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Fish in the Bedroom

SOME months ago in The Aquarist the subject of conflict between the aquarist and the rest of the family was discussed in the Editorial. Such conflict usually results from finding accommodation for aquaria in the home. Having experience of this myself, I can suggest a partial solution to the accommodation problem.

Two particular aquaria—one for breeding guppies, as I suggested in my article in The Aquarist (June, 1964) and a community tank—I wanted to have inside the house. Due to family pressure, reasons were always found for their removal. As a last resort I considered the difficulties of keeping two tanks in my bedroom. To think of doing so seemed absurd until I considered specific difficulties.

The first apparent drawback was that of fluff from sheets and blankets getting into the water. Having kept the tanks in my bedroom for the past 6 years, I can state that this problem is non-existent. I use the normal tank cover glass with a flap of polythene over the open corner left for feeding. At no time have I noticed any evidence of fluff in either tank. The effect of a moist atmosphere in the bedroom has to be considered. This, I would say, has been an advantage in that it has, presumably, helped to keep down dust.

The main problem is that of weight. When filled with water an aquarium can be a considerable weight, and one must ascertain the total weight and make sure that the room floor is capable of supporting it. An upstairs bathroom enables one not to have to carry buckets of water precariously upstairs to fill aquaria.

Why choose one’s bedroom for fish tanks? I have spent many happy hours—before sleep and on waking—in bed, watching my exotic room mates, and I have yet to find a better cure for insomnia. For the aquarist who is away from home all day, one or two tanks in the bedroom give that extra time to enjoy the pleasure of viewing one’s favourite fish.

Billy Whetside
Pardon me—

Your Slip is Showing

says JIM KELLY

To me a fish show means a pleasant way of passing a few hours in the company of ‘fishy types’ and a chance to keep abreast with the latest practical aspects of the hobby.

By supporting these club efforts and taking part in the raffles etc., one gets a feeling that, even in a small way, one is swelling the finances of the organising society. But why must these otherwise pleasant get-togethers be spoilt by the odd ‘belly-ache’? These types travel about complaining of everything from the catering arrangements to the judging… and the latter comes in for the brunt of it! At most shows the fish are judged twice. Once in the morning when you, the exhibitor, think they are worthy of taking to the show, and again ‘officially’ on the bench by the duly appointed judge.

When these two decisions agree then everything is rosy, but when they do not…you’ve heard them: ‘the judge needs glasses’, ‘should have retired years ago’, are but two of the pleasantest remarks one usually hears.

In coming to a decision a judge has many aids—standards, pointing systems, rules and regulations, but despite all these a large amount of the final result must be the personal conclusions (based on knowledge and experience) of the examiner.

A large proportion of the marks allocated (a fifth in the Fancy Guppy Association) go to condition and deportment! Condition is soundness of body and fin, deportment referring to the carriage and behaviour of the fish.

The judge marks his sheet as he sees the fish at the moment of judging and not when the exhibitor and the public get a chance to see them, usually some time later.

Most judges will back up when I state that at quite a large number of shows a fish will skulk in the corner of the jar or tank, absolutely devoid of colour during the judging, only to become as lively (and just as colourful) as a cat on a hot tin roof when viewed later by the exhibitors and public.

Common ‘Slips’ by Showmen

Every year, at one of our biggest shows in Britain, the British Aquarists Festival, numbers of fishes die, yet on investigation it is usually found that the fault lies not with the organisers of this event but with the individual aquarists and their own separate show committees.

As most of you know, at this exhibition the responsibility of setting up and cleaning the Society’s pool and the space allocated, to say nothing of the methods of heating etc., are left to the members themselves.

On investigation I found that by far the largest number of deaths were caused by the tank overheating and the fish being ‘beiled’.

I realise that in the hurly-burly of the benching that takes place on the previous Thursday evening it is so easy for already overworked show staff to forget, and their clients, to neglect to check equipment, but unless they do these deaths will continue. I have found heaters used whose wattage is too great for the tank in question; thermometers made to work safely on a certain maximum load, hopelessly overloaded.

Up to a point space, too, is limited but it is not only foolish to put a large cichlid in a small tank… it is just plain ‘murder’. This could be avoided by more cooperation between intending exhibitors and their respective show secretaries and the stands being planned to fit the fish and not the reverse.

As a night steward one year I managed to save the life of a fish by a hastily fitted air pump and air stone. Why not have a spare pump and stones all ready at the back of the stand; then if a steward finds a fish in difficulty he can quickly relieve its plight. This applies also to the main fuses controlling the tank lights and heaters. See that, if a fuse is used, a spare is available and suitably marked so it is easily found by a stranger. Mark all light switches with the lights they control; too large bulbs can heat a tank to ‘boiling’ point long after the thermostat controlling the heater has cut out.

Finally, on the subject of large shows, don’t just take your fish along and dump it into the first tank you are allotted—water change can kill just as surely as any of the above can. After you have netted your fish for the show, siphon the remainder of the tank water into a large plastic bag and take this with you, using it to fill your show tank. I well remember one exhibitor, unable to bench personally, who sent along a beautiful specimen of a discus. This was placed by a willing, but not too experienced, fish-keeper straight into freshly drawn water; came the dawn, and the fish had joined its ancestors.

Why?

A question frequently asked is ‘Why is it that my fish took a first at such and such a show last week but isn’t even in the cards today?’

This reminds me of the small boy continually top of his class at elementary school who drops to ninth place when promoted to grammar school! The answer is obvious; he is now competing against the ‘tops’ of other schools and in consequence the competition is much stiffer.

