiteley (Aireborough); 3, N. R. Gibson (Huddersfield). Section 5.—Fighters, True Colour: 1, J. A. Whiteley (Aireborough); 2, J. Rhodes (Scunthorpe); 3, R. Meagon (Aireborough). Fighters, Multi-colour: 1, S. Rogson (Scunthorpe); 2 and 3, J. Rhodes (Scunthorpe). Anabantids (up to and incl. 3 spot): 1, J. A. Whiteley (Aireborough) (Section winner); 2, A. E. Whitelock (Tadcaster); 3, K. Frew (Castleford). Anabantids (over 3 spot): 1, K. Shaw (Blakeborough); 2 and 3, A. E. Heap (Keighley). Section 6.—A.O.V. Tropical: 1, H. Smith (Keighley) (Section winner, who also won the Mrs. Gear Trophy for the Keighley Member with the fish scoring the highest points); 2, D. and R. Standow (Leynce); 3, W. and M. Morris (Leynce). Section 7.—Tetraodonts: 1, A. and C. Lofthouse (Huddersfield) (Section winner, who also won Best in Show and the A.V.A.S. Diploma, and the Aquarist Gold Pin); 2 and 3, M. M. and H. Crowther (Swillington). Section 8.—Angel-fish: 1 and 2, H. and R. McKenna (Nelson) (Section winner); 3, E. Smith (Str.) (Sheffield). Dwarf Cichlid (up to and incl. Kribensis): 1, N. R. Gibson (Huddersfield); 2, H. and R. McKenna (Nelson); 3, P. Reynolds (Swillington). Cichlids over Kribensis: 1, D. and R. Standow (Leynce); 2, G. Fairclough (Bradford); 3, J. A. Whiteley (Aireborough). Section 9.—Corydoras Catfish: 1, J. Mouldy (Keighley) (Section winner); 2, E. Wells (Doncaster); 3, B. M. Booth (Leeds). Loaches and Bettas: 1, Mr. and Mrs. J. Coward (Leynce); 2, Mr. and Mrs. Zamzina (Bradford); 3, P. Hatcher (Leynce). A.O.V. Catfish: 1, A. Shillam (Keighley); 2, J. A. Whiteley (Aireborough); 3, H. Illingworth (Nelson). Section 10.—Breeders, Livebearers: 1, H. Gardner (Aireborough); 2, D. H. Hartley (Scarborough); 3, B. Thickbroom (Castleford). Section 11.—Breeders, Egglayers: 1, F. Buxton (Aireborough) (Section winner); 2, M. M. and A. Crowther (Swillington); 3, S. Gear (Keighley). Section 12.—Pairs, Livebearers: 1, S. Caslake (Swillington) (Section winner); 2, S. Popson (Scunthorpe); 3, E. Heap (Keighley). Pairs (Egglayers): 1, J. A. Whiteley (Aireborough); 2, A. Curchin (Independent); 3, D. and D. Sharp (Castleford). Section 13.—Common Goldfish: 1 and 3, S. Hall (Aireborough); 2, C. Asquith (Castleford). Fancy Goldfish: 1, 2 and 3, S. Hall (Aireborough). Shobunkins: 1 and 3, A. Isherwood (Accrington) (Section winner); 2, G. Thickbroom (Castleford). A.O.V. Goldwater: 1, B. Johnson (Independent); 2, A. Turner (York); 3, I. Stephenson (York). Section 14.—Juniors (A.V. Livebearers): 1, M. Hialop (Swillington); 2, L. Danielson (Huddersfield); 3, G. Thickbroom (Castleford). Juniors (A.V. Egglayers): 1, G. Thickbroom (Castleford) (Section winner); 2, D. and D. Sharp (Castleford); 3, Miss A. Gregory (Nelson). Juniors (A.V. Goldwater): 1, L. Danielson (Huddersfield); 2, G. Thickbroom (Castleford).

NEW SECRETARIES

Whiteley A.S.: F. Coleman, 6 Burnside Road, Coltercross, Tyne-mouth, Northumberland.

York and District A.S.: Mrs. H. Simons, 28 Abbottsford Road, Hull Road, York YO1 3EE.

Heywood and District A.S.: G. Kernshaw, 49 Queens Park Road, Heywood, Lancs.

Aberdeen A.S.: A. Souter, 88 Sunnyside Road, Aberdeen.

