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PetFish

Monthly 2s 6d

Vol. 1 No. 12

March, 1967

Subscription rates: £1 15s for 12 issues; 17s 6d for 6 issues (U.S.A. and Canada $5.00)

Editor: Anthony Evans

In This Issue

PetFish Publications

554 Garratt Lane, London, S.W.17

Telephone 01–947 2805

Advertisement Offices

47 Gresham Street, London, E.C.2

Telephone MONarch 7644

Comments and Quotes

Big pests have little pests ● Counting the fish ● Missing plankton ● Beneath the Gulf Stream ● Sounds like feeding time ● Judges—'ware forgers!

Pests get Pests

SHORTLY after a spell of battle with a tank in which those pestilential sheets of dark blue-green algae were forming over bottom, plants and glass a printed report headed 'Replication Cycle of the Blue-Green Algal Virus LPP-1' caught our eye. We hardly dared hope that the plant that was making life so difficult for us might have its own problems too, but sure enough that's the way it is.

Virus LPP-1 sounded like a friend and we were anxious to meet and introduce it to our blue-green alga. This would be biological warfare of a kind that has a strong appeal. However, although LPP-1 is known to attack *Plectonema boryanum*, this is not the only kind of blue-green alga there is by any means, and we don't yet know (a) what species our pest is and (b) whether LPP-1 will extend its preferences to other species. Nevertheless, an interesting further example of the old adage 'big fleas have little fleas . . . and so on, *ad infinitum*!'.

Proportional Representation

ANYONE who has spent up to half-an-hour anxiously counting and recounting the numbers in a community tank to check on all his charges will 'give best' to the stock-takers at the London Zoo. Figures recently published show that there are 2,160 fishes of 311 species housed in their tanks, as well as 950 marine invertebrates of 57 different species and 600 land invertebrates covering 96 species. In fact the fishes outnumbered all other kinds of animals at the Zoo, although they are represented by only half the number of species of birds that are shown. Hardly right when you realise that there are far more fish species than any other kind of vertebrate animal.

Is the Plankton Disappearing?

A LARGE-SCALE survey costing about £250,000 is to be mounted by the Scottish Marine Biological Association Oceanographic Laboratory to investigate the findings of a team of their biologists that the quantity of plankton, the main microscopic surface life important as food for fish fry, present in the North Atlantic has been decreasing for the last 15 years. Plankton plays a vital part in the food chain of sea life. Hundreds of samples taken from the plankton 'fields' have already been analysed, but the Director of the laboratory, Dr R. S. Glover, hopes to call on the help of merchant ships to tow a new device into the shipping lanes. This machine contains a magnetic tape-recorder connected to detectors that will record temperature, salinity, radiant energy and the weight (or 'biomass') of the life present in a cubic metre of the sea.

Beneath the Gulf Stream

DR Jacques Piccard has plans to spend six weeks on a 1,500-mile journey under the Gulf Stream in his new undersea vessel being built in Switzerland. He said in West Palm Beach, Florida, that he had tentatively decided to make the expedition in the summer of next year, accompanied by three other scientists and two technicians.

'It will be man's first opportunity to observe marine life in its environment from a silent, undersea vantage point for a prolonged period', Dr Piccard said.

The PX15, as the vessel is called, will be of 120 tons, nearly 56ft. long and 10ft. in diameter, with 25 portholes and 20 searchlights. Five of the portholes will face the surface.

With battery power, the PX15 will make a maximum speed of five knots from 25 h.p. motors. It will be able to go as deep as 2,000ft.—THE TIMES.

Sounds like Feeding Time

FISH, according to the Russians, can be distinguished by species according to the 'language' they use, and, like dolphins, they have a primitive language consisting of different sounds made under different circumstances. So, sounds made when food is available can be distinguished from those made in alarm. These findings were the outcome of undersea recordings made by a Russian expedition that was in fact engaged in research into the problems of trawling in the Bering Sea. The high-pitched noises made by the fish were analysed, but the theory was also put to the test. Recordings of fish language occasioned by food were played back to shoals of the same species, which, according to the Russian report, then swam happily into the nets on hearing the 'promise' of food.

Cleaner Thames

THE Thames near two London power stations has become cleaner than anyone realised. Roach, from four to 10 inches long, have been caught recently on the water intake screens at Bankside and, lower down the river, at Brunswick Wharf. Both power stations are on stretches of the river so strongly polluted that anglers have presumed the water to be deadly to fish.

Officials of the area generating authority have a theory that the power stations, by returning the cooling water to the river with oxygen added to it, have created 'pools' of clearer water in the Thames and fresh water fish from the docks (which are not so badly polluted as the main stream) have swum into them. No one has any proof that the fish have come down-stream from Isleworth. A task perhaps for the amateur fish detective?—THE TIMES.

Judges—'ware Forgers!

IT is perhaps fortunate that show points are not awarded for the markings on goldfish—fortunate for the fish that is! In the early days of goldfish breeding in China, rare specimens that had patterns resembling Chinese characters on their backs were in very great demand and fetched a higher price than ordinary fish. Where there was a demand, inevitably someone decided to supply it, and goldfish forging became a profitable occupation. The forgers are said to have used a mixture that contained arsenic and the markings proved fairly permanent.

Mod Cod at Aquarium

THE Steinhart Aquarium in San Francisco has a 10 in. fish which is patterned with polka dots, stripes, plaids and checks in a wide variety of colours, reports British United Press.

When the fish is hungry or angry, its colours become bright. When it is content the colours usually soften. The name of the fish?—the Carnaby!—YORKSHIRE EVENING POST.

LETTERS

Standards and Judging

YOUR observations on standards and judging (PETFISH MONTHLY, December, 'Comments and Quotes') are fair enough in general terms but fail historically to give a true picture existing at the present time. Speaking against a background experience in these matters extending over 32 years, I would say that standards and judging have been used persistently by aquarist area organisations to maintain insularity one from the other and to drive a wedge that would prevent any prospect of a national organisation acting universally to lay down standards acceptable to all. The petty rivalries between north and south and east and west of the country, between specialist societies and lay societies, and between aspiring individuals, has been nothing short of pitiable. It is small wonder that the aquarium hobby has failed to make an impact on the public consciousness which can be compared with similar livestock hobbies such as cats and dogs or cage birds.

It is not my intention to exacerbate these differences; nevertheless it is high time the differences were resolved once and for all so that persons exhibiting fishes can be assured of a uniform standard of judging wherever they may exhibit. This can only be achieved when the approach to judging is made scientifically, as opposed to artistic appreciation; when a ruthless evaluation of perfection replaces an emotional feeling for good, bad and

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LETTERS

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indifferent. Where applicable, standards should be set by specialist societies who feel deeply over the fishes they are interested in.

Above all standards should not be made by a group of people sitting round a table with no more qualifications than their own enthusiasm and pontificating on theoretical fishes sketched by an artist with piscatorial pretentions. Before the Standards of the Goldfish Society were finally accepted by a majority of its members, the late Dr R. J. Affleck submitted to the Judges and Standards Committee live fishes representative of hundreds of fishes he had personally investigated at scores of shows over the preceding 3 years. Eighteen years later the Society still finds no reason to modify or amend these Standards.

Hand in hand with sound realistic standards must go the judges to interpret them. These judges must in turn be capable of assessing not only what is right and wrong but also the degree of right and wrong, for without this quality the points system fails to have meaning. Too many judges in the past have failed, not because they are unable to differentiate between black and white but because the intermittent shades of grey elude them. This is particularly applicable to the judging of tropical fishes, where in a class of 20 fishes, say, the ultimate decision may well rest on a matter of 'condition'.

To my way of thinking the ultimate end of standards must be to produce not just a select body of men or women capable of making a supreme judgment, but rather a general appreciation by all of what is a standard fish and what is not. I do not presume to speak for the tropical fishkeeper but I do for the goldfishkeeper and happily this appreciation seems to be slowly taking place, if present tendencies in the F.B.A.S., the Bristol A. S. and the Goldfish Society are anything to go by. Could it be the north of the country is also interested?

L. C. BETTS
President,
The Goldfish Society of Great Britain

Effects of Inbreeding

FOR some time I have been concerned about the effects of inbreeding tropical fishes, so much so that when I purchase potential breeders I always obtain, say, half-a-dozen from one source and half-a-dozen from somewhere else (whether my fears are justified or not is a debatable point; I certainly have not conducted any prolonged experiments to find out one way or the other). I would like to hear some opinions from aquarists who have inbred, line-bred or incest-bred any species of fish. My own opinion is simply that you mate your best male with your best female to produce the best fish. Sounds straightforward enough, but am I doing the right thing?

Prize Letter

The cichlid *Pelmatochromis kribensis* has become a very popular dwarf among hobbyists. I wonder how many colour varieties (or sub-species) are being offered for sale? I purchased some from one locality which had a narrow longitudinal jet-black stripe, the usual purple spot on the side and also deep purple ventral fins edged with blue. The dorsal fin was a brilliant orange. A few weeks later I purchased some more (from another source) whose colour was so different that they appeared to be another species! Then at a recent club table show, four of us showed a '*kribensis*' each; needless to say, they were all different.

If it is wrong to cross these varieties, we are going to have a right job trying to obtain potential breeders of the same type!

Rochdale, Lancs. W. BRADBURY

Hobbyist and Trader Relations

SINCE I opened my new fish house a few months ago, I have had two nights a week late for fellow aquarists and friends. This is great fun and interesting for us all. I decided to try and organise a club day where clubs could come along and enjoy an afternoon exchanging ideas etc., but to my utter disappointment I found that clubs are sick of going miles to find they are not welcomed with open arms. What has happened to relations between fishkeepers and traders?

I have put my full time to fishkeeping but don't feel any different from when it was a hobby. I have tried to find out who and what is wrong. The club members I have talked with seem to find very little to buy at some traders, a lot of fish not being for sale. The traders want them in and out quickly with no chance of a quick look round the breeding tanks etc. Some traders say clubs are a waste of time and do a lot of damage. I would like to find out, and try to put things right between the hobbyist and traders (perhaps through your columns if possible).

A welcome awaits all clubs here. We have plenty of room and all fish in the 132 tanks in the sale hall are for sale.

Honeysome Aquatic Nurseries, D. B. BARKER
Chatteris, Cambs.

Who Wants a Helicopter?

THE British Isles does not consist of London and the surrounding area as Mr M. J. Parry (PETFISH MONTHLY, January) seems to think. In the Federation of Northern Aquarium Societies, we have in the latest list of societies 71 affiliated tropical fish clubs, which held last year approximately 45 open shows (including the two biggest held in this country). Also inter-society shows between two or more clubs must have been in excess of 100.

To officiate at these shows we had the choice of inviting one, two, three or four of 34 'A' class judges (according to the latest F.N.A.S. list) and, as most of these judges are willing and keen enough to travel 100 miles or more for their petrol money or train fare only, we will have no use for Mr Parry's Wessex or Whirlwind.

The 'A' and 'B' class system of selection is, in my opinion, very good. A 'B' class judge must learn to judge fish at members' table shows and the like if he wants to be a judge. I'm sure his club will help him or her. If he does not have the experience he cannot be asked to judge

at open shows, to which people bring their fish very great distances. It is not fair on the 'B' class judge, and I'm sure exhibitors would stay away if they thought the judge was not capable—and that would not be fair to the host society.

I do hope that this helps Mr Parry to expand his views.

LEN McCOURT
Secretary, Gorton & Openshaw A.S.,
Secretary, International Catfish,
F.N.A.S. Show Committee

I WOULD like to answer Mr Parry's letter (PETFISH MONTHLY, January) 'Should Judges be Graded?'. 'B' class judges are first proposed by a society, which assumes responsibility for their ability to assess fishes on the show bench. Only when they have demonstrated their ability to be graded as 'A' does the Federation become responsible, and for this reason we consider 'A' judges only as suitable for open show judging. Many societies, when necessary, have used 'B' judges with satisfaction. As for the total number of judges, other federations and organisations also have lists, and with some of these bodies there is mutual recognition of judges, giving cover to most of the country. Shows clash every year but they all seem to have managed to get judges. Judges do their job, not so much for reward as for the pleasure they get looking at fish and being able to give a service to other aquarists, very often charging only their travelling expenses and a very small fee.

Any affiliated society that cannot send a member to the F.B.A.S. Assembly can have a proxy delegate to vote on their behalf. Incidentally Newport A.S. has a proxy delegate who attends F.B.A.S. Assemblies and he could put Newport's views to the meeting. The affiliated societies are responsible for the Federation's policy.

A. G. JESSOPP
Chairman,
F.B.A.S. Judges & Standards Committee

Cabomba v Riccia

ONE often hears aquarists complaining that they are unable to grow a certain species of plant life in their aquarium, whereas a fellow aquarist grows masses of the same plant in seemingly the same conditions.

About a year ago a friend gave me a single spray of *Riccia*. Within a matter of weeks I was myself giving it away in large quantities. Strangely enough my friends all reported failure in their own attempts to reproduce it. Then one day I acquired some *Cabomba*. It prospered and soon filled a corner of the aquarium. Unfortunately all my *Riccia* started to die and sink to the bottom.

Months later, experimenting with various combinations of plant life, I removed the *Cabomba* from one aquarium and was astonished to find that within a few days an old and seemingly dead sprig of *Riccia* burst into life. Within weeks it had once again filled the aquarium. I tried experimenting with these two plants and have come to the conclusion that they are definitely allergic to each other.

There obviously are many other species of aquarium plants that have a mutual allergy. But all my attempts to find any literature appertaining to this subject have met with failure. Must we aquarists carry on in this trial and error method; will readers of PETFISH MONTHLY with expert knowledge come to our rescue?

Newport, Isle of Wight R. WALKER

by ARPEE

THE aquarist is very much a slave to convention. His addiction to conventional sizes of tanks bears witness to this, and no doubt dealers' records will confirm that there are more 24 in. by 12 in. by 12 in. and 36 in. by 15 in. by 12 in. tanks sold than all the rest put together. This seems very much of a pity to me, since the 'tall' oblong can be so much more in keeping with its contents than the 'shallow' oblong which finds such great favour in the hobby.