Another common slip is a dirty show jar (at jar shows). Although no hard and fast rule exists to cover this please remember that judges are human. Imagine your own reaction on purchasing a cup of tea in a café to find it all smeared and covered with stains. Your reaction would be of disgust and annoyance. It is but the work of a few minutes to wash your show jars and to give them a final wipe clean on benching.

If at a show you find you have a genuine grievance, then have a word with the show secretary; he will see that your complaint is placed in the right quarter, but, please, don’t worry him with petty complaints, he has enough to cope with as it is.

Follow these few simple tips and you will not only enjoy the show yourself but make it more enjoyable for that hard-working band of volunteers—the show organisers and judges.

Let’s make sure at your next outing that your slip isn’t showing!
The Harlequin Fish

by JACK HEMS

No list of spectacular-looking community species could be considered complete if it did not include the peaceful harlequin fish (Rasbora heteromorpha), according to authoritative sources, made its début as a tropical aquarium inmate in 1906. What catches the eye first is the large blue-black triangular marking with its base in line with the foreparts of the dorsal and ventral fins, and its apex terminating at the base of the tail. The upper edge of this marking is adorned with a margin of shining gold, and surrounding the whole dark area is a field of coppery pink to red overcast in parts with a violet. Anteriorly the body is silvery grey melting gradually green to brown on the back, and silvery white blended with pink on the belly. The yellowish fins are tipped with pink to vivid wine red.

February, 1965
(20°C) or a rise to 85°F (29°C) does no harm if the change is gradual. It is almost always on the go, though it swims sedately, and frequents the middle and upper levels of the water. Tiny living creatures such as Daphnia, mosquito larvae, and various thread-like worms are its preferred diet, but it is always ready for anything else alive or dried that comes its way.

What are the chances of spawning it? Not very great, I would say, though some commercial breeders on the Continent have developed a technique whereby large numbers of the fish are produced annually. The stumbles block to success appears to lie in the quality of the water. It is essential that this should approach, or be almost identical with, that obtaining in the acid freshwaters of south-east Asia. We do know that the acid reaction of some of these harlequin inhabited waters is as low as pH 4.5. But as the breeder of, say, the neon tetra or the glowlight tetra will know, the right degree of softness and acidity of aquarium water to trigger off the reproductive urge in selected pairs is sometimes arrived at only after a good deal of experimentation.

However, assuming that you can set up a 24 in. by 12 in. by 12 in. scrupulously clean tank with a non-alkaline compost under about 9 in. of soft water, and some clumps of snail-free Cryptocoryne plants, the next thing you must do is to sort out, or buy what you, and perhaps your dealer, consider to be a true pair.

Generally speaking the sexes may be distinguished by size and outline; for in well-developed fish the female is larger and less streamlined than the male, fuller and rounder in profile in the abdomen, and her wedge-shaped marking is hazier anteriorly and, overall, not so richly coloured or clearly defined.

As a rapid change of pH value is harmful to fish, it is recommended to introduce the pair into the tank as it stands, and adjust the pH value to the required reading (around pH 5.3 to 5.7, advises Professor Günther Sterba) by the addition, every so often, of small quantities of strained, saturated peat water. The usual tropical tank temperature should be maintained. After the fish have settled down in their new surroundings, separation of the sexes by a glass screen is called for. If this, combined with the right quality of water, a raise in the temperature to about 78°F (26°C), and plenty of live food, does not result in a subsequent spawning, nothing else will. But if spawning does not follow the first attempt do not give up hope. Just try, try and try again.

The first step, of course, is to remove the glass partition so that the fish can enjoy each other’s company. If the female is looking bloated in the sides—indicating the presence of eggs, the male, if he is in tip-top condition, will show more splendid colours and chase about after her.

After a certain amount of driving, usual among the cyprinids, the female approaches the leaf of a plant and rubs the ventral surface of her body against it. In most cases she will assume an upside-down position the better to accomplish the operation; for she usually favours the underside of a leaf on which to deposit her spawn. The male, warming to the situation, is not long in joining her in her manoeuvres.

The adhesive eggs are extruded as the male curves his body around the female in a loose embrace. This performance is repeated over and over again, sometimes on different leaves, and not necessarily those of Cryptocoryne, until the female looks thin and exhausted. Then the pair should be removed to fresh quarters, for they are fond of eating their own spawn.

The eggs hatch in anything from 20 to 30 hours, and the fry stay attached to the plants until they have absorbed the contents of the yolk sac, after which they swim freely about in search of food. This should be of the smallest. Infusoria, followed by micro worms, rotifers and brine shrimps are recommended, but as the fry develop powdered dried food can be used to supplement a live food diet. If well fed the fry reach a length of about 4 in. before 6 weeks are out. Thenceforward they will make rapid progress, and will attain full size in under a year.

ABOUT THE POND THIS MONTH

Look out for Fungus

by A. BOARDER

This is the first of a series of monthly directions for the garden pondkeeper. Each month I hope to deal with the problems which may face such a person and to give seasonal advice to cover all the differing aspects of the subject. I would appreciate it very much if pondkeepers would write to me to ask for any particular feature to be covered. I have been the possessor of a garden pond for many years and it is quite probable that what I might consider to be very ordinary matters not worth mentioning could well be of great importance to another pondkeeper who may not have come across a particular problem before.

During this month it is probable that some rather severe frosts will be experienced. After a bad night frost it is sensible to inspect the pond to see if there is a strong covering of ice there. A hole should be carefully made to allow fresh air to enter above the water.