The present secretary of the **Stroud and District A.S.** (Miss J. H. Smith) is marrying the show secretary of the Society on the 29th May. The names and new address will be:

Secretary: Mrs. J. H. Jones; Show Secretary: Mr. M. S. Jones, 14 Erin Park, Lightpill, Stroud, Glos.

Greydon A.S.: L. S. Derrick, 35 Notson Road, South Norwood, London, S.E.25.

NEW SOCIETIES

THE Blyth Tropical Fish Society which was formed recently is now holding fortnightly

meetings in the Thornton Hotel, Blyth. At the first meeting the following people were chosen to serve on the Committee: Chairman: R. Aynsley; Vice Chairman: G. Devine; Treasurer: J. O'Brien; Secretary: J. A. Lisle, 10 Harper Street, Blyth, Northumberland. Other members are as follows: Messrs. Graham, Hornsby, Curran, Clark.

The Society known as **ELLIOTT A.S.**, is primarily for the employees of Elliott Brothers (London) Ltd., at Rochester, Kent, but membership is also open to families and friends of employees. The present membership is about forty. The first meeting was held on 17th January of this year and at present is held every other Wednesday at the firm's Sports Club premises, Featherby Road, Gillingham, Kent.

Being new the Society is finding difficulty in arranging a full programme for meeting nights and would very much appreciate hearing from Lecturers, etc. or of any slide or film shows for hire or purchase on all subjects that are relative to fish or Aquatic plant keeping—maybe there are manufacturers who can supply interesting matter, etc. for discussion?

At present the Chairman is S. Andrews and the Secretary is R. G. Woods, 30 Pretenden Road, Wainwright, Rochester, Kent.

It is tentatively proposed, subject to sufficient response, to form a Guppy Breeders Club in the West Wilts area. Will all interested persons please contact either of the following: J. Wheeler 59 Downs View, Bradford on Avon, Wilts., telephone B o A 2828 or W. Burton, 17 Polebarn Road, Trowbridge, Wilts., telephone Trowbridge 3704.

CHANGE OF MEETING VENUE

Meetings of the **Loughborough and District A.S.** will be held at the following address on the second and fourth Thursday of each month from 13th May: Herbert Norris Sports & Social Club, Market Street, Loughborough.

South Park Aquatic (Study) Society (Coldwater Fish Club) now meet at Compton Hall, Compton Road, Wimbledon, London, S.W.19 on the second Monday of each month at 8 p.m. All coldwater Aquarists are invited to come along.

AQUARIST CALENDAR 1971

6th June: Accrington A.S. Open Show. Ambulance Drill Hall, Bull Bridge, Accrington. Details from K. Taylor, 66 Pasturelands Drive, Billington, Blackburn. Tel. Whalley 3151.

6th June: Bishops Cleeve A.S. Second Open Show at the Tythe Barn, Bishops Cleeve on the Cheltenham to Fresham Road (A435). Schedules from the Show Secretary, Mrs. C. F. Scriver, 27 Warden Hill Road, Cheltenham, Glos.

6th June: Bournemouth Aquarists Society. Annual Open Show will be held at Kinon Community Centre, Pelhams Park, Kinon. Show schedules and entry forms available from Show Secretary, Jack V. Jeffery, 30 Brammar Avenue, Southbourne, Bournemouth, BH6 4JF, after 1st April.

6th June: Lincoln and District Open Show, Drill Hall, Broadgate, Lincoln.

6th June: Hyde A.S. Open Show, Hyde Lads Club, Hyde, Cheshire.

6th June: Priory A.S. Annual Open Show at the Boys' Club, Mariners Lane, Tyne-mouth.

7th June: British Cichlid Association First Meeting Southern Area, at 34a Church Road, Hove, Sussex. Details from Mrs. Shirley Taylor at same address, or ring Brighton 739652.

12th June: Catford A.S. Open Show, Show secretary, J. D. Wilson, 130 Paston Crescent, Lee, London, S.E.12. Phone: 01-857 491

12th June: Llanwit Major A.S. Open Show at the Town Hall, Llanwit Major. Show secretary, A. Ibberton, 84 St. Marys Ave., Barry, Glam.

12th June: Hoyleake A.S. Second Open Show at Mardons Hall, Salisbury Avenue, West Kirby, Wirral, Cheshire. Show secretary A. Hland, "Pondside," Birkenhead Road, Meols, Cheshire.