Take the bigger cichlids and fully grown tinfoil barbs, for example; their mere size and height point forcibly to the need to house them in a tallish tank, but how rarely do they get such suitable treatment! Given a choice, I will always prefer a 24 in. by 15 in. by 12 in. and a 36 in. by 18 in. by 15 in. to the lower versions of these two more commonly sold. Quite apart from the fact that these proportions seem more fitting to the eye, they give tall-growing plants a chance to justify themselves, far too many of which in shallower depths of water just seem to get going and then bump their heads on the surface, flatten out, and fall to the ravages of snails. Altogether more dramatic plant effects seem possible with greater than usual water depths, so think carefully before you plump for the first size of tank you see.

It is as well to try several dealers if you decide to order tanks of unusual size, since only a few seem able to honour delivery dates quoted. It seems to take about 6 weeks to secure delivery of special orders, despite all you may be told, and if any manufacturer can quote substantially better than this, good luck to him! On this point, I do wish that suppliers would be realistic about the matter of delivery dates, since it is better to know the worst at the outset than to be disappointed by over-optimistic prognostications. Few dealers realise how much damage they do to their personal reputations by erring in this respect, and equally few realise how much in their favour the converse operates. The advertiser who is selling tanks might well consider including an indication of delivery delays for both normal and special items. By this I do mean that actual averages should be quoted; the phrase 'all orders expeditiously dealt with', or 'immediate despatch', fool nobody.

In some earlier notes I alluded to the desirability of planning collections of fishes carefully, so that the contents of each tank are mutually compatible. It is by no means difficult to build up a community tank of near-adult and mature fishes. Most aquarium books will tell you what goes with what. If pushed for space—and most of us are—we are often compelled to consider less usual combinations.

It may be that we wish to condition a few neons and wish to put them in with some month old angels. Will this work? Or it may be that you want to add a little interest to a rearing tank by allowing a few larger, different, fishes to join the maturing youngsters. Obviously you must never add any fish which are likely predators; it takes more than usual care to guarantee success here, since young fish have an uncanny attraction for the normally most docile adults of other species, so beware! Equally, you should never add fish which are likely to compete too drastically with the growing fry, and therefore you should try to introduce fish whose diet is different from that of their prospective tank mates.

I have found the following quite happy together, and the overall effect is interesting: White Cloud fry, older than about 3 weeks; mosquitoes; kuhli loaches and *Otocinclus* catfish. All but the White Clouds are adult. The tiny fish, which sometimes shoal, are well complemented in mid-water by the mosquitoes, who lead blameless lives. The males see one another off now and then, but they seem quite uninterested in even the tiniest fry. The *Otocinclus* keep the windows clean, and the loaches add a touch of colour when they emerge from their fossickings under the rocks. I find this a pleasant tank to watch, for, quite apart from the colour and the changing scene as the White Clouds pass through it on their way to maturity, it is a perfect example of co-existence of young and old, which the hobby, in general, withholds from our enjoyment.

Leaky tanks are an abomination, but they happen to all of us some time, often for quite obscure reasons. There are some very good beeswax-based sealers on the market, and they usually do all that is claimed for them when the leak is via the putty, but they are less effective, unless made very warm, for the repair of a cracked glass panel. In the latter event, if you can wipe the glass dry very rapidly and apply a quick coat of clear nail varnish, you can sometimes effect a temporary repair. Araldite can also be used to excellent effect for hairline leaks in both glass and putty. One of the main problems I have encountered when trying to repair leaks through the putty, particularly on the underside of a tank, is that of getting any stopper to key with the remaining putty. Cotton wool comes in very useful here: it can be used to swab and dry the putty quickly nearest the leak, after which a thin layer of cotton wool is rammed into the hole, to be followed immediately by a pellet of the particular type of stopper you are using. A little water may continue to force its way through for a while, but persistent dabbing with another large piece of cotton wool will help to form a further, very thin, top surface, on which a light layer of tacky stopper can be placed. It doesn't always work, and it may take a few days to build up a reliable repair, but it is worth a bit of perseverance if you are to avoid the unwelcome job of starting from scratch again.

Did you prepare for winter emergencies? The tropical enthusiast would do well to take a few precautions against power failures, which at worst will kill his fish and at best might well involve him in a battle with white spot if severe enough chilling is experienced. The merits of expanded polystyrene sheeting are now well known, and many tanks around the country will now be being lagged with ½ inch thick panels of it, to conserve heat in the ordinary course of events. The wise aquarist will cut enough sheets to cover up all the panels and tank tops, against emergencies. Some form of framework, with slots into which the polystyrene panels can be fitted, makes for quick first aid when the lights have just gone out.

A lantern or torch is an obvious necessity during power failures, and make doubly certain by having some candles and matches in a known repository, too. Emergency heating by oil stoves is probably the most reliable form unless you have a standby butane gas equipment. Either of them builds up a good room heat quite quickly, and if you can hold the room temperature reasonably steady, you should be able to reduce the heat loss of your tanks to about a degree an hour. The smaller the tank, the more rapid the heat loss, so give them especial attention and thought.

Given a failure of only a few hours' duration, no serious losses should occur if reasonable precautions have been taken. But just in case the temperature goes down simply because your heater or thermostat has failed, always have a combined heater/stat wired to a plug, in your emergency store, so that there is a minimum of fiddling about at a time which is always bound to be a most inconvenient one. It is safe to assume that nothing will ever go wrong on your half day, or at the weekend; such trials are normally reserved for the time when you are setting off for work or your daughter's wedding.

Those little household cleaning pads called Zims are very useful indeed for cleaning out aquaria. They consist of a pad of foam rubber with a green fibrous block on one of its faces which acts as a scourer. This latter is invaluable for getting algae off glass, and it certainly doesn't scratch. Nor is it impregnated with any powders, deodorants or detergents which might harm the fish. They market at about 1s 6d a packet of two, and are well worth a place in the odds and ends box. The only slight danger is that if you leave them lying about in the kitchen they might get inadvertently contaminated with something, so I would recommend dyeing your aquarium Zims with a strong solution of methylene blue, which should distinguish them from the household ones. They are best kept in a plastic bag when not in use.

Fine Finnage from South America

The left-hand fish is the male in this pair of *Pterolebias zonatus*

By P. R. STOKES

(Chairman, British Killiefish Association)

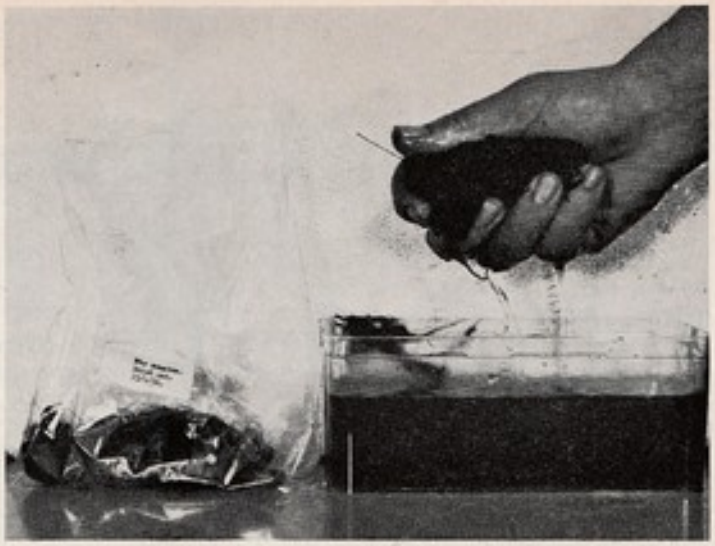
AN annual fish of grace, colour and fine finnage that reached this country only a short while ago for the first time is *Pterolebias zonatus*. This species, discovered by Hoedemann in the flood region of the Orinoco during the rainy season, like others of its genus adapts itself well to aquarium conditions.

Body coloration never seems to vary, whatever the water conditions or temperature. The basic ground colour is turquoise with 18 or more vertical bars of light tan. In some males of the species the caudal fin is rounded but others show extensions to the tail; its lower half has a lined pattern and the upper portion shows lines and spots of darker brown. The dorsal fin is small and pointed and positioned well back on the body, with a pattern similar to that of the caudal fin.

The very large anal fin of the male enables him fully to embrace the female during courtship; this fin also has the lined and spotted pattern of tans and browns but shades of bright reds and pinks occur as well. The pelvic fins are also large in the male and enable the fish to bury itself temporarily during spawning.

Although the head of the male is sharp and with the mouth positioned at the upper tip gives the impression that this is a surface feeder, the fish takes foods mostly from the bottom of the aquarium. The belly of the fish is rather deep for the family group and shows a pink lustre. It is deepest in well-conditioned females, who are similar to the males in colour but lack the fine finnage and are usually smaller. Fins of the female are rounded, except for the ventrals, which are pointed as in the male.

The maximum size seen up to the present time, about 3 inches, is achieved quite quickly, for this fish can be



Peat containing eggs is being gently squeezed to remove excess of water before it is allowed to dry and subsequently sealed in a polythene bag like the sample shown in the left of the picture

classed as an annual, living in the wild for 8 months and in the aquarium for upwards of 14 months.

Most kinds of live foods are taken, and this fish is very partial to the wingless fruit fly; white worms may prove to be a little fattening and so should be given sparingly.

Pterolebias zonatus is not really to be classified as an easy fish to breed. I find that it will spawn in small aquaria (12 in. by 8 in. by 8 in.) in soft and slightly acid water (hardness 50–80 parts per million and pH 6·6 to 7·0). Spawning medium to which the fish will adapt itself is boiled peat moss that has been well rinsed to rid it of excess of tannic acid.

Killiefish breeders class this fish as a 'peat diver', that is to say it dives deep into the base medium to spawn, laying a single egg at each embrace. The depth of the medium is therefore important in the breeding tank and should not be less than 3 in. If too shallow spawning may be prevented and the female may become damaged or even killed.

Since spawning takes place over a period of 2 weeks or so feeding of the fish is continued during the breeding period. The eggs are large and covered with small adhesive 'hairs'. As the peat sticks to these the eggs are sometimes difficult to find. After the parents have been removed from the spawning aquarium at the end of the breeding period the peat is collected and placed in a nylon net, in which it is gently pressed to rid it of as much water as possible.

The peat, with the contained eggs, is then allowed to dry on a shallow tray until it resembles tobacco in appearance (usually this takes 7 days; it should not become fully dried). The mass is then sealed in a plastic bag and kept in the dark for 34 to 36 weeks (patience, man, patience!). Temperature during this time should not exceed 76°F (24°C). If the peat is too wet the subsequent fry could be 'belly-sliders' (a term used to describe imperfectly developed fry).

At the end of the 'dry season' for the eggs soft water can be added to them. Clean rainwater can be used and it should be added to a depth of 2 in. Any greater depth would make it hard work for the newly hatched fry to force their way through the peat to the surface to take air. The depth can be increased when the fry are 3 days or more old.

On hatching the fry are large, and are without yolk sacs as these have been used during the incubation period. They feed on micro worms and brine shrimps from their first day and can even reach spawning size in 6 weeks!

This all seems to involve a lot of time, trouble and patience, but this is a fish of great beauty that has developed an interesting way of survival. The eggs can be kept for months, and in fact the eggs of many annual species can be kept for years, until the aquarist is ready to give them the conditions for them to hatch.

Pair of fish in a 12 in. by 8 in. by 8 in. breeding tank containing a plastic box with peat fibre. The fibre needs to be at least 3 in. in depth for successful spawning. On the left of the tank a sponge filter is seen

Photographs by T. & K. PAYNE

Whither Coldwater Fishkeeping?

Is coldwater fishkeeping the less popular side of our hobby? Individual choice must always be free, but if greater uniformity of goldfish standards could be achieved perhaps an increased following would result.

By R. M. WHITTINGTON

IT has always mildly annoyed me that our hobby is split into two camps, namely the tropical and coldwater fishkeepers. After all, a fish is a fish, there is no escaping the truth in that, and I do not see what difference it makes whether the creature originates from the temperate or the tropical latitudes of our planet. However, the difference is there, and I suppose has come to stay. For my part, I have been keeping and breeding 'coldwater' fish for over 20 years now, and much as I admire the 'other sort' I am not likely to change, or to add to my present portfolio, unless a win on the pools enables me to retire prematurely!

When we speak in this country of 'coldwater fish', we are talking of those who by their origin in the northerly or temperate latitudes are enabled to be kept in this country in a thriving condition without resort to artificial heat, and as such they are fitted for a place in a garden pond throughout the year, once they have reached 2 inches in size.

The tropical fish as generally kept in captivity is a small creature, often not exceeding 3 or 4 inches when mature, and as such appeals to some aquarists. Being capable by heredity of thriving in large numbers in warmish water with a relatively low percentage of dissolved oxygen, these fishes are kept in some numbers in comparatively small containers. Not so the temperate species. Our native fishes the trout or the dace require a high percentage of dissolved oxygen in their water and for this reason are not generally kept in captivity. Happily, however, many of our indigenous fishes are pleased to survive and to thrive and breed, under conditions of captivity, and there are also many European and North American species which can be kept by the aquarist.

I must concede, however, that the man who is able to build a pond in his garden is going to find the task a lot easier, as even the smallest pond in comparison with conventional aquaria is going to hold many more gallons of water. I defy the most dedicated 'tropical' man not to be fired with enthusiasm if he were to see (as I did last year), a large pond containing 18-inch golden orfe, and to hear the 'woof' on the water surface as each one rose to take his food!

As a member of the Goldfish Society who is dedicated to their policies, however, I must award pride of place to the fancy goldfish. The problems that beset the serious breeder are many and complex. We have seen in an earlier series of articles in PETFISH MONTHLY the many permutations of body finnage and other characteristics which go to make even the eight basic varieties available in Great Britain, and to these can be added at least four popular varieties all well liked by aquarists. It must then be remembered that each is available in the three distinct scale groups, namely metallic, nacreous and matt, and to make the matter even more complicated, two new groups have been discovered, and the genetical link-up between the five is so near and yet so far that 10 years' research by one of the country's most dedicated and successful breeders has not yet found all the answers.

The would-be breeder of goldfish has therefore a personal choice to make between a dozen varieties, and to be successful he is expected to produce good specimens in all three (or is it five?) scale groups. It is also reasonable to expect him to wish to exhibit his charges, to display them to fellow aquarists and the general public, to have them adjudicated upon by the country's leading judges so that he can see how far he has got along the line. But which line? Oh, happy, happy 'tropical' fish man, your brown acara will be judged to the same standard whether you show it in London, Scotland or Wales, but not so for fancy goldfish, as at the present time there are no less than three standards being used. These are the Goldfish Society, the F.B.A.S. and the Bristol A.S.