Should there be a mild spell during this month the pond fishes can have a little food, but before giving any make sure that the fishes are moving around well. If they remain stationary, or nearly so, do not on any account give food of any kind. Once the temperature of the water rises to about 50°F (10°C), the fishes will swim about and will no doubt feed. This should be broken garden worms or white worms if possible. No dried food should be given yet.

During a mild spell make a special point of watching the actions of the fishes. If there are a number of varieties of goldfish in the pond it will be seen that at most times a shoal of them will move about together. If there is a main group with one fish always by itself, this one should be watched to see if there is anything the matter with it. As soon as a fish becomes sickly it skulks away on its own and leaves the main shoal.

192

THE AQUARIIST
Carefully examine such a fish to see if there are any signs of fungus disease. This will show up plainly as a patch of white woolly substance. If an ailing fish is caught in the early stages of the disease it is usually easy to effect a cure. It is only when a fish is neglected and the disease allowed to get a firm hold that a fish can be lost. A small patch of the trouble may not be of much inconvenience to the fish, but if it is neglected the disease can spread over a large area and once it reaches the gills it is likely to prove fatal.

**Fungus Cures**

There are several cures advertised in *The Aquarist*, and if one has been successful with one it is wise to use this treatment again. I have found that it is possible to cure a fish suffering from the disease in salt water. The treatment is to place the fish in a clean container without compost or water plants; the water is warmed up slightly, probably the best way being to put the container in a warm room or position not so cold as the pond water. Then add a tablespoonful of salt to each gallon of water. Try to measure this out as accurately as possible. Do not try to cure the fish in a very small container, and see that the top is fairly wide to allow plenty of oxygen to get to the top of the water. Do not use table salt from a packet. Most of this has been treated so that it runs easily and has an added substance. Use either sea salt or block salt. Put the fish in the fresh water and add the salt carefully. The idea is to ensure that the concentration of salt is not too strong at first. Let the salt dissolve gradually so that the water is aggregated rather slowly. It is not wise to drop a fish from fresh water into a heavy concentration of salt, for it is unwise to return the fish to fresh water suddenly after having been in the salt solution.

The fish should be placed in a shady position. Examine the water after 2 or 3 days and if there is any noticeable change to it change it as soon as possible to a solution comparable in strength with the former. The fish should show signs of improvement after a couple of days. Once the disease appears to have cleared up, add some fresh water so that the strength of the salt is reduced. Take a couple of days to get this water back to almost normal. Once the disease has cleared up the fish can be offered pieces of broken worm or white worm. Do not be in a hurry to return the fish to the pond unless the water is warmed up somewhat.

**Plan the Planting**

There will still be little signs of life in the pond for most of the month. The water plants are still dormant and not likely to show signs of fresh growth. If any fresh water lilies are required for the pond the catalogues can be inspected to see what are available for ordering to be delivered later on. It is of little use trying to plant in fresh water lilies until the pond is kept. A happy medium should be aimed at. A pond could look rather bare at the beginning of the growing season, but once the water warms up the growth will be enough. Often the water lilies are shown for sale in the catalogue under the title of “de luxe” in any pond, and they can be had in so many colours. Where many people go wrong is that they do not consult the dealer before ordering their lilies. In consequence they can obtain plants which are quite unsuitable for the size of their pond.

There are lilies suitable for even a very small pond and some of these will be discussed later on when the right planting time comes along. One thing should be borne in mind. The water lilies cannot be considered as oxygenating plants. Their leaves always grow on the top of the water and, if too crowded, above it. They are very ornamental, especially when in flower, and some even when not blooming. These are the types with fine variegated leaves, which in themselves are very handsome. All these lilies can give shade for the inhabitants of the pool, which is greatly appreciated by most fishes during a hot spell. You will find that many young fishes like to lie under a leaf to wait for flies or other insects to drop on the water.

Another very important feature of the water lilies is that their roots grow very strongly over a wide area. They feed extensively on the mud and droppings of the fishes. As the fishes swim about they stir up this mud and it appears to be attracted to the roots of the lilies, to their benefit and also helping to keep the water clear.

It is probable that before the end of the month, frogs and newts will visit the pond. They come to breed only and usually leave once they have laid their eggs. Toads are often later in spawning than frogs. Many frogs may remain in or near the pond for most of the year. Should their presence not be required in the pond they can be caught with a net easily when they come to the surface to breathe. They do little harm and can provide food for the fishes in the form of tadpoles. Remember that fish eat frog tadpoles but not those of toads.
WHILST in Australia I acquired a pair of clawed toads (Xenopus mulleri), which I brought home with me, and another female I received as a gift from a friend I called upon in Colombo. Also, I purchased another male in London, which had been imported from E. Africa and later I purchased another imported pair in London.

Having studied these three pairs carefully for some time, I decided that they might be prepared to breed. They were first thoroughly conditioned with a daily diet of raw steak, with raw fish for a change on one day a week (though not necessarily on Friday). The mating call was already heard frequently, resembling the load ticking of a watch, and on this point I disagree with Boulenger, who states that this is the “love song” of the male; I am convinced that it is the “come hither” call of the female.

The Xenopus were in a coldwater aquarium, 36 in. by 15 in. by 12 in., and facing south-east, with water slightly alkaline and with pH 7.5, in April 1964. An immersion heater was introduced and the temperature raised to 75°F (24°C). At this temperature an old rotary pump was switched on for aeration. This instrument vibrated quite a bit, and these vibrations being transmitted to the water had the effect of further exciting the Xenopus. Within hours two of the males were in amplexus with the female.