12th June: Loughborough and District A.S. Open Show, The Sports Centre, Granby Street, Loughborough.

13th June: Skipton and District A.S. Open Show at Ambulance Hall, Ermystead St. Schedules and further details from Secretary, B. Heald, 19 Ramshaw Drive, Skipton, BD23 2QN. Tel: 4835.

13th June: Bishop Auckland A.S. Third Annual Open Show at Y.M.C.A. Hall, Woodhouse Close Estate, Bishop Auckland. Schedules available from R. N. Gough, 6 Langley Drive, Bessemer Park Estate, Spennymoor, Co. Durham.

13th June: High Wycombe A.S. (F.R.A.S.) Open Show, West Wycombe Hall, Nr. High Wycombe. All schedules and details from Show Secretary, Bob Leslie, 29 Meadow Walk, Tylers Green, Penn, Bucks.

13th June: Thorne A.S., Thorne Grammar School, Show Secretary, H. C. Jewison, 94 Hawthorne Road, Thorne, Nr. Doncaster, Yorks.

20th June: W.K.F.B.A.S. (Coleshill) Inter-society Open Show, Town Hall, Coleshill. Schedules and information from Show Secretary, R. Tromans, 27 Meadhill Road, Birmingham, 34.

20th June: Swillington A.S. Sixth Open Show at Swillington Cooey Primary School, Swillington, Nr. Leeds, Yorkshire. Schedules are now available from P. Reynolds, 60 Lawrence Rd., Leeds, LS8 3HS, Yorkshire.

20th June: Salisbury and District A.S. Seventh Annual Open Show at City Hall, Salisbury. Show schedules and entry forms available from D. Hargrave, 1 The Cottages, Lower St., West Harnham, Salisbury, Wilts.

20th June: Glossop A.S. Open Show, Venue Glossop Centre, Talbot Street, Glossop, Derbyshire. Schedules from Secretary, Miss M. D. Smith, 3 Chapel Lane, Hadfield, via Hyde, Cheshire. This is an A.M.D.A.S. Show.

24th/25th/26th June: Bristol Tropical Fish Club Open Show, Congregational Church Hall, Newton Street (off Stapleton Road), Bristol 5. Details and schedules from E. Newman (Show Secretary), 71 Somerdale Avenue, Knowle, Bristol 4.

26th June: Chingford and District A.S. Open Show, Methodist Church Hall, New Road, Chingford. Show Secretary, A. Pannel, 9 Pembur Ave., Walthamstow, London, E.17.

27th June: Alfreton and District A.S. Annual Open Show at the Adult Education Centre, Alfreton Hall, Alfreton. Details from the Show Secretary, B. Hickling, 15 Meadow Close, Barwood, Nottingham, NG16 3DQ.

27th June: Mount Pleasant A.S. First Open Show at T.A. Drill Hall, Elm Grove Terrace, Gateshead. Show schedules from W. A. Jackson, 81 Staneway, Gateshead, Co. Durham, NE10 8LS.

27th June: Stretford and District A.S. Open Show, A.B.I. Club, Moss Road, Stretford. Show secretary, A. Star, 63 Derbyshire Lane, Stretford. Tel. 061-965 3423.

27th June: Wednesbury and District A.S. first Open Show at Boys' High School, St. Paul's Road, Wednesbury. Schedules from T. Shroton, 9 Gloucester Road, Wednesbury.

4th July: Gosport and District A.S. Fifth Open Show, Fareham Community Centre, Kings Road, Fareham, Hants. Show schedules from K. Clough, 16 Newport Road, Gosport, Hants.

4th July: Lytham A.S. Open Show at the Lowther Gardens Pavilion, Lytham. Show Secretary, E. Thompson, 83 Alexandra Road, St. Annes, Lancs.

9th-11th July: Aquarist and Pondkeeper Fish-keeping Exhibitions, Alexandra Palace, Wood Green, London, N.22.

10th July: Port Talbot and District A.S. to be held at the Y.M.C.A. Port Talbot. Shields, cups and plaques in all classes. Show schedules from the Show Secretary, D. Couch, 19 Cefn Don, Comavon, Port Talbot.

10th-11th July: Romford and Becontree A.S. Dagenham Town Show, Central Park, Dagenham, Essex. Schedules as soon as available. Show Secretary, D. G. Kent, 74 Lynwood Drive, Collier Row, Romford. Tel: 70 67804.