This unhappy state of affairs has existed for several years, although from time to time moves have been made to achieve a greater understanding between the various interested parties. It is most earnestly hoped that whatever lies in the future, regard will be paid in due course to the standards used by the specialist Society; these are not artists' ideals of what a goldfish might look like, but practical standards only arrived at after much hard work by experienced goldfish keepers, and close study of many specimens, living and dissected.

No one has the right to dictate to another how he should enjoy his hobby (after all this is what it is for, to enable one to relax, and to be something over which one has complete command), but I and many of my friends can happily recommend the goldfish in all its varieties as a completely fascinating and absorbing creature to keep and breed, also to exhibit, despite the

unhappy morass of the show standards. A word of warning: unless your facilities and spare time are extensive, it is not policy to spread your interest over several varieties. It is far more satisfying to be successful with one sort than to chop and change with a number. Remember, one pair of fish can breed you a couple of thousand youngsters in a season, and even after initial sorting you can be left with two hundred which must be grown on to be six months of age or so before you make a final selection of those to carry forward to continue your strain.

Another point which is not appreciated by all aquarists is that quality fancy goldfish cannot be readily purchased. A very great number indeed are imported annually from the Continent, Hong Kong and Japan, and if one can contact a dealer with an extensive stock, a careful choice can provide reasonable specimens, but there is some very 'rough' stuff about, and it is a long hard grind to improve upon it. Fortunately, fellow hobbyists and private breeders are usually willing to part with stock of their own breeding. It is a good plan to start off with young fish, say half a dozen, and to grow them on yourself for breeding in 2 years or so. Then you will find the hand-spawning method will enable you to cross one female with three or four males at once, and the eggs will hatch under pest-free conditions.

I do not propose to enter into a long monologue about breeding techniques and fry rearing, but will give a word or two from personal experience. Don't take notice of all the nonsense written about feeding Infusoria or fine foods to goldfish fry. 'At the age of four weeks the fry will be able to take a larger food than infusoria.' What tommyrot! Hatch your eggs at 70°F (21°C) with the aid of a heater and thermostat. This takes 4 days, and 2 days later when the fry are free-swimming put in newly hatched brine shrimp and plenty of it, keeping your tank at the same temperature if the weather is not warm enough to take it higher, and by 10 to 14 days they are ready for first sorting, and single-tailed fry always present with double-tailed varieties can go down the drain. By the time they are a month old they will be on unsifted daphnia, and a selection is then made for growing on.

What's New?

Dynaflo's Big Brother

SINCE the **Dynaflo** motor-powered filter was introduced just over a year ago (a test report appeared in the April, 1966 issue of PETFISH MONTHLY) a very large number of aquarists have been discovering for themselves the difference that a rapid turn-over of water through a filter can make to the clarity of the water in their tanks. Now a larger version of the Dynaflo, the G425, has been designed and is appearing in the shops.

It is the filter medium case that has been made larger, the motor unit and magnetic drive remaining the same. Dimensions of the rigid plastic case are now 10 in. by 7 in. by 2½ in., and the flange by which the unit is suspended from the top frame of the aquarium has been widened so that it will fit all but the exceptionally wide-bar aquaria. A further modification is the provision of an extension between the top of the vertical return tube and the down-turned delivery piece so that the returned water is directed some distance away from the tank side.

The greater capacity for filter medium means that the filter can be used for longer periods without renewal of the wool and carbon, although the extreme ease of cleaning and replacement of medium in the Dynaflo has always been a prized feature. Price of the G425 is £6 12s 6d and it is supplied in Britain by Inter-Pet (Dorking, Surrey).

Brine Shrimp Hatcher

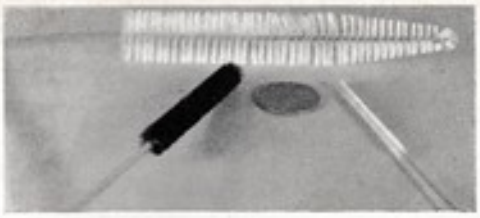
WE are in the process of trying out the **Hykro Brine Shrimp Hatcher**, a new accessory that was mentioned briefly in PETFISH MONTHLY last year (July) after news of it first reached this county from Denmark. The plastic bowl and cover are so designed that the newly hatched shrimps can make their way from the compartment in which the eggs are placed to a central removable strainer, on which they are removed for washing and addition to the aquarium. Light reaching only the central region of the hatcher is the attracting influence that causes the shrimps to move away from their egg shells. Thus the unwanted egg shells do not find their way into the aquarium.

The hatcher is supplied together with a loading of brine shrimp eggs (500,000 eggs is the number said to be the right amount for a single use) and enough Hykro Salt Mixture to make up the brine needed to charge the hatcher. The hatchers are made to stack together for the breeder who needs large and frequent supplies of the newly hatched shrimps. As the instructions with the kit mention, the hatcher could be used to separate any small water creature showing this positive movement towards light from a mass of extraneous material such as pond debris; water fleas show this behaviour amongst others. Price of the hatcher kit is 9s.

Two New Paperbacks

LATEST in the new series of Aquarium Paperbacks by Studio Vista are THE MARINE AQUARIUM by Wolfgang Wickler and DISEASES OF AQUARIUM FISH by Gottfried Schubert (each title 10s 6d). The first book has 112 pages with 131 line drawings and four photographs; it outlines the technique of marine aquarium-keeping and gives notes on a large number of marine invertebrates and fishes. The book

on diseases has 64 pages with 27 line drawings and four photographs. A section on do-it-yourself fish post-mortem technique for the aquarist with a microscope enables the author to suggest a number of features to look for in addition to the usual more superficial characteristics when identification of a disease is undertaken.



Inter-Pet filter-cleaning brushes (heads only). The coin is a penny

Binders for PetFish Monthly

MANY readers have asked us to peovide a binder that will hold copies of PFM, and this will be available during March. Each binder will take 12 copies of our journal and has the title blocked in gold letters on the spine. The binder is attractively covered in leather cloth and milskin, is strongly made and copies can be inserted without trouble just as they are received. It opens flat, just like a bound book, and whether partially or completely filled it holds the copies securely. Price is 20s including postage.

Filter Care

YOU can throw away your home-made 'pull-throughs' and keep your pipe-cleaners for their proper job now that there is available a set of **Filter Cleaning Brushes.** The three brushes in the set cope admirably with algae and deposits that form on the insides of the tubes of filters, and the range of sizes (small, medium and large) and bristle stiffness means that tubes of all diameters can be cared for properly. The wire handles to the brushes are of generous length too. Suppliers of the brushes are Inter-Pet and price for the set of three is 5s.

BECAUSE of a change in the rate of purchase tax applied to **Hykro's Ichthyophilos Fish Cure** the price of this product has now been raised to 2s.

Velvet Disease

My two giant danios have become covered with whitish spots, slightly smaller than Ichthyophthirius; *nigger barbs and female swordtails have also become affected, though other fish seem to be perfectly healthy. Can you tell me what this strange disease is and how to relieve it? Methylene blue has already been tried.*

Your fish are probably infested with the parasite (*Oodinium limneticum*) that causes velvet disease, the spots of which are smaller and more numerous than those of white spot and usually have a yellowish pollen-like appearance. Treat the tank by stirring into it a strong solution of salt (made by dissolving in about a quart of water two teaspoonfuls of sea salt for every gallon in the tank); for a 2 ft. tank this would be about 20 teaspoons. This should be effective within a few days and as soon as the spots are seen to have disappeared the salt water can be replaced by fresh. Some of the water plants may be lost if the whole tank is treated, so precious ones should be removed—and also any catfish and loaches. These should be kept in a separate tank for 14 days to see that they remain free from spots and are otherwise healthy. Plants removed from the affected tank should be washed thoroughly in water and preferably kept for a while in a tank without fishes before being returned to the treated tank.

Bitterling

Are bitterling suitable for keeping in a tank with goldfish?

Bitterling make extremely good community aquarium fish. They do not grow excessively (about 3 in.) and are not affected by a slightly raised tank temperature. They are not difficult to feed (chopped earthworm, insect larvae and dried foods will all be taken) and at breeding time the wonderful coloration of the male more than justifies their other name of rainbow carp. There is also the added interest of their breeding method—eggs are deposited by the female in the freshwater painter's mussel and the newly hatched fishes are ejected from the mussel some weeks later.

Planarian Infestation

My tank contains many small white worms that, I have been told, are called planarians and are harmless. They are, however, unsightly and I do not wish to transfer them to my new tank on plants and gravel.

Planarians are black, brown or white flatworms and are most active in the aquarium when the lights are out. They are harmless to adult or larger fishes, but they do eat fish eggs and fry. Plants being transferred can be placed in an ammonia solution (1 tablespoonful to 5 gallons) for about 5 minutes. Gravel being transferred should be boiled or scalded with boiling water.

Making Aquarium Rockwork

By F. N. GHADIALLY,

M.D., Ph.D., D.Sc.(Lond.)

HOW to create natural-looking artificial rockwork from concrete was discussed in last month's issue. Here other methods are introduced and the making of the background used in my own large aquarium is described.

Natural Stone Walls

One method is to use some natural rock embedded in concrete. In this instance the wooden frame is made and laid on a flat face as already described and a thin layer of soft concrete mix is laid in the bottom of the form. Then flat pieces of stone similar to that used for crazy paving are set in this cement. The relief effect is here obtained by using various thicknesses of stone and by setting the stones at different depths in the concrete base; tilting some of the stone creates a more interesting surface.

Some years ago a friend of mine used just such a screen, made up of pieces of sandstone set in concrete, in a tank which won the Cussons trophy at the British Aquarists Festival.

In my home tank which I have described the rockwork screen is made up in three sections, and these fit together without showing any joints. It is composed of strips of roofing slate, varying in width from ½ to 1½ in. and in length from 2 to 12 in. with the edges set in concrete. This is done in the following way. First some old broken roofing slate is cut up into strips. (This can be done by scoring the slate with a very hard sharp object such as the broken end of a hacksaw or a file. The scored slate is held in a woodworking vice with the score mark lying flush with the top edge of the jaws of the vice. A sharp tap with a mallet on the slate results in a fracture along the scored line. Not all attempts are successful but the ragged bits are as useful as the straight well-cut ones for building up the rock face.)

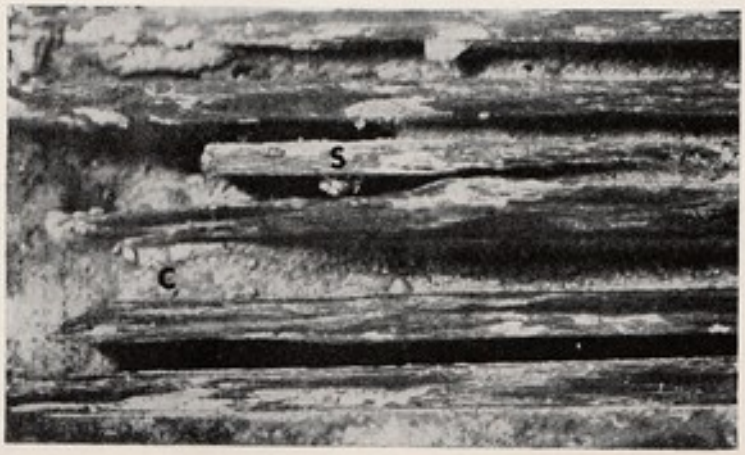
The actual construction of the rock face was carried out in a wooden frame as described before, with care being taken to see that a layer of concrete mixture was laid between adjacent slates. Other smaller irregular sections were created to form 'rock walls' which bank up the gravel and provide shelves for smaller plants to grow on.

Thus you will see that there are many ways of creating artificial rockwork. A recent innovation is to create rockwork of fibreglass. Fibreglass rockwork made as a thin shell can be very light, but this is its only advantage. It is, of course, much more expensive than concrete. The argument that concrete is harmful to aquatic creatures is totally fallacious. Concrete tanks and pools have been used for decades by very successful aquarists. The only danger is in the use of uncured concrete, so let us now see how this can be rendered safe for fishes.

Making Concrete Safe

If we place a freshly made concrete object in a tank within a few hours there will be a dramatic increase in the alkalinity (rise in pH) of the water, for concrete contains alkaline substances which dissolve in the water and cause this sudden serious shift in pH. The alkalinity produces lethal effects. However, the amount of such substances present in the concrete is limited, and once they are eliminated by repeated washing or by neutralisation or by both the concrete object is rendered safe forever.

Small pieces of concrete rockwork can be left soaking in water which is changed frequently, or they can be placed in running water, to make them safe. Some



This is a close-up view of part of the background made by the author for his special large aquarium (the subject of his earlier articles). Slate strips (S) are set edgeways in concrete (C) to give a general impression of stratification. By arranging for the strips to be of varying sizes shelves can be created on which plants can be grown

aquarists have found the lavatory cistern useful for this purpose, for each time the cistern is emptied the alkali which has leaked out of the concrete is washed away.

Any form of treatment which relies on changes of water alone, is, however, a very slow process. To hasten this we can attempt to neutralise the alkali with acid. This is the method that I use. Depending on the size of rockwork, I place it in an old sink, or a plastic bucket or plastic dustbin. Water is added to cover the rockwork. A dilute solution of hydrochloric acid is then added until a strip of litmus paper (from the chemists) immersed in the water shows a red colour.

Next day the reaction of the water is tested with another strip of paper, and it will be found that the litmus paper now shows a blue colour, for the alkali from the concrete has neutralised the acid that was added. A fresh lot of dilute acid is added until litmus paper shows red again. This process is repeated again on the next day. A few days later, the time depending on the size of the rockwork and the amount of the acid we have been adding, litmus paper remains red when placed in the water. Obviously now little or no alkali is coming out of the concrete.

I let the rockwork remain in the acid water for about 3 or 4 days more and then give it a wash and scrub under the hose pipe, and a week's soaking in fresh water before I place it in the tank. A refinement here that I used to employ, but no longer do, is to check the pH of the tank water every few days to see that the reaction is not shifting towards the alkaline side. If a slight tendency towards this is noticed partial replacement of the tank water would remedy it.