The following morning I was delighted to find eggs deposited singly over the plants (Vallisneria) and on the sides of the aquarium, and I promptly removed the adults (this being easiest) and raised the water temperature to 80°F (26°C). Two days later the eggs were hatching, each tadpole resembling a small white leech about one-sixteenth of an inch in length, clinging by a sucker to the algae-covered sides of the tank.

Another 2 days and they were swimming freely. From then on growth was rapid, the tadpoles seeming to thrive on an algae suspension and ignoring Daphnia and Cyclops. Every morning I siphoned about a gallon of water from the aquarium and replaced this with an equal quantity of really dark green water, and by mid-afternoon the water was quite clear and the morning’s performance was repeated. This procedure of changing the water twice daily was carried on for 6 weeks, and by this time my stock of tadpoles had gradually dwindled from about a hundred down to nil, in spite of several attempts to supplement the diet. This was a bitter disappointment, but, however, I had induced the Xenopus to breed naturally!

By this time they had grown to about 1 inch in length, swimming in a vertical position with heads downwards and with the tips of their tails quivering rapidly. A pair of barbules had appeared—one on either side of the mouth—at the third week.

**Foods**

I was sure that it was a matter of feeding, although various foods had been offered in addition to algae—Daphnia, Cyclops, raw meat and fresh blood; all had been refused. About this time I was presented with an adult female Xenopus laevis, a fugitive from a “pregnancy test” batch, and on being introduced to the mulleri family appeared to settle down gratefully and happily.

In August I was on the move again and once settled I decided on a second breeding attempt. The female laevis was removed and placed in another aquarium with a recently purchased male Xenopus gilli.
of Clawed Toads

C. SEARLE

by the author

This time two pairs of *X. mulieri* were in a tank 24 in. by 12 in. by 12 in. with a southerly aspect, water at 60 to 65°F (15 to 18°C), pH 7.00, and before any attempt was made to raise the water temperature, eggs were being deposited all over. Diet was then mainly earthworms.

Imagine my surprise and delight a few days later to find eggs also in the tank containing the female *Lanis* and the male *gilli*. I crossed my fingers and was rewarded a few days later with another batch of tadpoles—hybrids!

Meanwhile the *mulieri* batch were growing rapidly, and having started them off again on an algae suspension, I was worried, not wishing a repetition of my earlier experience. I decided to try a well-known liquid product sold for fish fry supplemented every few days with another baby fish dry food and with these I was fortunate.

Tadpoles of the clawed toad at the stage when the hind limbs are appearing.

Both batches thrived and in 6 weeks they were almost four times the size of the first unfortunate lot. Having reached some 3 inches in length they were showing signs of back legs and eating *Daphnia* and chopped *Tubifex* worms readily.

At 8 weeks old they had their fore legs and the barbules and tails were withering. From then on *Tubifex* and very finely shredded raw meat were greedily devoured.

From Sinner to Saint

P. E. PAVEY

UNEXPECTED success with my gentle-natured dwarf gouramis led me soon afterwards into buying yet another type of gourami—the opaline.

No good, thought I at first. Once away from his brothers and sisters, the male began to bully the female unmercifully. Rapidly I had to part them. Robbed of one victim, he promptly set about terrorising the rest of the community tank, contemptuously disregarding the fact that he was one of its smallest occupants.

**Aggressive Male**

At feeding times he would become especially aggressive, for he was a very greedy fish. My only course was to put him among much larger fishes, and hope that his ego would then shrink to natural size. Four months afterwards I can report that, although still plentiful of confidence, especially on the one occasion he was entered in a show, his greed and bullying ways have completely gone. He is a most amiable fellow, and with his pale, high-lighted blue body certainly an eye-catcher. And, although still growing, he is a father.

I had bought him in the September, and had ensured that he grew rapidly. In November 1 half-filled a 36 in. by 12 in. by 12 in. tank with old water and topped it up with tap water (alkaline in this district). I then planted it with lead-weighted *Vaillantia* and *Cryptocoryne*. No sand was used. Temperature was 78°F (25°C).

On the 21st November I put in the male and female, separated from each other by a sheet of glass. The female, remembering perhaps his past fierceness towards her, promptly disappeared into the small flower pot which I had provided for her protection. The male began building an enormous bubble nest, and then, aggressively, destroying most of it.

On the 22nd, when I removed the dividing glass, the female was still lurking modestly inside the flower pot. The male did not change colour at once. In fact he only became darker—vividly darker—when he was actually chasing her. The female remained pale. Their skirmishes were spasmodic, breathtakingly swift. Always she darted into the flower pot, and while he was hanging impatiently outside the mouth of it, she would swim through the other (knocked-out) end and come up behind and nudge him. I increased the temperature to 82°F (28°C) and left a 5 watt bulb burning overnight.

**Spawning**

They spawned eventually, during the night of the 25th. In the morning there were eggs all over the surface of the water, and, while the female remained within the pot, the male was dashing furiously around collecting them in his

February, 1965

195
mouth. I removed the female and noted, somewhat surprised, that she was completely undamaged. By 11 o’clock that night the eggs were showing signs of hatching and hanging belly-side uppermost under a 6 inch diameter bubble nest. Again, I left light on all night.

By the 27th a large spawning was free-swimming. So out came father, and in went an apple snail and a drop or two of liquid food for fry.

The male, on being returned to his community tank to which the female had gone before him—at once turned dark blue again, just as though they were glowing navy-blue with pride.

I continued to put in a few drops of liquid food for the fry at intervals, and a week later I removed the apple snail, and began feeding with brine shrimp and egg yolk suspension.