11th July: Grantham and District A.S. second Open Show at the Guildhall, St. Peter's Hill, Grantham. Schedules available mid-March from Show Secretary M. Pattison, 8 Witham Terrace, East Street, Grantham.

11th July: Tadcaster A.S. Annual Open Show. Collingham Memorial Hall, Collingham, Wetherby, Yorks. Schedules from H. Truswell, 43 The Fairway, Scunton Rd., Tadcaster.

17th July: Basingstoke A.S. Open Show, Carnival Hall, Basingstoke. Schedules from M. Strange, 10 Loddon Court, Neville Close, Basingstoke.

18th July: Runcorn A.S. First Open Show. Secretary, Mrs. V. Skill, 26 Gregson Road, Widnes, Lancs.

25th July: Second Teesside Open Show. Held at Seaward Park, Middlesbrough. Teesside. Schedules from secretary, K. Low, 2 Farmbank Road, Ormesby, Middlesbrough, Teesside.

30th-31st July: Exhibition and Open Show by Hull A.S. at East Park.

1st August: Blackpool and Fylde A.S. Twenty-first Open Show, Raikes Parade Annex (Old Grammar School), Church St., Blackpool. Sovereign programmes available from G. Howard, 56 Stamford Ave. Blackpool. Tel: 42676 from mid-June.

7th-14th August: Portsmouth and District A.S. Open Show, 47 classes. Show schedules from K. A. Johnson, 7A Hillside Road, Portsmouth, PO6 4LE.

8th August: Stroud and District Open Show, Mid-Gloucestershire Technical College, Stratford Rd., Stroud, Gloucs. For details, Show Secretary, M. S. Jones, 46 Hillcrest Rd., Cashes Green, Stroud, Gloucs.

14th August: Weston-super-Mare and District T.P.C. Second Open Show, St. John's Hall, Oxford Street, Weston-super-Mare. Show Secretary, J. Clark, St. Jude's, North Street, Cheddar, Somerset.

14th August: Harlow A.S. Open Show at Moot Hall, The Show, Harlow. Schedules from P. Murdoch, 21 Brooklane Field, Harlow.

15th August: Heywood and District A.S. Open Show, to be held at St. Johns Ambulance Hall, Bamford Road, Heywood.

15th August: North Staffs A.S. Third Open Show at Meir Community Centre, M.A.A.S. Rules. Schedules available from Secretary, K. Balch, 78 Courtway Drive, Stoke-on-Trent, ST1 6DU.

15th August: Oldham and District A.S. Annual Open Show at Werneth Park, Oldham. Further information and show schedules from E. Birchwood, 30 Inverness Avenue, Blackley, Manchester, 9.

21st August: Riverside A.S. Open Show at St. Ebbeldredas Church Hall, Fulham Palace Road, Fulham, S.W.6. Show schedules from show secretary, M. Goss, 3 Boulton Court, Park Palace, Plantation Road, Amersham, Bucks.

22nd August: Bedworth A. and P.S., Nicholas Chamberlain School, Bulkington Lane, Bedworth. Schedules from K. Edkins, 72 Lister St., Aisleborough, Nuneaton.

28th August: Anson Aquatic Club Open Show, at St. Andrews Church Hall, Willenden High Road, Willenden, London, N.W.10. Schedules from Dave Thomas, 13 Cornall Gardens, Willenden, London, N.W.10.

4th September: Bethnal Green A.S. Open Show, Bethnal Green Institute, 229 Bethnal Green Rd., London, E.2. Schedules from S. G. Cowell, 26 Dunton Rd., Leyton, London, E10 7AF.

4th September: Rhondda A.S. Third Annual Open Show to be held at the Rhondda Transport Club, Porth. Please contact the show secretary, M. Williams, 122 Top Trebanog, Trebanog, Porth, Rhondda.

4th September: Yate and District A.S. Annual Open Show. Details to be announced.

4th-8th September: Mid-Herts A.S. International Open Show. Schedules from C. S. A. Withers, 15 Charmouth Road, St. Albans, Herts. Tel: St. Albans 56346. Major trophies for all classes.

5th September: Coventry P. and A.S. M.A.L. Show, Foleshill Road Community Centre (A444), Coventry. Open classes; Characins and Cichlids.

5th September: Huddersfield Tropical Fish Society. Open Show at the Town Hall, Huddersfield.