I once had to set up an aquarium for a show in a hurry. I made up some concrete 'rockwork' and 24 hours later, after it had been in acidified water for a few hours, I set the tank up with this very poorly cured bit of concrete. The pH began to shift but the rise was controlled by the addition of dilute phosphoric acid, twice a day. The fishes and the plants were not harmed, but this, of course, is not a recommended procedure.

I relate this instance only to assure you that concrete is not poisonous to fish, as long as precautions are taken to remove the excess of alkali that leaks out of it during the earlier stages of its life.

Guppy Comment

By
BILL ARMITAGE

THE secretary of a local society writes: 'Several of our members are interested in guppies and the committee have decided to include one or two lectures on guppies in this year's programme. Can you help us with any suggestions?' In the course of replying to this letter several good lecturers came to mind, but one who stood out beyond anyone else was Mr Gerald Smith, chairman of the standards and judging committee of the F.G.A. His lecture entitled 'Colour patterns in guppies' is without any doubt a masterpiece. But as Mr Smith has been indisposed for some considerable time it wasn't possible for me to recommend him. It would be a great achievement for the F.G.A. if they could persuade Mr Smith to have this lecture recorded, for it could then be made available to all guppy breeders.

• • •

Visitors to the aquarium in Belle Vue Zoo at Manchester will see a tank of guppies. The guppies are supplied by members of the Manchester section of the F.G.A. and maintained by the aquarium staff. The tank is well furnished and makes a very pleasant display. There is no doubt this idea has led to the recruitment of new members to the Manchester section, and is an example that could be followed by other societies.

• • •

The problem of split fins in guppies has been with us a long time, and despite the efforts of many breeders it still remains an unsolved mystery. It is now fairly certain that it arises from a hereditary factor. This being so, surely it is ludicrous to continue inbreeding this fault? Would it not be a far better procedure to trace our steps backwards and begin all over again with wild stock and perhaps find where the mistake has been made?

• • •

Last year was a very successful year for most tropical fish societies, and the Fancy Guppy Association was no exception. The International Show promoted by them was an enormous success. There was a record entry and a tremendous attendance; there was also a big increase in membership, and a new section was formed. Such achievements can only point to a bright future. Beginners interested in guppies and wishing to become a member of this go-ahead Association should contact one of the sections listed below.

Manchester: Mr R. Beresford, 99 Valley Road, Arden Park, Bredbury, Cheshire.

South London: Mr A. Goodall, 44 Redriff Estate, Rotherhithe, London, S.E.16.

Glasgow: Mr A. Wallace, Canal Garage, Johnstone, Renfrewshire.

Edmonton: Mr D. Curry, 64 Inverness Avenue, Enfield, Middlesex.

Radlett: Mr G. Goodall, 3 Turner Avenue, Tottenham, London, N.15.

Liverpool: Mr K. Rigby, 56 Royden Road, Billinge, Nr. Wigan.

High-power filtration—is this the answer?

Curing White Spot Without Drugs

By K. GLOVER

THE treatment of white spot disease costs many thousands of pounds a year. The fight is continuous and by its nature it is very unlikely that the disease will ever be eradicated. In fact, the more popular that fish-keeping becomes, the more chance the dealer, importer and aquarist has of encountering it. Recognised cures are numerous, and, as we all know, their degree of success is inconsistent. However, a most important point is that fish which are very often out of condition, from travelling and temperature changes, are subject to a mild chemical poisoning over a period of up to 14 days, and this, I believe, is the cause of many of the deaths that occur during treatment.

Over the past few months, while testing and developing a high-power portable filter unit, which we hope to market in the future, it was noted that there appeared a marked decrease in white spot and other diseases in the 40 aquaria which we have. This, however, may have been just a coincidence, but it did seem possible that there was a connection, and to prove the theory, a number of very successful experiments were carried out.

First, let us consider the life cycle of the white spot parasite. There are different theories on how it first manifests itself; however, once it appears it usually multiplies quickly, the reason being that in the confined area of the aquarium the white spot has no difficulty in infecting the occupants. It is usually agreed that to destroy the disease whilst on the fish is almost impossible without harming the fish. There is, however, one stage when the life cycle can be halted: this is when it leaves the fish and sinks to the bottom of the aquarium. Here in its cyst form there is a period of a few hours before it undergoes division into many hundreds of free-swimming parasites. Now if by some means these cysts could be removed from the tank, then no chemicals would be needed. This at first would seem impracticable and nigh on impossible to perform, but this is not so, and, to date, we have cured all cases of white spot by the following method.

Arrangement of quarantine tank with high-power filtration unit. Water reaches the pump (P) through holes in the lower part of the plastic sheet D and is returned via the perforated pipe T

A perspex dividing screen was secured across a hospital tank, giving a 6 in. compartment at one end. The bottom of this screen was perforated with a series of small holes, this being the only means of water entering the compartment: into this was placed the submersible power filter. On to the pump outlet is connected a ¾ in. plastic pipe which takes the filtered water into the fish area; this pipe is also perforated to produce high-power jets, and as the pump has a capacity of 250 gallons per hour, the force created is considerable.

It will now be apparent that a very strong water flow will occur along the bottom of the tank and through the series of small holes into the pump compartment. It will also be seen that any cysts or free-swimming parasites will be swiftly deposited in the filter chamber. This high-speed flow of water is enjoyed by all fishes, but if this was extended over a long period, they would tend to become exhausted. To prevent this the power filter is connected to the thermostat, so it operates in conjunction with the heater, and with a suitably sized heater, the time cycle can be controlled to a few minutes' operation at regular intervals, this being all that is necessary.

A recent beneficial addition has been made by placing an air stone in the pump compartment immediately below the filter intake. A Sander ozoniser feeds about 20 mg.

of ozone per hour into this area. When the filter pump is operating, the ozone bubbles are drawn through the filter and into the fish area. The effect of this ozone is difficult to evaluate. However, bacteria must be killed, and I believe it assists in healing the small marks left by the white spot and any fin rot or skin disease that may be present.

A typical example of the treatment has just been completed, involving 50 neons and 24 gouramis. At the commencement about 10% of these were discovered with white spot and all were placed in the hospital tank. As these fishes were out of condition from travelling, and the neons were very small, a watch was kept at first to see that the water movement was not too strong for them. The external thermostat was set at 85°F (29°C): on the second day a noticeable increase in white spot was observed, fish feeding was better. Day 3, a further increase in white spot, appetites increased, necessitating about ten small feeds a day. Day 4, no increase in disease. Days 5, 6 and 7, gradual decrease in white spot, 90% being now clear. Day 8, all cured. The neons were plump, noticeably larger and bright in colour; all fish had erect fins and in good condition. Losses consisted of four neons; these were 'runts' and would have been destroyed anyway.

One of the first fish which we cured many weeks ago is kept in the hospital tank at all times as a 'guinea pig'; a close watch is kept on it, and so far it has not contracted white spot again, although a few hundred diseased fish have passed through the tank. We know the time taken in curing a fish is entirely dependent on when the parasite leaves its host, and it is interesting to note that this can vary greatly even at a high temperature of 85°F plus. This variation can lead one to think there may be different types of the disease, and when treating with drugs it could be thought one is good or inefficient dependent on the time taken, whereas it is just that the parasite is slower to develop.

Although to the aquarist with a few fishes this method of cure may not be practicable, it offers anyone dealing with quantities of fishes a very workable alternative to the chemical method, advantages being a very low mortality rate. In fact, all fishes are much healthier after treatment; the aquarium is kept automatically clean at all times, the heavy flow of water conditions the fishes and gives them a constant appetite, and young fishes are noticeably larger and fitter after treatment.

The use of chemicals can affect all fish and cause deaths; the dye types make it difficult to observe results and unseen deaths can quickly foul a tank; also, as no filter can be used, careful cleaning must be carried out, and if fresh water is added, one is never sure of the chemical's effectiveness; it usually loses its strength as the treatment progresses. The 'air stone' that is usually advised will tend to circulate the free-swimming parasites and could assist in bringing them into contact with the fish before the chemical can kill them.

With this clean water treatment one can examine fish thoroughly, and it is most interesting to watch the disease develop and finally disappear. The fears of white spot and consequent losses are now to us just an inconvenience and the treated fish can usually be sold for a little more due to their size and condition.

Prevention is better than cure we all know, and the original theory points to the fact that regular high-power cleaning of aquariums helps to keep the disease at bay. By high power I mean sufficient movement of water to wash the gravel, lift the mulm and deposit it into the filter, at the same time subjecting the fish to the very strong currents which are beneficial to its well-being.

If anyone has queries or suggestions on this method, I would be pleased to hear from them.

Transatlantic TOPICS

By JIM KELLY

Truth is stranger than fiction, but I have the next tale on good authority as to its authenticity. Visitors to a show recently were asked to put questions on fishy matters to a computer loaned and manned by a local Scientific Group. Two local guppy breeders couldn't resist the opportunity and submitted to the machine: 'Why do my guppies slobber and what can I do to cure this?'. With a wry smile the computer's operator handed them the machine's reply: 'Teach them to spit'. Seems I remember a proverb about asking a silly question?

* * *

Certain hospital techniques practised today make use of the 'deep freezing' method to slow down the metabolism of the body thus enabling surgeons to perform operations thought impossible a few years ago. This matter reminded me of the Alaskan blackfish (*Dallia pectoralis*); this sole representative of its fish family grows to about 8 inches in length but its claim to fame is the fact that it can remain frozen for months, becoming as lively as ever when thawed out. The locals use it as both food for themselves and their dogs. Those aquarists with drafty fish houses or heating systems that 'don't', please note.

* * *

Polystyrene has already graced our hobby as a media for tiling walls and ceilings, proved its worth as a heat insulator second to none. Now it will take on yet another function if Thomas Basler from Atlanta, Georgia, has his way. Fed up with trying to buy tank hoods to fit his assortment of non-standard tanks he has made his own from polystyrene. He claims it is light in weight, cheap to buy and easy to work with. All the tools he used were a sharp knife, saw and adhesive. Word of warning: don't let the light bulb come in contact with the material or you will find your beautiful new shade has just 'melted' away.

BREEDER'S NOTEBOOK

The Emperor of Tetras

By J. LEE

Nematobrycon palmeri

I FIRST collected these very handsome fish about 3 years ago from London. To me they were one of the prettiest characins I had ever seen, and they are still. The tank I peered into had about a dozen fully adult emperor tetras in it; no doubt that they were in good condition as they were in deep colour. I could not buy the fish fast enough. They just had me spellbound.

I asked how much they were and the dealer said that owing to the small quantities and their being a rare fish they were quite dear. I purchased four to the tune of 22s 6d each (they have come down quite a bit in price by now). Feeling very pleased with myself, I nursed the fish on their long journey back over 100 miles from London. With my fingers crossed I settled them in their new home. At first I succeeded in getting only a few eggs from them which, I am afraid, developed fungus.

After several attempts over 2 years I finally lost my breeding pair through a bad attack of white spot that swept through the tank rapidly and left me only with one good male. After a quite a time had gone by I managed to get a few more emperor tetras. These were only just over half-grown and I set to work conditioning and growing them on to good healthy adult fish. I got them to just under 2 in. in length and then I decided to separate them into different tanks and condition them into breeding shape. The conditioning diet over the months was *Daphnia*, a few small *Cyclops*, an occasional feed on *Tubifex* worms, white worms, Grindal worms, ghost larvae (or 'glassworms') and now and again some minced fine earthworms and, sometimes, in between live foods, a bit of scraped meat or liver.

As spring was getting near, the females were bulging with eggs and ridges were beginning to show on the flanks or sides of the fish. The time had come to try again. As I wanted plenty of time for the set-up, I left it until the weekend. I had a spare tank standing idle, size 30 in. by 15 in. by 12 in., painted dark on the outside. I went through the usual procedure—scrubbed out the tank and rinsed it until it was perfectly clean.

The tank was prepared with 6 in. of water (4 in. of filtered rainwater run through boiled peat moss to give an amber tint and make it slightly acid and soft, and 2 in. of well aged tank water). This was allowed to settle and a few large pieces of hard peat and pieces of bark were added to the bottom. Two teaspoons of aquarium salt plus two measures of TetraCare Blackwater Tonic were added to the tank. I again used my favourite spawning medium—willow roots that had been well washed and placed off centre near the back. They were bushed out to leave plenty of big holes for the fish to move through during the chase. The top of the tank was covered with thick brown paper. At the time of spawning, the temperature was nearly 80°F (27°C), water pH 6·4 and of 4 degrees hardness (D.H.).

As I had tried these fish in tanks in several places in the fish house, I decided to try this time high up and right opposite the door so that I could let the morning sun through to catch the front glass. This, in my opinion, worked wonders in speed of breeding, because they were put in one night (the male went in first, incidentally, and the female 6 hours after) and they spawned the next morning. The chasing was quite a sight. I noticed the male was in brilliant colours and, oddly enough, the female after 2 or 3 hours was quite pale in comparison with him.

The sexing is easy in this species, of course, as the male carries a pronounced spear point to the caudal fin that is hardly apparent on the female, and with my pair the female was bulging with eggs. The male of the breeding pair was slightly the larger of the two at 1¾ in. and the female barely 1½ in.

When spawning was in progress the sun was hitting the bottom of the tank at the front, just entering about a quarter to a half of the way through the spawning medium, and in my opinion it was this that had induced them to spawn.

The parents were taken out after spawning and the front of the tank was covered completely to put them in subdued light or darkness at this stage. I did not treat the water in any way to protect the eggs, and in about 24 to 30 hours the fry were free-swimming. The first food was fresh Infusoria and Liquifry, then brine shrimp and micro worms. After a month or 6 weeks they were taking Grindal worms and sifted *Daphnia* with tit-bits of salmon paste on a piece of cotton dangled halfway into the tank, and tiny crushed snails added from time to time. On this diet the fry, in my opinion, grew quite fast.

After 2 months baby emperors look very much like their parents in detail. They were a wonderful sight. On the final count, my first spawning after weeding out runts came to 85 good fish. The second spawning achieved more. Just a word of warning though. This species are wide scatterers of eggs, which fall anywhere in the tank. So do not hesitate to take the parents out as soon as spawning is complete or it will cut your odds on a large batch of fry; owing to the head-down position which they adopt side by side when spawning, and usually near the bottom where the eggs can be picked up, the adults eat eggs fast.