I might mention, ignored the lettuce which I gave him—as indeed he always does—until it was going rotten. Also he continued to show a marked partiality for a treat of watercress.

Within days the opaline fry were taking sifted dried food, finely chopped Tubifex and micro worms. And, of course, now that the majority average an inch in length, they are avidly devouring anything and everything: baked scraped liver, fresh and dried Daphnia, Cyclops. My wife or I feed them about every 2 hours during the day, and though they are always hungry I have noticed no bullying among them. Their colours at times are dark, resembling more the mating colours than the natural colours of their parents.

The opaline gourami appears to be an easy fish both to keep and breed.

Certainly my sinners has become a saint. I notice that he is busy blowing bubbles again. Throwing out a hint perhaps...?

Breeding the Cherry Barb
by I. S. KENDALL

With the approach of spring an aquarist’s mind turns to the important matter of what fish to breed. Before one has taken up, or even considered, perhaps sharks, are in your plans. To the beginner, though, this could be a problem, if he has already had a taste of success with other breeders and now wants to take the plunge. To anybody in this plight I suggest the cherry barb, a pleasurable fish whose breeding does not entail much care and at the same time is not too easy; in fact just the sort of fish for a newcomer with a little experience.

The cherry barb (Barbus ticteya) is an attractive fish that will live at peace with almost anything in almost any conditions. Barb are reputed to prefer the upper seventies but in my experience they are just as happy at 80°F (26°C) as at 78°F (25°C). I have bred them at 70°F (21°C), in fact I prefer to; however, perhaps 72°F (22°C) is better, especially with obstinate couples.

The requirements for breeding this fish are not many but their basic needs must be appreciated. Males and females will come quickly into condition if fed regularly on nutritious live food, such as mosquito larvae, blood-worms, Daphnia or even white worms. Try as much as possible to vary this diet. Once in condition they can be easily sexed: the female will become deeper bellied, being of medium brown colour, pale on the underside and with a golden stripe underlined by a thicker dark brown stripe running from the eye to the caudal; the male will be slimmer and dark red, almost mahogany. The dark line, sometimes distinguishable when it is out of condition, almost disappears, and the male will take to courting the female.

I breed my cherries in an 18 inch tank which has been glazed in such a manner as to allow maximum surface area: its height is only about 9 inches, which does not matter because there should only be about 5 or 6 inches of water in the tank anyway. The water should be soft; this can be arranged by using pure rain water, or a domestic watersoftener. The bottom of the tank is covered with gravel, and one or two plants to help the fish feel at home. Most barbs breed in plant thickeens and these can be artifically produced from skeins of nylon wool.

Everything in the tank is watched, discussed, and now wants to take the plunge for myself. In this plight I suggest the cherry barb, a pleasurable fish whose breeding does not entail much care and at the same time is not too easy; in fact just the sort of fish for a newcomer with a little experience.

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The Gourami with the Thick Lips

by M. M. CLARK

On looking at the thick-lipped gourami outside the breeding period one gets the impression that this fish, a faded orange and shade of silvery green, bordered by light yellow, is just of ordinary appearance. This is not so, for in the breeding season the male thick-lipped gourami appears a highly attractive reddish brown with a striking orange to the edges of the dorsal and ventral fins.

Quite a small tank can be used to breed them. The mature pair are introduced, and if the female is already breeding with roe mating will take place surprisingly quickly, for they quickly adapt to new surroundings.

After selecting an area in the tank, the male blows his nest of minute bubbles in the way typical of the anabantid fishes. As his energetic nest construction work continues, the male attracts the female towards the bubble nest, with much difficulty at first but finally succeeding. It is fascinating to watch the male alternately darting to his mate and hovering below the nest.

When the pair finally agree on spawning the female pours the male with her nose; the male squeezes himself round the female, who expels about fifteen eggs to be fertilized by her mate. This spawning continues, probably for another twenty times, until as many as 200 eggs have been laid.

It is now that the male completely takes charge of the nest. First he drives away the female, after which he picks up, in his mouth, any eggs which did not rise into the nest after being expelled. He guards them with great care, not letting them fall nor leaving them alone. In about 20 hours, which is not a lengthy period, the young hatch, but the father still is responsible for returning them to their nest. These fry, like those of other fishes will in fact remain together for the first day of their life. After 24 hours of life when the fry start their own search for food the father is removed, for he is unable to cope with his young any more. At this stage the fry require a fine and nourishing first food. Egg yolk seems suitable and they thrive well on this.

Two weeks later they may measure four times their original length, but they do not reach maturity until 14 weeks after this.

Breeding the Cherry Barb

(continued from opposite page)

warm. If it’s readily available sifited Daphnia always goes down well; however, there are a number of live foods that will be taken. I do not use dry food, even if it is fry food, because it is inconvenient to clean the tank out and it would be a shame, after getting the parents to spawn, to foul the tank.

These youngsters will grow astonishingly quickly for the first few weeks but will soon settle down to steady growth. It is an easy mistake to make to think all the youngsters are females, because their coloration is almost exactly that of their mothers. This phase passes and some fry become suffused with pink and lose the stripe which is discernible in the female. You will probably find a few larger fry amongst their numbers, who will, no doubt, be responsible for the food, so for the sake of the others, and to save overcrowding, these can be moved to another tank.

A community tank will serve well, provided the young fry are at least an inch long, and the other inmates are not too rough.