5th September: Weymouth and District A.S. Open Show, Small Sydney Hall, Weymouth. Details from Mr. Hatton, 53, Brownlow Street, Weymouth.

5th September: Lucas Aquarium Pool Society First Open Show at J. Lucas Ltd., Gate No. 4, Spring Road, off Shaftmoor Lane, Hall Green, Birmingham, 28. Show Secretary, G. H. Roberts, 30 Charles Road, Solihull, Warks.

10th-11th September: Bristol A.S. Open Show, St. Michaels Parish Hall, Bishopston. Show Secretary, S. Lloyd, 4 Curlew Close, Frenchay Park, Bristol. Tel: 656532.

11th September: North Kent Open Show, Sweeney School, Swanscombe, Kent. Details from A. Cox, 35 Bridge Road, Slade Green.

18th September: Havant and District A.S. First Open Show at the Deverall Hall, London Road, Purbeoke, Hants.

11th September: Penarth A.S. Second Open Show, St. Augustine's Church Hall, Albert Road, Penarth, S. Wales. Schedules available from A. Frotman, show secretary, 56 Highview Road, Penarth, S. Wales.

11th September: Harwich and District A.S. Annual Exhibition of Tropical Fishes to be held at the Queens Hotel, Dovercourt, from 10 a.m. to 6 p.m.

12th September: B.S.A.S. Eighth Annual Open Show at the Marmion Centre, Marmion Road, Hove. Full details from Roy Browning, 34 Rowan Close, Portlady, Sussex.

12th September: British Killifish Collingham Group. Third Annual Open Killifish Show at the Collingham Memorial Hall, Collingham, Nr. Wetherby. Classes—Killifish only.

12th September: Nottingham and District A.S. Annual Show to be held at a new venue at The Parish Hall, 27-25 Mansfield Road, Selston, nr. Alfreton. Turn off the M1. Change of address of the show secretary to N. B. Kenney, Sherwood Aquatics, 486 Mansfield Road, Sherwood, Nottingham.

12th September: Peterlee and District A.S. Annual Open Show at Edenhill Community Centre, Peterlee, Co. Durham. Show schedules available from W. Weirall, 47 Yoden Road, Peterlee, Co. Durham.

12th September: Barnsley T.F.S. Open Show at the Mapplewell and Staincross Village Hall, Staincross, Barnsley.

19th September: Cleveland A.S. Fourth Open Show. Held in British Legion Hall, West Gate, Guisborough, Yorkshire. Show secretary, Mr. Todd, 24 Pentland Ave., Kirkcubbin, Redcar, Teesside.

19th September: Stone A.S. Open Show, Walton Community Centre, Stone, Staffs. Schedules can be obtained from N. W. Plant, 18a High Street, Stone, Staffs.

20th September: Four Star A.S. Third Open Show, Hemsworth. Further details later.

25th September: Bracknell A.S. Open Show, Priestwood Community Centre, Bracknell, Berks. Schedules available from Les Jordan, 62 Fernbank Place, Ascot, Berks. Tel. Winkfield Row 3400.

25th September: Hounslow and District A.S. Open Show at Youth Centre, Cecil Road, Hounslow (awaiting confirmation).

26th September: Hucknall and Bulwell A.S. Open Show, Bulwell Youth Club, Coventry Road, Bulwell, Nottingham. Schedules obtainable from E. Smith, 111 Longmead Drive, Daybrook, Nottingham.

26th September: Selby and District A.S. first open show, at The Museum Hall, Park Street, Selby. Further information may be obtained from Show Secretary, W. A. Bunnage, 22 Heath Croft, Pulford, York.

2nd October: 25th Annual Open Breeders Show, East London. Aquarist and P.A. Judges: C. A. T. Brown, B. Baker, F. Tomkins. Schedules available F. Vicker, 13 Irons Way, Romford, Essex.

3rd October: Ealing A.S. Open Show at Northfields Community Centre, Northcroft Road, London, W.13.

5th October: North Kent A.S. Inter-Club Show at the Sweeney School, Swanscombe, Kent. Details from A. Cox, 35 Bridge Road, Slade Green.

9th-10th October: British Aquarists' Festival, Zoological Gardens, Belle Vue, Manchester.

17th October: Sherwood A.S. Second Open Show. Show Secretary, D. Birkbeck, 173 Peter Smith Drive, New Olsson, Notts.