I wish all success to others who are breeding this beautiful fish, which will I think in the future become one of the most popular in the community tank.

Prefabricated PONDS

A review of materials and products currently available to the pond-maker, who need do very little more than design and provide the hole in the ground

ALTHOUGH the use of modern materials has for some time made possible the installation of ready-made garden ponds, do you know just how wide the full range of these convenient pond-making aids is today? It is no longer adequate to talk loosely of "plastic" ponds. A variety of plastic materials have been tested and tried over the past few years and the individual types of plastic deserve discussion under their own names for comparisons of performance to be made.

A convenient classification of types of prefabricated ponds would be (1) the plastic 'liners', flexible sheeting of various kinds that can be fitted into a hole of almost any shape and size to form a pond, (2) the moulded pond carcases of various shapes and designs. In the second category two sub-divisions can be recognised: (a) ponds moulded in a semi-rigid plastic compound, and these are usually of not more than about 50 gallons capacity; (b) rigid-walled ponds made from glass fibre, the tough reinforcing properties of which enable ponds of over 200 gallons to be provided.

Liners

Polythene sheeting (heavy gauge) was the first material to be used as a cavity liner to make ponds. It is the cheapest form of liner but it also the least durable. The main disadvantage is that it is so prone to be damaged, by sticks poked into it or by stones droped through it and even by penetration from tree roots, with the production of leaks. Long exposure to sunlight also changes it so that it loses its flexibility and cracking occurs.

A much thicker and tougher plastic sheeting, which is also supplied with Terylene reinforcement, is polyvinyl chloride (PVC). Flexibility is retained but the increased strength and resistance to stresses means that these materials are free from most of the disadvantages of polythene. PVC sheeting for ponds is available under the trade name of Juralene Pool Liner, or (reinforced with Terylene) Plastolene Pool Liner. Although light induces slow changes in PVC sheeting the expected life for a pool made with these materials is over 10 years.

Newest on the liner scene is butyl rubber sheeting, and although the period (two pond 'seasons') in which it has been under trial is not a long one all the indications are that this is likely to be the supreme pond liner of the future. It is known to have a long life in the face of all that temperature variation and ultraviolet light can do. It is sold as Butalene Pool Liner.

How can the quantity of liner required to make a pond be calculated? This is easily done after the shaped excavation has been made by measuring the greatest length and width of the hole at the top and the depth at the deepest part. If an addition equal to twice the maximum depth is made to both the length and the width, this gives the dimensions of sheet needed and will allow for tucking the sheet into the corners of a formal design and for a slight overlap (to be anchored beneath slabs of stone or rocks) around the top edges. Liners other than polythene readily accommodate to the form of the excavation when filled with water and do not have to be folded carefully into corners.

To avoid damage to these flexible types of pond liner, and also for the semi-rigid small ponds, it is a good idea to layer the excavation with soft sand or sieved earth. Tree roots can penetrate polythene sheeting so it is advisable to site the pond away from the immediate vicinity of large trees.

Liners are available in a variety of colours and designs but the natural development of aquatic growths on submerged surfaces is likely to obscure the original colour in time and so this aspect is not worth much thought.

Moulded Ponds

With the pool liners the arrangement of deep and shallow pond regions, ledges, shelves and pockets is decided by the form of the excavation that has been made. Moulded ponds, however, incorporate these features in a pattern determined by the manufacturer. Nevertheless, most of the designs now being marketed have, in fact, been soundly thought out and a study of the range shown in any of the several comprehensive catalogues will reveal something of a size and form to suit almost any practical requirement. If you live in a hard winter area and wish to keep your fish in the pool all the year round be particularly careful to choose a pond with a region of sufficient depth to give a retreat.

Even the largest of the moulded ponds is not unmanageably heavy, and handling them to install in a garden is a simple matter. The hole that is dug to receive a moulded pond should be made at least 6 inches larger than the pond's length and breadth or diameter.

The bottom of the excavation should be quite level and hard to receive the base of the pond, and a loose layer of sieved soil or sand can be placed over this before the pond is set in position. Then, after ensuring that the top edge of the pond when it is in position is level with the surrounding ground surface, the space around the pond should be filled in with sieved soil.

By working around the pond's perimeter, shovelling in and firmly packing down the soil, you can pack out

the space in a way that will provide a firm layer to buttress the sides of the pond. The use of a rod, pushed up and down in the soil as it is laid, will ensure that no cavities are left accidentally.

Unlike new concrete ponds, the prefabricated ponds that have been discussed here are ready for immediate setting up once they are installed, without any special pretreatment of any kind. They have another advantage. If, after all, you decide that you do not like the position you have given your pond or if you decide to have a new garden lay-out, the pond can be emptied and with very little trouble moved to a new site!

Carboy Aquarium

By IAN STILL

A FASCINATING idea is to use a giant glass bowl known as a carboy for housing goldfish. Up to six small fish can be kept in comfort owing to the capacity of the carboy and the abundant airspace allowed. Special fishkeeping carboys have been advertised, or you might obtain a discarded carboy from a garage; one that has contained distilled water is desirable so that no harmful effects will be suffered by the fish.

A few items which you have at hand will facilitate the periodical emptying, cleaning and filling of the bowl. These are a 3 ft. long, half-inch diameter rubber pipe (the washing machine filling pipe) for emptying; a cleaning device consisting of a 6-inch square of foam rubber tightly clasped in the centre by a 2-ft. length of quarter-inch flexible wire; a large bath to hold the siphoned water. The rubber pipe is used to siphon out water at cleaning time. This is how it is done. Fill the rubber pipe with water and press the thumb over one end. Carry it from the sink in a U fashion and slip the open end down to the bottom of the carboy, and at the same time, with the thumb still pressed on the end, direct the other end into a bath. The rush of water in the pipe when the thumb is removed will draw off the remainder in the bowl and will continue to do so until it is almost empty, leaving about one or two inches of water in the bottom. The fish are then gently tipped into a pail half filled with fresh water.

The carboy is now placed on a chair near the kitchen sink and about one inch depth of cold water is run in with the pipe, also an inch or so of hot water. The cleaning device—the swisher—is now swished back and forth to clean the inside of the bowl. This is swilled out with clean water, and filled with fresh water at room temperature piped in to a height of three-quarters up the carboy. This will allow plenty of air space. Gently transfer the fish from the pail to the bowl.

The bowl and chair can easily be carried by two persons to a low table set in position at a window. It is a simple matter to slide the bowl from the chair to the table. To add decoration to the bowl a few ornamental transfers can be glued near the neck, which will greatly enhance its appearance, and coloured gravel can be placed in the base.

Give Your Po

that Well-Pla

Look this Yea

THE new pool owner's immediate wish to turn the bare expanse of water at his disposal into a beautifully decorative feature of his garden is so well served by the variety of water plants available that he may well feel daunted at the choice. However, plants in the water garden serve a functional as well as a decorative purpose and if the requirements of the pond itself are considered it is much easier to select wisely.

Pond plants can be considered in four categories: (a) those that grow entirely submerged; (b) those that float on the surface, whose roots do not have to be anchored; (c) those whose main foliage is at or above the water surface, often called the 'deep marginals', which require up to 18 in. depth of water; (d) the marginals that need only very shallow water or marshy conditions in which to grow. Each group of plants has a part to play in the maintenance of a healthy pond and the most impoetant

Hornwort

(*Ceratophyllum demersum*)

Submerged oxygenating plant, with growth during spring and summer. Its finely divided leaves grow in dense, spiny whorls that make excellent cover for spawning fish.

Waterhawthorn

(*Aponogeton distachyon*)

Classed as a deep marginal, this plant is a most adaptable and desirable addition to a pond. It will grow in water of 6–18 in. depth and in shade where water lilies do not thrive. The elliptical-shaped leaves float on the surface and the white, scented flowers with black centres form on spikes and appear throughout the summer months. Some rarer varieties have pink or purplish blooms. A very sturdy plant that should be planted in a basket to contain its growth.

ed

Photographs
W. J. HOWES

There are good practical reasons for adding to your pond types of plants from all the categories discussed here, but it's worth considering too whether increasing the varieties you already have will improve your pond's appearance this summer.

Willow moss

(*Fontinalis antipyretica*)

Submerged oxygenating plant, growing well during spring and summer. Plant in weighted bunches in shallow or deep water. A most useful plant that serves as cover for fry.

of these is the role played by the submerged plants—those usually called the 'oxygenators'.

If fish are present, conditions must be agreeable for them. Submerged plants provide food, cover and spawning medium; more essentially, they maintain the water in a 'sweet' condition, since they absorb in their feeding processes the nitrogen-containing matter excreted by the fish and other animal life present. They also absorb, during the hours of daylight, the carbon dioxide exhaled by the fish and produce in turn the oxygen that the fish inhale to live. Even if there are no fish in the pool submerged plants should be present; in order to grow, they will use up the nourishment that would otherwise be available for the growth of microscopic plants, the algae, and it is the excessive growth of these that causes the 'green' water that troubles so many pond owners.

Another requirement of the pond is for surface shade. Not only will this be appreciated by the fish but it will also combat the growth of algae by cutting out some of the light that these plants require. Here the floating plants and the leaves of the deep marginals such as water lilies play their part. Further shade is provided at the

Next month:

A reference list of easily obtainable pond plants and notes on pond lilies and irises will be included.

Flowering rush

(Butomus umbellatus)

This plant grows in 3–6 in. depth of water and requires a sunny position. Growing to a height of 3 ft., it has sword-shaped leaves and midsummer flowers of rose-pink grouped at the end of a long stalk. This is another vigorous plant that should have its growth controlled by planting in a basket.

edges of the pond by the taller-growing marginals and rushes, and these can also be planted to act as wind-breaks on the northern and eastern edges of the water.

Planting medium for the majority of water plants is a good rich loam to which has been added a small amount of organic fertiliser (dried blood and bonemeal are ones easily obtained from gardening suppliers). The most convenient method of planting is in the openwork plastic 'basket' or 'planting crate' sold for this purpose. Not only does this make the task of cleaning the pond and propagating the plants much easier, but many of the plants, including water lilies, are such sturdy growers that unless they are restricted by just such a means of control they can choke up the pond with their growth.

The baskets are lined with turves and filled with as rich a soil as possible, to the lower portion of which can be added the fertiliser. If turves are not available the soil at the sides of the basket needs to be packed down very firmly. When the plant roots have been spread out the basket can be filled, but it is important that the crowns of the plants should remain just above soil level. This applies particularly to water lilies, but even the submerged oxygenating plants should be firmly imbedded only by their roots. Cuttings, of course, must be placed in the soil for an inch or two so that roots can form. Finally, a layer of washed coarse gravel can be placed on top of the planted basket to prevent the dispersion of the soil. Baskets containing water lilies and other deep marginals that have already formed surface or emergent leaves may be lowered into the deeper water over a period of time. Support for the basket can be supplied by bricks that are removed one by one at intervals of about a week so that the leaves of the plant are at surface level at any time.

Is it New to You?

AN attractive South American fish that can be seen in the stocks of many shops at the present time is the red-tailed chalceus (*Chalceus macrolepidotus*). The red of the tail fades at times to a pink, which is the hue shown by the other fins, but at its best the tail colour is a really bright red. There is a pleasing pattern of rather large scales on the blue-tinged sides of the fish, and as the light catches these it is strongly reflected. Its belly surface is silver. Shape of the body is streamlined, but although the red-tailed chalceus has a good turn of speed when it is disturbed, it spends much of the time suspended quietly in mid-water or, when first placed in a new aquarium, hiding among the plants.

The fish in the photograph are about 3 inches in body length, and specimens of this size and up to about 5 inches are the most common in the stocks on show. The red-tailed chalceus is capable of reaching a length of 9 to 10 inches, however, and growth is reported to be fairly rapid with adequate space and good feeding. With other fishes of medium size it appears to have no bad habits but it would be unwise to keep it with small types: it has a big mouth!

Foods are taken in the upper levels of the tank and the impression is gained that only extreme hunger would make this fish go grubbing about near the bottom for worms. A worm-feeder should be used if white worms and *Tubifex* are on the menu for the red-tailed chalceus, but earthworms of a suitable size can be dropped in when the fish has become used to the feeding routine. There is a danger of this large characin being given too little food when it is kept in an aquarium containing other fishes whose adult size and growth rate is less than that of the red-tailed chalceus. No sex distinctions are apparent in the small specimens and there are no reports of aquarium breeding. This fish is not cheap to buy but if you've got a big tank and like big fish they might give you the chance of fame as the first to breed them in aquaria.

Schedule for a Garden Pond

Site

Now is the time to plan the pond's position. Best size can be visualised from a scale diagram of the garden area. Allow room for the excavated soil to form the basis of a raised rocky area behind the pool. Don't choose a site beneath trees. Do have it where it is easily viewed from the house.

Type

Position and approximate size determined, you can decide on type. Concrete or prefabricated? Formal (regular shapes such as rectangles, circles) or informal (irregular shape)? Could even be raised (but much more trouble). Plan the shelving arrangement and depths if you are not choosing a moulded pond. If a waterfall is planned arrange for this to deliver into a plant-free part of the pond.

Order your pond from the suppliers or collect your shuttering together and enquire about delivery of ready-mixed concrete.

Excavation

As soon as ground and weather permit dig the hole and shape it to your plan or for the type of pond you have ordered. For concrete and moulded ponds make the hole bigger than the finished job. With 'liners' the cavity will determine the final dimensions.

Heap the removed earth well away from the hole and distribute it to conform with the rockery and any water course you have planned.

Power

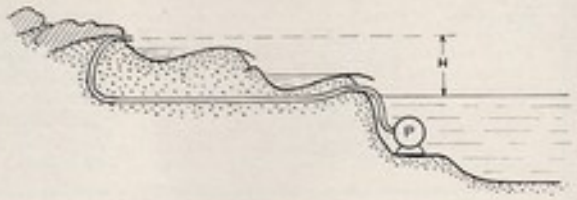
If you intend to have a fountain or waterfall install underground cable for supply of electricity to the pond's vicinity. Make the waterproof junction with pump lead in a lined cavity nearby (in the pump chamber if a surface pump is used; see Moving Water article in this issue).