February, 1965

197

The Golden Panchax

by D. DURRANT

This species, I have found, are not good community tank fish. They are very apt to nip the fins of tank-mates, especially of fishes of long-finned and slow moving varieties. Nevertheless, a tank housing solely golden panchax is a beautiful sight, especially when looked at with a light shining in the foreground.

The general colour of this species is yellow, the male being more brilliant than the female. He has bright orange in his fins with the edge of the anal fin red. A row of dots runs through the anal and dorsal fins, these dots being of a metallic green. The scales on the back of the male stand out slightly on end like a fish suffering
from droopy. The female is a lot paler in coloration and has a dark spot in the rear of her dorsal fin.

This is a hardy fish and breeding is simple, a large tank being unnecessary.

An aquarium 18 in. by 10 in. by 10 in. will suffice for breeding. The water need be of no special reaction or hardness but should have been aged several days and raised to 60°F (27°C).

The tank can be planted to make the fish feel at home, but plant types having small feathery foliage should be avoided, for if spawning occurs on the plants the eggs cannot be removed easily.

'Mops' for Spawning

As a spawning medium, nylon "mops" can be made up from 4-6 inch lengths of nylon wool. It will be found that best results are obtained by hanging these over the edge of the tank so that the fish can spawn at the depth of water they prefer. This is usually directly below the water surface, but a few eggs may be found lower down in the "mops".

This species will spawn readily as pairs, trios (two females and one male) or communally, several pairs spawning together. The best output of eggs I have found has been when one male and two females have been used together. Eggs must be picked off daily from the "mops" as if left there, adults will greedily eat them or any young fry that may emerge. These eggs may be placed in jars and floated in the same tank for hatching or the "mops" can be removed to another tank with the eggs intact.

Tough Eggs

The eggs are amber in colour and can be removed from the "mops" with a small pair of tweezers or with the fingers, as they are quite hard shelled. They take 8 to 12 days to hatch, according to the temperature of the water, and as spawning occurs over a period of a week or so with about 10 to 15 eggs being deposited each day, the young have to be graded according to size as they grow, otherwise cannibalism will result. The larger fry eat the fry of small fry and also eat them.

At birth the fry will be able to eat the very finest sized Daphnia or Cyclops, but very fine dried food will do as an alternative. By the time they are 3 months old they will be sexable and ready to breed.

Rest the Female

If only one pair is used for breeding then it is advisable to rest the female every 7 days for 7 days to give her time to again fill with roe. The male does not seem to need any resting from breeding at all.

This interesting little fish is easy to keep and is well worth the effort to breed.

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**The Black Shark**

*(Morulius chrysophhekion)*

**MORULIUS** (Lobe) chrysophhekion, to give the fish its formal name, is native to the still and moving fresh waters of Thailand and the Great Sunda Islands. In these parts it is said to attain a length of about 22 in., but aquarium specimens normally reach only about half this size. I say normally because a black shark owned in 1958 by Mr. and Mrs. Gallaghan of Auburn, Maine, U.S.A., measured 20 in. long. It was believed to be about 5 years old at the time.

**Lively Fish**

The whole of the body, head and fins are matt black, but under a bright light several rows of scales on the flanks reflect brassy gold tints. Apart from its engaging appearance, the fish's most distinctive features are a gracefully elongated form, sail-like dorsal and well-developed caudal fins, an underslung sucker mouth, a tubercled snout, and two pairs of fleshy barbels. To this is added a lively manner, hardness, an ever-increasing tameness and a life span concomitant with its large size. But this is not all. Although some specimens over 2½-3 in. long will bully, quite mercilessly, smaller or less assertive members of their own kind, they will treat other species with great respect, and even guppy fry in a well planted tank can go about their busy lives in peace. Altogether, then, the black shark is just the fish to add a touch of grandeur to a
Spotted Weatherfish or Spined Loach

by B. FRY

Cobitis taenia, popularly known as the spined loach or spotted weatherfish, is found in shallow fresh waters over large areas of Europe (including the southern counties of England, where it is becoming increasingly scarce), parts of North Africa, and through northern Asia to Japan. The chief characteristics are a slim and very elongated body, six short barbels on the upper jaw of the underslung mouth, and the habit of darting up to the surface at fairly frequent intervals, if conditions are not as they should be, to mouthful of air. This passes into the specially adapted oxygen-extracting gut, and the unwanted carbon dioxide is expelled in the form of bubbles through the mouth.

In the main the spined loaches, which are indigenous to southern Africa and Asia, have a wide range of temperature tolerance just above freezing to the lower eighties (20°F), but those which inhabit northern and western Europe are most content at a range of about 50°F (10°C) to 65°F (18°C). They can, however, stand slightly lower temperatures with little effect.

The general coloration is sandy shading to glistening white on the belly. A longitudinal stripe made up of about 15 brownish to blackish blotches adorns the lower part of the body. Above these is another row of similar coloured, but smaller, markings interspersed with numerous brown dots. Brown dots also ornament the caudal, anal and dorsal fins. The pectoral fins are clear. Fully grown, the species ranges about 4 in. in length.

Sexing

According to Professor Günther Sterba, the German ichthyologist, the sexes of mature specimens may be distinguished by the pectoral fins. The males, he writes, are the second fin ray noticeably thickened, whereas all the female’s pectoral fin rays look alike. But as this is not always the case, evidence seems to show that in adult fish the female always has a more rounded and larger body than the male.