Making ready

Treat the new concrete pond to a number of scrubbings, soakings and changes of water, also any water course made in concrete. Prefabricated ponds are ready for immediate use.

Plants will not be available in full variety until the end of April, according to weather conditions, but make your selection of types you like and order them as early as possible (see article on pond plants in this issue).

M-O-V-I-N-G Water



FOUNTAIN jets and sprays or water cascading over rocky falls have been used to enhance the attractions of man-made ponds and lakes for centuries. Moving water features prominently in famous and historic gardens all over the world, and not unexpectedly this is an effect that almost everyone with a pond in their garden would like to include. This demand is today met by a range of equipment and accessories, making it possible for ponds of any size to have moving water. For the smallest ponds the cost of arranging this is extremely small in relation to the great amount of pleasure that is obtained from the added attraction to the water garden.

As well as the attraction there are the advantages that a flow of water will do much to dispel the risk of cloudiness and greenness of the pond, troubles which beset many pondkeepers, and that the pump which forms the basis of the necessary equipment can be an asset for pond-emptying when cleaning time comes round. A supply of electricity for the pump is, of course, a necessity, but for ponds that are within moderate distance of the house this is easily arranged. Waterproof cable to the vicinity of the pond can be laid in a conduit or underground in a properly protected channel, and special waterproof connectors are available for attachment of the pump motor lead (or for connection with underwater lighting, or with a pond heater in the winter when the pump is not in use). Free advice on the outdoor supply of electricity will be given by the local electricity authority.

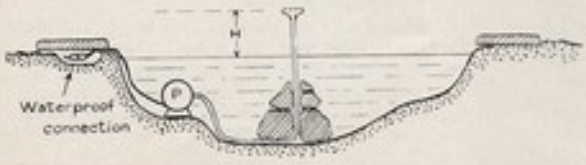
The pump provides a means whereby the pond water is circulated, so that there is no need for any separate water supply. The water circulation can be from pump to the highest point of a waterfall or cascade, from which the water returns to the pond by gravity, or from pump through a fountain jet back to the pond. Obviously in both forms of circulation considerable contact of the water with air occurs, to the benefit of the pond.

If the pump obtained has a great enough capacity it is possible for both types of circulation to be in operation together in a pond, but for ponds of average garden size the smaller pumps that operate fully submerged in the water are usually supplied and these give their best performance when used with either a fountain or a cascade singly and not with the two together. However, even with these, by installing stop-cocks on the pipes, the pond owner can have both fountain and waterfall and run one or the other at any time as he chooses.

Pumps of larger capacity are the non-submersible types that are housed close to the pond, with which they are connected by pipes. Rather more care and thought is necessary in the installation of these, to avoid such snags as finding that the pipeline to the pump empties itself when the pump is switched off, but the important points under this heading will be discussed later.

How is the capacity of the pump assessed? Its output in gallons of water per hour can be given but it is necessary to be aware that this figure will change according to the height to which the water is required to be pumped. This perpendicular distance is referred to as the 'head' of water. Output will also be less if the lengths of piping through which the water is pumped are excessive or if the pipe diameter is too small or too big. To take an actual example given by the manufacturers, the output of the Otter submersible pump is 330 gallons per hour at a working head of 3 feet, 240 gallons per hour at 5 feet and 120 gallons per hour at 7 feet.

Notice that these measurements are the perpendicular distances between the water outlet (at the top of the cascade or at the fountain jet) and the pond surface. The weight of the water is giving a downward push that progressively decreases the pump's output as the vertical column



Sectional diagrams of ponds with submerged pump (P) are shown on this page. The working 'head' (H) for the pump is the vertical distance between the pond water surface and the water outlet (a cascade in the top diagram and a fountain in the lower diagram)

of water is made higher and higher.

Plans for the water course close to the pond should allow for the piping that is used to be of absolutely minimum length and free from sharp bends. The pipe taking the water from pond to the pump inlet should have a strainer fitted to the end in the pond to prevent fish or plants entering the line, and a strainer incorporating a non-return valve, called a foot-valve, will be advantageous if not essential for a pump that is a non-submersible type.

Many problems are overcome by arranging for such a pump to be housed in an underground chamber near the pond, so that it is below the water surface level. In this position it is out of sight yet easily accessible and the feed-in pipe to the pump will keep filled with water at all times. However, since with the widely used plastic and glass-fibre ready-made pools the pipe will almost certainly have to be arranged to run over the top edge rather than through the side of the pond, fitting a foot-valve strainer will be desirable to avoid the possibility of an air lock developing in the bend of the pipe above water level.

Although its exact dimensions will depend on the measurements of the pump and on just how much below ground level is the pond water surface, in general the pump chamber need not be more than about 15 inches deep. Good drainage for it is essential or else spilt water or flooding from heavy rainfall will ruin the pump's motor. For the same reasons the pump should be raised a little above the chamber's base on a mounting platform. The walls of the chamber are best made from a few courses of bricks. Its top can be covered by a paving-stone or concrete slab, but do not let this form a perfect seal or the desirable ventilation of the chamber will be lost.

Obviously construction of this part of the moving-water set-up cannot be properly done until the piping and pump are available and the electric cable to the area has been placed. The chamber is also a convenient place to have any stop-cocks for controlling the delivery of water to branch pipes and to have a pipe connection available for use when the pump is employed for emptying the pond.

If for any reason the pump has to be placed above the pond's water surface level then the foot-valve becomes essential, and it may also be necessary to arrange for a small tank of water above the pump from which the inlet pipe and pump can be 'primed' after a period when the pump has been out of use. Advice on the piping and its arrangement, together with a discussion of useful accessories and the fountain and waterfall effects available, will be given in the second article of this series in next month's issue of PFM.

In Brief . . .

. . . THE range of goods at the auction held by **WORTHING TROPICAL FISH CLUB** at their first meeting of the new year was very wide. Not only tropical fish but also bottles of wine went at bargain prices to the 20 members present. The fish quiz that followed was also very popular. Lots of new information came out of the many questions that were answered by Mr A. Riley.

. . . OFFICERS elected at the **WILLESDEN & D. A.C.** annual general meeting were: chairman, Mr C. A. T. Brown; secretary, Mr W. R. Sherwin; treasurer, Mr E. Large; show secretary, Mr T. W. Glass; assistant secretary, Mr C. Cobbley; committee member Mr Keely. The points cups for 1965-66 were also awarded at this meeting. Mr T. W. Glass received the Leveridge tropical points cup and the corresponding cup for coldwater went to Master Graham Brown. Club meetings are held at 8.0 pm. on the second and fourth Wednesday of each month at Anson Hall, Chichele Road, London, N.W.2. New members and visitors are always welcome and further details can be obtained from the secretary at 43 The Highlands, Edgware, Middlesex.

. . . CHANGE of secretary for **BELLE VUE (MANCHESTER) A.S.** In future all correspondence should be sent to Mr Roy Preston, 14 Hollow End Towers, Brinnington, Stockport, Cheshire.

. . . **BRADFORD & D. A.S.** elected the following officers and committee at their annual general meeting: president, Mr D. Carr: vice-president, Mr A. Firth; secretary, Mr G. Goodison 3 Sherwell Rise, Allerton, Bradford, Yorks; treasurer, Mr D. Parkin; social and publicity officer, Mr H. Fletcher; equipment officer, Mr L. Haley; committee: Mr C. Binns, Mr H. Hooper, Mr C. Holdsworth, Mr P. Moorhouse, Mr J. R. Smith, Mr J. Hodgkinson, Mr R. Winterburn.

. . . NEW members will be most welcome at the fortnightly Monday evening meetings of the **BASILDON & D. A.S.** held at 8 p.m. at the Laindon Community Centre, Aston Road, Laindon, Essex. Officers elected at the recent annual general meeting of the club were: president, Mr A. J. Le Boutillier; chariman, Mr G. Parker; secretary, Mr H. Furneaux; treasurer, Mr D. Smith; show secretary, Mr G. Clark; programme secretary, Mr B. Lupton; F.B.A.S. representative, Mr K. Bronze; librarian, Mr R. Lovey; lay members: Mr D. Dudley, Mr B. Young, Mr R. Davison.

. . . SPECIAL interests of all members of the **LLANTWIT MAJOR A.S.** have been catered for at recent meetings. At the December meeting coloured transparencies of tropical fish and furnished aquaria were shown and in January the coldwater enthusiasts had their turn when slides of coldwater fish, mostly prize-winning strains of fancy goldfish, were projected.

. . . SUNDAY morning meetings, so that shift workers can attend more society activities, are now being arranged by **MANSFIELD & D. A.S.** Usual meetings are held fortnightly on Mondays at 8.0 p.m. at Ye Old Ramme Inn, Church Street, Mansfield. Newly elected officers of the society are: president, Mr G. L. A. Wilson; chairman, Mr R. Wagstaff; secretary, Mr M. J. McGarry, 3 Lingforest Road, Mansfield, Notts; show secretary, Mr T. Browlow, 19 Jennison Street, Mansfield; treasurer, Mrs E. A. McGarry; committee member, Mr R. V. Dyson.

. . . . OFFICERS elected at the **CHELTENHAM & D. A.S.** annual general meeting were: chairman, Mr B. R. James; vice-chairman, Mr D. Andrews; secretary, Mr V. Howes (19 Dinas Road, Cheltenham, Glos.); treasurer, Mr A. Burden; committee members, Mrs O. Burden, Miss S. Howes, Mr N. Binding, Mr R. Deadman, Mr N. Hughes. A warm tribute was paid to the retiring chairman, Mr R. Heyden. Business commitments prevent Mr Heyden from seeking re-election but members were pleased to hear he would be able to attend the meetings, which are held on the second and fourth Wednesdays each month, 8.0 p.m., at Christ Church Hall, Malvern Road, Cheltenham. New members will be made very welcome and should contact the secretary.

. . . . NEWLY formed, the **ROCHDALE TROPICAL BREEDERS ASSOCIATION** that meets at 113, Halifax Road, Rochdale, greatly enjoyed the recent talk by Mr Jim Kelly on the American aspects of the hobby. Prospective new members should contact the secretary, Mr A. D. Mellings, at 101 Halifax Road, Rochdale, Lancs.

. . . FURNISHED jars and plants provided the competition for the table show held in December by **LEAMINGTON & D. A.S.** Mr Don Thompson judged and results were: Furnished jars: 1, Mr F. Underwood; 2, Mrs A. Lucas; 3, Mrs S. Underwood; 4, Mr F. Underwood. Plants: 1, 2 and 4, Mr F. Underwood; 3, Mr T. Dobson.

. . . FINAL results in the year's table shows points competition place **YORK & D. A.S.** members as follows: Open Class: 1, Mr Pygott (61 pts); 2, Mr Harris (43 pts); 3, Mr Cooper (40 pts). Novice class: 1, Mr Smith (40 pts); 2, Mrs Simons (28 pts); 3, Mr Reynolds (25 pts).

. . . **REIGATE & REDHILL A.S.** newly elected officers are: Chairman, Mr W. Leach; vice-chairman, Mr D. Collyer; secretary, Mrs P. Whittington (The Grange Coach House, Horley, Surrey); show secretary, Mr G. Bass (2 Caroline House, Rees Road, Redhill, Surrey); treasurer, Mr W. Brookfield; committee members: Mr A. Burley and Mr N. Packman.

. . . NEWLY formed **RUNNYMEDE A.S.** held their first table show at the club premises, Ashford Community Association Centre, Chesterfield Road, Ashford, Middlesex in January. Judges of the 19 fish exhibited were club members Mr E. Parry and Mr J. Sweeny and winners were: 1, Mr Robinson; 2, Mr McDowall; 3, Mr Richardson. At the second meeting in the month, members were entertained by a slide and tape show on decorated tanks very kindly lent to them by RUGBY A.S.

. . . ALL aspects of the hobby, including tropical and coldwater fish, aquatic plants, pondkeeping, foods etc. will be catered for in the programme for the year prepared by **WALTHAMSTOW & D. A.S.** Officers elected for the year are: chairman, Mr D. Goodbody; vice-chairman, Mr H. Davis; treasurer, Mr D. Goldsworthy; secretary, Mr D. Smalley, 7 Thorpe Hall Road, Hale End Road, Walthamstow, London, E.17; show secretary, Mr T. Needham; committee members: Mr W. Patrick and Mr J. Howard. The Society meets at 8 p.m. on the first Friday and third Wednesday in each month at Winns Avenue School, London, E.17 (near the police station).

. . . AT their January meeting, preliminary arrangements were completed by **VALLEY A.S.** members for their first Open Show on 2nd April. Table show results at this meeting were: Angels and cichlids (judge: Mr M. Jones): 1, Mr W. Armstrong (angel); 2, Mr M. Goodchild (blue acara); 3, Mr F. Taylor (blue acara). A.o.v. female (judge: Mr F. Taylor): 1, Mr M. Jones (mollie); 2, Mr and Mrs Isherwood (platy); 3, Mr A. Chapman (swordtail).

. . . ELECTION of the following officers took place at the annual general meeting of the **TROPICAL AQUARIUM BREEDERS** society recently: president, Mr J. Kelly; vice-president, Mr C. Walker; chairman, Mr B. Pawley: treasurer, Mr H. W. Hughes; secretary, Mr S. A. Collinge, c/o 354 Great Western St., Rusholme, Manchester 14 show secretary, Mr W. Booth. The society meets formally every fourth Wednesday, with informal meetings in-between at the Junction & Bath Hotel, Portland Street, Ashton, Manchester.

. . . **MIDDLESBROUGH & D. A.S.** members elected the following officers at their annual general meeting: chairman, Mr C. Fearnley; treasurer, Mr J. Allan; show secretary, Mr M.P. Brunt; secretary: Mr K. Jackson, 79 Penrith Road, Park End, Middlesbrough.

. . . PARTICIPATION in the local community centre's Christmas Fayre with a stall run on a 50% profit sharing basis has resulted in a substantial increase in club funds for **GOSPORT & D. A.S.** This has made it possible for the club library to be launched. Results of the last of the season's table shows were: Any variety: 1, Mr Ellick (dwarf golden pencil); 2, Mr Averre (Simpson sword); 3, Mr Perman (*Anostomus*); 4, Mr Perman (bleeding-heart tetra).