The spined loach is easy to keep and easy to feed. All it needs in the way of accommodation is a fairly roomy tank furnished with a thick layer of sand, or fine grit, preferably covered with well-decayed mulm, and good stands of aquatic plants like Vallisneria under about 7 in. of water. For food it can be given white worms, tiny red earthworms, Daphnia, tiny water shrimps and the crunchier types of dried foods, or flakes of uncooked porridge oats. It takes all its food from or near the bottom. If there is nothing better available it will take up small quantities of compost or mulm in its mouth and, after extracting any edible matter, shoot the leavings through its gill openings.

It is very sensitive to changes of water, and not more than a quart should be removed and replaced with fresh (at the same temperature) when cleaning operations become necessary. Another thing it dislikes is too strong a light shining through the sides of its tank or from overhead.

Breeding

C. taenia will sometimes breed in captivity. The eggs, which are larger than those of the goldfish, are laid indiscriminately in the mulm and among the risen roots of the plants. Spawning continues over a period of several days or longer, so that the fry, when they show up, are always at different stages of growth. At a temperature of 60°F (16°C) the eggs take about a week to hatch out. There is no need to remove the parent fish, for though it is not unlikely that a few fry will be eaten, the majority always seem to keep out of harm’s way by hiding in the sediment.

There they live on the particles of food discarded or ignored by their parents, and anything else that they can find that is small enough to be swallowed. But to make sure that they get enough to eat it is a good plan to introduce blobs of micro worms, mashed white worms, and the merest pinch of a powdered dried food every now and then.

The loach most deserving of the term ‘weatherfish’ is the species called Misgurnus fossilis fossilis, from central and eastern Europe; for this species almost always acts in an excited manner when stormy weather is about. Even so, C. taenia seldom remains undisturbed by atmospheric changes, and on hot, sultry days, with thunder in the offing, it will sometimes splash about at the surface and give every impression that the state of the weather has upset or disrupted its normal routine.

As the spined loach likes to bury itself on occasions in the sand it is necessary to furnish its tank with plants some time before it takes up occupation; for, as will be readily appreciated, once a good network of roots has been formed the fish’s burrowing activities will have little, if any, effect on the plants’ anchorage.
Some Cryptocorynes for Aquaria

by B. FRY

Cryptocoryne plants, in all their splendid variety and interesting and lasting foliage shapes and colours, are ideally suited to the decorative heated aquarium. They are native to the fresh waters and boggy areas of tropical and sub-tropical South-East Asia, and their essential requirements under cultivation are clean, soft water, a non-alkaline or neutral compost, preferably enriched with a little peat or clay, a rather subdued light, and a temperature in the range 75°F (24°C) to 78°F (26°C). Given these conditions they usually do well (some species are quicker to establish themselves and throw out new leaves and runners than others) and add much to the enjoyment of tropical fishkeeping.

Among the Cryptocoryne of outstanding merit are C. affinis, C. blasii, C. balansae and C. griffithii. The first, which also goes under the synonym of C. haeheliana, has long, lanceolate leaves of a silvery, bluish-green colour, with pale green to ivory veining and dark purplish undersides. It is a fast grower for a Cryptocoryne and soon sends up many young plants from the wide-spreading underground stolons. Normally it attains between 9 and 12 inches in height.

C. blasii is one of the most spectacular-looking Cryptocoryne which have appeared on the market during the last 4 or 5 years. In large plants the leaves are narrow, ovate and measure about 6 inches long by about 4 inches across at the widest part. In colour they are a rich bronzy green to bronzy red on the surface and deep wine red on the undersides. The strong stalks, which are brownish to dark red, are as long or longer than the leaves themselves. C. blasi as a centrepiece takes a lot of beating. Another position in which it looks startlingly attractive is towards one side and underplanted with thickets of C. nevillii, a plant which carries narrow shiny green foliage on short stems.

C. balansae is yet another Cryptocoryne which looks most handsome when grown in dense thickets, which it will form anyway in due course; for its narrow, strap-like leaves are waved at the margins and corrugated over their entire surface, and are of a rich, vibrant-green colour traversed by a paler green central vein or midrib. This is yet another plant which attains between 9 and 12 inches in height. C. griffithii has been with us almost as long as the hobby itself, and has often been confused with C. cordata, which it resembles except in the flower.

There are several colour forms or races of this plant, but the most usually available are the brownish leaved and the grass- to olive-green forms, with purplish to brownish mottlings and veining. The leaves are ovate in shape and roughly 3 inches long by 2 inches wide. They are held aloft on stems of about the same length as the leaves themselves, or longer. The length of the leaves and stems, however, is largely determined by the quality of the light the plant receives and the depth of the water.

The particular attraction of C. wilisii, a plant which is usually not difficult to obtain, lies in its striking appearance and the fact that it is easy to grow and soon becomes surrounded with offsprings. The leaves, like those of C. balansae, have wavy or rather ruffled edges. But unlike the leaves of C. balansae, the foliage of C. wilisii is predominantly brown with a purplish cast and purplish rose on the undersides. The stolons or runners, some of which will rise vertically above the compost, produce an abundance of rooting offsets which can be detached from the parent plant and planted elsewhere in the aquarium when they are about 3 inches high. C. wilisii seldom exceeds 9 inches in height.

In the exciting manual of a Midlands' grower who specialises in the propagation of rare aquatics there is a Cryptocoryne listed which should prove to be a perfect gem for foreground planting. This is C. greensii, with oval leaves about 1 in. long by ½ in. wide, and held on stems averaging about 2 inches long. The leaves, so the manual informs us, are dark green blotched and marked with purple and brown.

Thermostatically Speaking by M. J. STAINES

It has recently become fashionable to return to an old idea, the external thermostat. Those on sale today are, subject to certain limitations, very reliable instruments, as were those made 30 years ago.