. . . **RUGBY & D. A.S.** juniors are likely to have a busy year. A new junior competition has been inaugurated to compete for the Bennett Shield donated by the retiring chairman, and a junior Newspage in the monthly newsletter is a new venture.

. . . RESULTS of the last table show held by **NOTTINGHAM & D. A.S.** in the old year were: Breeders tropical: 1, Mr K. Riley (cherry barbs, 78 pts); 2, Mr K. Riley (*A. australe*, 76 pts); 3, Mr K. Riley (albino tiger barbs, 72 pts). Breeders coldwater: Mr C. Hill (goldfish). The show was judged by Mr G. Wood.

. . . OFFICERS of **THE GOLDFISH SOCIETY OF GREAT BRITAIN** for 1967 are: president, Captain L. C. Betts; vice-presidents: Mr M. D. Cluse, Mr O. D. Taylor, Mr B. J. Upchurch; chairman, Major G. H. O'Neill; secretary, Mr. W. L. Wilson, 57 Constable Gardens, Edgware, Middlesex; treasurer, Mr W. F. Walters; bulletin editor, Captain L. C. Betts; committee members, Mr A. R. Sutton (lay member), Miss D. Morris, Mr W. F. Walters, Mr E. Palfrey, Mrs A. Wilson (lay member).

Club News

AT the annual general meeting of the **KINGSTON & D.A.S.** officers elected were: chairman, Mr D. W. Ellis (CHE 3745); vice-chairman: Mr G. Wood; secretary: Miss P. Greenhalf, 39 Garth Close, Morden, Surrey (DER 4042); show secretary: Mr H. Towell, 11 Belmont Terrace, Chiswick, W.4 (CHI 7335); treasurer: Mr G. Greenhalf; press officers: Mr R. Biggs, Mr G. Aylard.

The presentation of the past year's major awards also took place at this meeting. Tropical table show shield: Mr G. E. Greenhalf; coldwater table show shield: Mrs R. Aylard; Whatford cup (egglayer breeders): Mr F. R. Cooper; Prince cup (livebearers breeders): Mr G. E. Greenhalf; Kingston shield (coldwater breeders): Mr D. W. Ellis; Member of the year cup: Mr G. E. Greenhalf; aquatic plant cup: Mr G. E. Greenhalf; White trophy (a.v. livebearer): Mr G. E. Greenhalf; home furnished aquaria cup: Mrs A. Barber; mini-furnished aquaria cup: Miss P. Greenhalf; A.S.L.A.S. highest pointed furnished aquaria: Miss P. Greenhalf; Kingston trophy (Open Show award): Mr G. E. Greenhalf.

The club holds its meetings on the first and third Thursdays of each month at which all are welcomed.

AT the recent Open Day show held by the **LEEDS A.S.** at Blenheim Boys' C.S. School, Blackmann Lane, results were as follows:

Furnished jars: 1, Mr K. Smales (Swillington); 2 and 3, Mrs Stringer (Swillington). Guppies: 1, Mr B. Wiggins (White Rose); 2, Mr Cohen (Pontefract); 3, Mr T. Haigh (Pontefract). A.o.v. livebearers: 1, Mr A. B. White (Keighley); 2, Mr G. Hodgkinson (Gorton); 3, Mr J. Whiteley (Aireborough). Barbs under 3 in.: 1, Mr Batty (Swillington); 2, Mr Loughorton (Mixenden); 3, Mr Hirst (Chapeltown). Barbs over 3 in.: 1, Mr Kennedy (Leeds); 2, Mr Glover (Swillington); 3, Mr W. Parkin (Tadcaster). Characins under 3 in.: 1, Mr G. Boulby (Wakefield); 2, Mrs Cohen (Pontefract); 3, Mr W. Booth (Tadcaster). Characins over 3 in.: 1, Mr W. Parkin (Tadcaster); 2, Mrs Dickinson (Aireborough); 3, Mr R. Hampson (Aireborough). Siamese fighters: 1, Mr P. Reynolds (Swillington); 2, Mr Cohen (Pontefract); 3, Mr Whitelock (Tadcaster). A.o.v. labyrinths: 1, Mr Shepherd (Bradford); 2, Mr Helm (Aireborough); 3, Mr W. Parkin (Tadcaster).

Dwarf cichlids: 1 and 3, Mr Barritt (Bradford); 2, Mr Kennedy (Leeds). Cichlids over 3½ in.: 1, Mr Helm (Aireborough); 2, Mr Milburn (Swillington); 3, Mr P. Isaacs (Swillington). Breeders egglayers: 1, Mr L. McCourt (Gorton); 2, Mr Earnshaw (Chapeltown); 3, Mr P. Bratley (Pontefract). Breeders livebearers: 1, Mr T. Haigh (Pontefract); 2, Mr A. B. White (Keighley); 3, Mr P. McCourt (Leeds).

Catfish and loach: 1, Mr W. Booth (Tadcaster); 2, Mr K. Smales (Swillington); 3, Mr L. Kaye (Huddersfield). Toothcarps: 1, Mr Greenall (Tadcaster); 2, Mr Hodgkinson (Bradford); 3, Mr H. Hall (Dewsbury). Rasboras, danios, minnows: 1, Mr P. Wales (White Rose); 2, Master Emmett (Swillington); 3, Mr Cohen (Pontefract). A.o.v. egglayers: 1, Mr A. Whyte (Halifax); 2, Mr D. Carr (Bradford); 3, Mrs Cohen (Pontefract). Best fish in show: Mr Greenall (Tadcaster).

At the December annual general meeting Mr K. J. Bateman was re-elected secretary (address: 56 Coppice Wood Crescent, Yeadon, Nr. Leeds), Mr T. Scott was elected president and Mr G. Boothroyd was re-elected treasurer.

DELEGATES to **F.B.A.S.** *meetings please note that the date given in February's 'Dates for your Diary' for the March meeting has been changed. The F.B.A.S. March Assembly will be held on the 11th, not on the 4th.*

THE following officials were elected for the current year at the annual general meeting of the **THURROCK A.C.** Chairman, Mr B. Barber; secretary, Mr S. W. Hendle, 47 Fulbrook Lane, South Ockendon, Essex; treasurer, Mrs B. M. Nicholls; show secretary, Mr D. Durrant; publicity officer, Mr K. Appleyard; librarian, Mr P. Hinkley; F.B.A.S. representative, Mr E. Nicoll; committee, Mr G. Parkin, Mr P. O'Bryan; club recorder, Mr G. Rowe. The club recorded a most successful year that included two club shows, three interclub shows with Southend, Leigh A.S. and Basildon & D. A.S. as well as informative talks and table shows, and members thanked all the retiring officers for their efforts during the past year. A special 'thank you' was extended to Mr R. Nicholls (retiring chairman) and Mr P. Sowells (retiring secretary) for the tremendous interest and enthusiasm shown by them during the previous nine and four years respectively.

The annual awards were presented to the following: Home aquaria cup: 1, Mr K. Appleyard; 2, Mr S. Hendle and Mr A. Strudwick. Swanbury shield (highest accumulated points in table shows throughout year): 1, Mr B. Barber; 2, Mr G. Rowe; 3, Mr S. Hendle and Mr P. Hinkley. Member of the Year: 1, Mr D. Durrant; 2, Mr I. Smith; 3, Mr R. Nicholls and Mr E. Nicoll. Holland cup (maximum accumulated points gained in open shows): 1, Mr B. Barber; 2, Mr D. Durrant; 3, Mr S. Hendle and Mr E. Nicoll. Special award 'Best fish of the year' cup: Mr G. Rowe.

New members and visitors to meetings are always most welcome and further information can be obtained from the secretary.

MEMBERS of **PORTSMOUTH A.S.** have enjoyed a variety of activities and lectures recently. Results of the table show for shubunkins, goldfish and plants were: Shubunkins: 1, 2, 3 and 4, Mr W. Evans. Goldfish: 1, 2 and 4, Mr V. Hunt; 3, Mr H. Hancock. Plants: 1, 2, 3 and 4, Mr R. Wylie. While the fish were being judged by Mr J. Stillwell a very interesting talk was given by Mr W. Evans on selecting fish for breeding, hand spawning and the culling of young fish.

A table show for breeders classes was judged by Mr J. Stillwell, who congratulated members on the high quality of the entries. Results were: Egglayers: 1 and 4, Mr H. Hooper, 2 and 3, Mr G. Lawrence. Livebearers: 1, Mr H. Hooper. Coldwater: 1, Mr R. Wylie. Mr H. Hooper was awarded best in show for a team of honey gouramis. During this meeting several members spoke on their experiences of breeding fish. Mr N. Franklin spoke on honey gouramis, Mr J. Howard on leopard danios, Mr E. Warren on tiger barbs, Mr V. Hunt on paradise fish, Mr R. Wylie on coldwater fish.

The home furnished aquaria competition, judged by Mr E. Jessop, resulted as follows: Coldwater class: 1, Miss W. G. Ryder; 2, Mr W. Ryder; 3 and 4, Mr V. Hunt. Tropical class: 1, Mr J. Stillwell; 2, Mr M. Mason; 3, Mr and Mrs J. Howard; 4, Mr G. Marks.

Other activities included a lecture illustrated with coloured slides by Mr M. Mason on aquarium plants and a quiz organised by Mr V. Hunt who also acted as question-master.

40 MEMBERS attended the January meeting of **AIREBOROUGH & D. A.S.**, held at the St Andrews Church

Institute, to enjoy three very interesting lectures on fish diseases (Mr Bateman), tank construction (Mr Whiteley) and the propagation of tropical plants (Mr Lister). Tape recordings from American aquarists societies concerning their club procedure were played and proved most enjoyable as did the sale to members of the contents of a box of oranges sent by Sgt. R. S. Holmes on service in Cyprus.

Monthly awards sent to: Specified junior: 1, K. Lister; 2 and 3, P. Kirby. Specified novice: 1, Mr J. Whiteley; 2 and 3, Mrs D. Burnap. Specified: 1 and 2, Mr J. Whiteley; 3, Mr B. Lancaster. A.o.v.: 1, Mr P. Joyce; 2 and 3, Mr C. J. Burnap. The award for the best fish in the show went to Mr J. Whiteley.

THE HOME aquaria competition held by **STOCKTON-ON-TEES A.S.** was very well supported. Judged by Mr J. Williamson and Mr J. Chamberlain the results were: 1, Mr M. Watson; 2, Mr W. Payer; 3, Mr E. Gransome; 4, Mr L. Collins. Table shows held for breeding pairs egglayers and swordtails resulted in: Breeding pairs: 1, Mr W. Bowman (blind cave fish); 2, Mr E. Gransome (*Aphyosemion australe*); 3, Mr J. Chamberlain (Siamese fighter); 4, Mr and Mrs F. Patterson (tiger barbs). Swordtails: 1, Mr L. Collins; 2, Mr J. Chamberlain; 3, Mr J. Stephens. At this meeting also a talk by Mr L. Collins on 'Know Your Fish' proved most informative. Mr W. Bowman was appointed show secretary.

New members are always welcome and should apply to the secretary, Mr J. Williamson, 30 Grays Road, Norton, Stockton-on-Tees for further details.

THE first of the booklets to accompany the tape lectures that **AIREBOROUGH & D.A.S.** *have for distribution has now arrived. This well-produced booklet presents the exact content of the lecture on White Spot by Mr W. L. Whitern. It contains a page of diagrams and a chart for white spot disease treatment records. The lecture booklets cost 2s, are offered to hiring societies on a sale or return basis, and as societies receive 6d for each copy sold, the cost of hiring the tape lecture can be offset.*

THE Editor of the monthly journal of the **FANCY GUPPY ASSOCIATION,** *Mr Jim Kelly, reports that news has been reaching him in letters of fish deaths due to feeding with proprietary tinned cat food. Some brands contain minute bones and the fish have been choked.*

RUGBY & D. A.S. committee for the coming year, elected at the January annual general meeting: chairman, Mr D. Bramley; vice-chairman, Mr F. Pearson; secretary, Mr K. Brown, 1 McKinnel Crescent, Rugby; treasurer, Mrs O. Fox; show secretary, Mrs J. Pearson; minute secretary, Mr D. Green; committee members, Mr J. Clarke, Mr M. Bosworth, Mr B. Fox and Mr A. Whitmee; news editor, Mr K. Russell; junior editor, Mr N. Bowen; M.A.A.S. delegates: Mr Green, Mr Deacon and Mr Russell; M.A.L. delegates: Mr K. Brown, Mrs J. Pearson; librarian, Mr Wood; auditors, Mr B. V. Woolterton, Mr K. Russell; society host, Mr B. V. Woolterton.

At the club's annual dinner, the awards for the year were presented. Mr and Mrs Pearson received the Herbert cup (runner up, Mr R. Fox), the Pleasance cup went to Mrs O. Fox (runners up, Mr and Mrs Pearson), the Bedford cup to Mr A. Whitmee (runners up, Mr and Mrs Pearson) and the plaque for the home aquaria competition was won by Mr and Mrs Pearson.

BECAUSE of the number and great variety of fish being bred by **LANARKSHIRE A.S.** club members, it is intended that the open show to be held on 14th May this year will feature separate breeders classes for a wide range of fish including breeders mollies, breeders platys, breeders barbs, breeders fighters, breeders large cichlids, breeders dwarf cichlids etc. At the club's sixth annual general meeting held recently, officers elected were: president, Mr S. Naismith; vice-presidents, Mr G. Barclay, Mr A. Watt; secretary, Mr E. Watson, 8 Westmoreland Street, Glasgow, S.2; treasurer, Mr A. Anderson; show managers, Mr S. Marshall, Mr M. Christie; social secretary, Mr J. Smith; committee, Mr A. Sharp, Mr. O. Sharkie, Mr R. Rintoul, Mr R. Patterson, Mr E. Condon, Mr R. Wood, Mr P. Haggarty, Mr T. Seymour, Mr T. Hill, Mr A. Anderson jnr., Mr A. McDonald, Mr T. Campbell; F.S.A.S. delegate, Mr P. Haggarty; breeders committee delegates, Mr S. Naismith, Mr P. Haggarty.

MEETINGS of the **NEW FOREST A.S.** are held on the third Monday of each month at The Community Centre, Lymington, at 7.30 p.m. and new members and visitors will be cordially welcomed. Mr R. Travers, the secretary will supply further details from his address Sunnyside, 6 Auckland Avenue, Brockenhurst, Hants. A very enjoyable meeting recently took the form of a quiz kindly lent by WEYMOUTH A.C. The table show results at this meeting were: A.v. danio: 1, Mr Harvey (zebra); 2, Mr Williamson (giant danio); 3, Mr Knapp (giant danio); 4, Mr Harding (unknown). Labyrinths: 1, Mr Menheniet (leeri); 2, Mr Williamson (thick lipped); 3, Mr Knapp (dwarf); 4, Mr A. Williamson (three spot).

POINTS awarded in the December meeting table shows of the **DUNDEE A.S.** were won for the Scott trophy and Junior trophy competition as follows: Scott trophy: swordtails: 1, Mr J. McGeoghie; 2, Mr G. Reid; 3, Mr D. Perrie; 4, Mr W. Carstairs. Egg-laying toothcarps: 1, Mr J. McGeoghie; 2 and 3 Mr R. Brown; 4, Mr B. Hill. Junior trophy: swordtails: 1 and 2 David Perrie; 3, G. Kirkcaldy; 4, Stewart Gauld. Egg-laying toothcarps: 1 and 2, Stewart Gauld; 3 and 4, David Perrie. Judges were Mr F. McNaughton and Mr A. Insch respectively.

BASINGSTOKE & D. A.S. officers for 1967, elected at the recent annual general meeting are: president, Mr E. Leavy; vice-president, Mr R. Eccott; chairman, Mr J. Godimen; secretary, Mr D. Walls (24 Oakridge Road, Basingstoke, Hants); treasurer, Mrs J. Lovegrove, show secretary, Mr A. Mashall (61 Pitman Close Basingstoke, Hants); committee, Mr B. Herbert, Mr A. Lowe; auditors, Mr R. Riddle, Mr F. Lange.

Results of the latest table shows are: 25th November 1966, matched pairs: 1, Mr A. Mashall (pencil fish); 2, Mr D. Walls (half-banded

barbs); 3, Mr A. Mashall (cardinals). 25th November, a.o.v.: 1, Mr A. Mashall (*Agamia*i catfish); 2, Mr J. Hilldon (nigger barb); 3, Mr R. Riddle (platy). 9th December 1966, a.v. male: 1, Mr Lovegrove (*P. bribensis*); 2, Mr F. Lange (scissor tail); 3, Mr L. Lovegrove (chequer barb). 13th January 1967, a.v. female 1, Mr A. Mashall (guppy); 2, Mr F. Lange (platy); 3, Mr L. Lovegrove (guppy). 27th January, Championship table show: 1, Mr R. Riddle (*ramirezi*); 2, Mrs V. Leavy (dwarf gourami); 3, Mr E. Leavy (lace gourami).

AT the first annual general meeting of the LIVERPOOL section of the **FANCY GUPPY ASSOCIATION** the committee was re-elected, with the addition of Keith Hartley as news-sheet editor. The table show at this meeting attracted 52 entries, and the award for best fish in show went to Ken Clark for a fine multi-veil. Mr Clark has been a member for only a few months, so this was quite an achievement. The proposal made at this meeting that visits should be arranged between sections of the F.G.A. was enthusiastically supported.

UXBRIDGE & D. A.S. plan to continue during 1967 a good variety of activities such as they have recently enjoyed. One of the last meetings of the old year took the form of a very enjoyable social with Mr Tamplin acting as a really swinging M.C. At two subsequent meetings Mr Bull gave an illustrated talk on egglaying toothcarps whose beauty had really been captured on the colour slides; and Mr Baker gave a most informative talk on judging. The system of awarding points and the details a judge looks for were described. Members were also advised to weed out poor stock from time to time to ensure that only good fish were kept.

The club learned with deep regret of the death of one of its members, Mrs Bull. Mrs Bull, the secretary's mother, had been an active member for some years and all wish their sympathy to be conveyed to her relatives and friends.

DUDLEY & D. A.S. member, Mr J. Bull, greatly entertained members at the club's first meeting this year with a film show that included some interesting animal films and a set of comedies. The table show at this meeting was for coldwater fish and results were: Experienced goldfish: 1, Mr R. Dickenson (oranda); 2, Mr J. Vickery (celestial); 3, R. Dickenson (calico veiltail). Experienced native British: 1, Mr N. Newman (tench). The best fish in show award went to Mr R. Dickenson. Though not a large club, members really pull their weight here and the size, presentation and content of the Newsletter is a great credit to everybody's enthusiasm. Headquarters are at the Dudley Zoo Aquarium and interested fish-keepers are welcome to attend.

INTERNATIONAL CATFISH *is a new society inaugurated for the purpose of exchanging written information about the habits and breeding of catfish. There are plans for an open show in Manchester for catfish only this year, and enquiries should be directed to the secretary, Mr Len McCourt (36 Railway Street, Gorton, Manchester 18).*

FRIDAY THE THIRTEENTH, January, 1967. Not, perhaps, a very auspicious date on which to hold an annual general meeting, but **CHAPELTOWN & D. A.S.** could afford to ignore the superstition. The meeting was well attended and members heard some interesting and very satisfactory reports (especially from the treasurer). Officers elected were: chairman, Mr S. Earnshaw; vice-chairman, Mr A. Hirst; secretary, Mr R. Crofts (42 Burncross Road, Chapeltown, Nr. Sheffield: telephone, Ecclesfield 3375); treasurer, Mr L. Simmonite; committee, Mr L. Wroe, Mr E. Mitchell, Mr L. Worthington, Mr W. Wiggins, Mr P. Adams, Mr J. Anson (show secretary), Mr H. J. Crowcroft, Mrs H. J. Crowcroft (public relations officer) and Mrs W. Wiggins, together with two junior delegates, Miss Linda Adams and Master I. Anson. Meetings of the Society are held at the Midland Hotel, Chapeltown, nr. Sheffield on the last Friday in each month. New members are cordially invited and further details can be supplied either by the secretary or by Mrs H. J. Crowfoot, MCH Pet Store, Manchester Road, Deepcar, Nr. Sheffield.

The January meeting held on the 27th was again well attended and a very pleasing table show held, results being: livebearers: 1 Mr W. Wiggins (black sword); 2, Master I. Anson (lyretail mollie); 3, Mrs D. Sides (*Limia vittata*). Guppies: 1, Mr E. Fernehough; 2 and 3, Master I. Anson.

A full meeting of lectures, table shows, auctions, film shows, etc. is now being prepared for the coming year. Although meetings of the Society are held officially on the last Friday in each month, members meet socially every Friday night at the Midland Hotel, Chapeltown, and anyone wishing to go along will be given a hearty welcome.

A VERY successful and entertaining year! That was the verdict of **BLACKPOOL & FYLDE A.S.** after hearing the officers' reports for 1966 at their annual general meeting. Successes at the BAF included gaining third prize for the stand section and the best fish in show award had gone to Mr J. Smith. The annual open show had been highly successful and it was decided to hold the next one on 24th September at the same venue (Harrow-side Solarium, South Promenade, Blackpool). Officers elected for the coming year are: president, Mr L. Cross; vice-presidents, Mr V. Fletcher, Mr G. N. Hadley, Mr J. Etherington; chairman, Mr W. K. Pearson, vice-chairman, Mr B. R. Simmons; secretary, Mr L. G. Howard; assistant secretary, Mr J. E. Taylor; treasurer, Mr J. Smith; librian, Mr L. Howlett, publicity officer, Mr B. Turner; committee, Mr J. Cross, Mr E. Crowther, Mr L. Howlett, Mr B. R. Simmons, Mr J. E. Taylor, Mr F. C. Willmin.

Meetings are held on the second and fourth Wednesday in the month and new members will be most welcome. Further information can be obtained from the secretary at 56 Stamford Avenue, Blackpool.

THE monthly bulletin of **AIRE-BOROUGH & D.A.S.** *has been placed eighth in the International Top Ten Society Bulletin competition and a certificate has been received from the American organisers of the competition to this effect.*

WITH the retirement of the show secretary at the end of last year, **HIGH WYCOMBE A.S.** has made the position a joint one, now held by Mr C. Pike (16 Ashley Drive, Tylers Green, Penn, Bucks.) and Mr L. Zurmeulbe (63 Harlington Road, Hillingdon, Middlesex).

Meetings of the club are held on the second and fourth Wednesday of each month at The Saracens Head, Green Street, High Wycombe at 7.30 p.m. and anyone interested in the hobby will be made very welcome. At the meeting at the end of January very informative talk was given by Mr Chatfield on coldwater fish followed by a talk given by the chairman on pond construction with examples of some of the different materials now available. The table show results at this meeting were: a.v. coldwater: 1, Mr E. Chatfield (Bristol shubunkin, 81 pts); 2, Mrs A. Seed (Bristol shubunkin, 77 pts); 3, Mrs V. Beavis (fantail, 75 pts). Tropical adult pairs: 1, Mr C. Pike (*Schuberti* barbs, 79 pts); 2, Mr L. Zurmeuhle (sailfin mollies, 76 pts); 3, Mrs P. Bayntun (black platys, 72 pts).

ATTENTION young fishkeepers and junior sections of clubs, **HUTTON GRAMMAR SCHOOL A.S.** *(Preston, Lancs) hope to hold their second annual open show on Saturday, 1st July. This show is open to anyone under the age of 18 and/or still at school. Enquiries are especially invited from junior sections of aquarist societies and from school aquarist clubs. Enquiries should be sent to the show secretary, Mr D. J. Radcliffe, Kinda, Todd Lane South, Lostock Hall, Preston, Lancs. Show schedules will be available later.*

BEFORE the end of last year **ILFORD & DA. & P. S.** enjoyed a most informative talk by Mr Skilton of Chelmsford on the breeding and management of various species of tropical fish. His wide knowledge of the subject enabled him to answer a great variety of questions put to him by members. The December meeting took the form of a more social occasion with a programme of coloured documentary films shown by a representative from the British Railways Films Library. The films were entitled 'Between the Tides', 'Awakening of Spring' and 'Where Broad-land meets the Sea'.

At the January meeting the annual awards were presented: Pond competition: 1, Mr Cook; 2, Mr Dixon; 3, Mr Nott; 4, Mr Hartley. Home aquaria competition: 1 and 2, Mr Hattam; 3, Mr Smith; 4, Mr Brill. All classes table show: best egg-layer—veiltail goldfish, Mr Berger; best livebearers—*Platy variatus*, Mr Hattam; best junior entry—common goldfish, Mr Sampson.

Meetings of the society are held on the second Monday evening in each month at St Laurence's Church Hall, Donington Avenue, Barkingside, Ilford at 8 p.m. Further information can be obtained from the secretary, Mr R. Ruth, 13 Dunkeld Road, Dagenham, Esses.

Dates for Your Diary

4th March. **TOTTENHAM & D. A.S.** Annual Open Show (postponed from October 1966). Territorial Army H.Q., Priory Road, Hornsey, London, N.8. Details from Mr H. Barnes, 71 Mattison Road, Harringey, London, N.4.

5th March. **FEDERATION OF SCOTTISH AQUARISTS SOCIETIES** March Convention. Templehall Secondary School, Kirkcaldy, when KIRKCALDY A.S. will be the host society.

6th March. **STRETFORD & D. A.S.** Open table show. The Switchgear & Cowan Social Club, Alderfield Road, off Edge Lane, Stretford.

11th March. **FEDERATION OF BRITISH AQUATIC SOCIETIES** Assembly. (Change of date, please note).

12th March. **HUDDERSFIELD TROPICAL FISH SOCIETY** Fourth Open Show.

2nd April. **BRADFORD & D. A.S.** Open Show. Unity Hall, Rawson Square, Bradford. Enquiries to Mr G. Goodison, 3 Sherwill Rise, Allerton, Bradford.

2nd April. **VALLEY A.S.** first Open Show. Civic Hall, Ramsbottom, Lancs. Details from the secretary, Mr J. Butterworth, 25 Brookside Crescent, Greenmount, Bury, Lancs.

8th April. **GOLDFISH SOCIETY OF GREAT BRITAIN** annual general meeting, Conway Hall, Red Lion Square, Holborn, London, 2.30 p.m.

16th April. **MIDDLESBROUGH & D. A.S.** seventh Open Show. Berwick Hills Community Centre, Middlesbrough.

30th April. **ASSOCIATION OF YORKSHIRE AQUARIST SOCIETIES** Open Show (please note change of date from that reported in PFM, January issue). The Railway Institute, Anlaby Road, Hull. Benching 1–2.15 p.m. Judging 2.30 p.m.

13th May. **FREELANCE A.S.** second Open Show at the London College of Printing, Elephant and Castle, London, S.E.1. Show schedules from Mr A. Howes, 26 Rubens Street, Catford, London, S.E.6.

14th May. **LANARKSHIRE A.S.** Open Show, Community Centre, Airdrie, Scotland.

21st May. **MIDLAND AQUARIST LEAGUE** assembly. Hosts are COVENTRY POOL & AQUARIUM SOCIETY. Wyken Community Centre, Belgrave Estate, Coventry.

21st May. LIVERPOOL SECTION of the **FANCY GUPPY ASSOCIATION** Open Show. Norris Green Boys Club, Townsend Avenue, Liverpool. Benching 1.30–2.30 p.m. Enquiries to Mr Bill Armitage, 12 Orrell Lane, Liverpool 9.

27th May. **READING & D. A.S.** are staging the 1967 THREE COUNTIES AQUARIST SHOW at The S.G.B. Social Club, Gas Lane, Reading. Benching from noon, Friday 26th May. Show schedules from Mr C. Masters, 16 Morcombe Avenue, Caversham, Reading, Berks.

EVER-INCREASING and constant demands of members and other aquatic societies have resulted in the **MARINE STUDY AQUATIC SOCIETY** *inaugurating a new grade of membership, that of affiliate member. This is open only to aquatic organisations, who will receive amongst other benefits the service of MSAS judges and lecturers and the provision of MSAS publications. Societies requiring further information are invited to apply to the general secretary, Mr T. Hall (23 Canfield Gardens, London, N.W.6). The MSAS is also sponsoring INTER-AQUA '67, a joint open show to be held in September.*

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CLASSIFIED ADVERTISEMENTS

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MISCELLANEOUS

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