These thermostats work on much the same principle as the submerged model, with a bi-metallic strip which bends with variations in temperature and operates a contact or switch. However, I have yet to see an outside thermostat that, as supplied, is quite satisfactory. They usually consist of a bright metal plate to press against the tank glass with a dark coloured plastic case for the 'works'. This set-up is against all scientific reasoning, for the heat of the tank is rebelled by the shiny plate, whereas changes in room temperature are hardly impeded by the plastic case. In consequence the bi-metallic strip can bend and the contact be closed by a severe drop in room temperature although the tank becomes hotter and hotter. This usually happens in the early hours of the morning when it is not noticed, although your fish may have to endure heat up to 90°F (32°C) or more. During the day, when the room is very warm, the reverse is the case but as the difference between water and air temperature is small the effect is un-noticed. This is also true of night conditions if you have thermostatically controlled central heating.

Although the foregoing may seem a complete condemnation of the very instrument I myself use, it is in fact the very opposite. From my experiences with outside thermostats I have found a simple way to obtain regulation of tank temperature to within plus or minus 1°F, all the time. I adopt the following procedure to obtain this desirable result. The shiny metal plate is painted with 'blackboard composition' (for preference) or black undercoat paint.

Please turn to page 204

THE AQUARIST
Is it possible to breed livebearers in a community aquarium?

It is possible to breed livebearers in limited numbers in a community aquarium if the occupants of the tank are normally docile in their habits and physically incapable of breeding apart the tangle of vegetation, which, to help save the fry within the tank, should be placed on the surface of the water.

Can you give me any information about the keeping and breeding of a small list of aquarium fish or coral which I bought under the technical name of "Trichogaster"?

This fish is native to the fresh, brackish and coastal salt waters of the U.S.A., from Massachusetts to Texas. It thrives best at a temperature of about 65°F (20°C) to 75°F (24°C), and is seemingly most comfortable in an aquarium with a sandy bottom into which it can burrow. It is recommended to add about one teaspoonful of ordinary table salt (or evaporated sea salt) to every gallon of its aquarium water. It will feed on tiny worms, live Daphnia, pieces of lean meat, cooked white fish and a certain amount of decaying vegetable matter. The species has not bred in captivity, and we cannot say what external sexual differences, if any, exist.

What is the breeding procedure of "Neonematostoma anomala"?

The male does brighter colour and the female develops paler sides. Then, after a certain amount of coquetry and driving on the part of the male, the couple take up a side-by-side position in fine-foliaged plant life and there produce the eggs. To spawn this species successfully it is essential to provide soft, acid water and a diffused light. The temperature of about 78°F (26°C) should be maintained.

I had a female mollie showing a very distorted abdomen and could see a fin growing in the tank. I transferred her to a goldfish bowl, well stocked with plants, which I floated in the aquarium. The next morning she was dead. Can you give me any reason for this tragedy?

Livebearer females should not be moved when they are in an advanced stage of pregnancy. We can only assume that your female died from shock.

Are Grindal worms easy to cultivate?

Grindal worms are very easy to cultivate if you give them a permanently moist, friable compost maintained at a temperature of about 60°F (20°C) to 75°F (24°C), and feed them every second day or so on teaspoonfuls of cooked, milky oatmeal or Farex mixed to a creamy consistency with warm milk.

What is the formal name of the swamp barb? Is it an African or Asian species? What are its colours? Does it grow very large? Is it easy to keep and breed in captivity?

The so-called swamp barb is technically known as "Barbus chaoi". It is native to the fresh waters of eastern India and is similar in appearance to the rosy barb (B. color) but, unlike that species, possesses a pair of barbels. It attains a length of about 6 in. in the wild but aquarium specimens rarely, if ever, exceed 3½ to 4 in. It lives down very well in any tank large enough to provide ample swimming space, is inoffensive, eats anything and can be bred without difficulty in a well planted tank holding about 15 to 20 gallons of water.

I have a Corydoras paleatus which has developed fungus on the side of its caudal fin. As salt is not recommended for the treatment of any disease affecting catfish, can you suggest an alternative medicament with which I might hope to effect a cure?

Obtain a 2 per cent solution of mercurochrome and douse one part of this with nine parts of water. Now remove the fish from the aquarium and douse the diseased area with a soft brush or tuft of cotton wool dipped in the solution. Repeat the treatment if necessary after a lapse of 3 or 4 days.

I have purchased a 3 in. fish which the dealer called a banded loach, but he could give me no other information about the fish other than that it came from Indonesia. It is yellowish on the sides, with numerous broad brown bars, three pairs of barbels on the mouth, and lots of dark spots on the yellowish fins. Can you identify this fish for me?

In all probability the loach you have is Neomachilus fasciatus, from the Great Sunda Islands. This species attains about 3½ in. in length, will eat any live or dried food, and thrives best in rather shallow, well oxygenated water maintained at a temperature in the neighbourhood of 75°F (24°C).

I am new to tropical fishkeeping and would like your opinion on the following matter. About 2 weeks ago I introduced some ornamental sea shells I had had given to me into my aquarium. Within a few days the fish went off their food and looked unwell; I removed the shells but many of the fish died. What exactly went wrong?

It is never a wise policy to introduce sea shells into an aquarium. For one thing you run the risk of contaminating the water with salt. For another, the lime in the shells soon makes the water too hard and alkaline for the inmates’ well-being. It is not unlikely that your fish were killed by the dissolved salt or soda used in the preparation of the shells as ornamentals.

Recently, I set up a 20 in. by 10 in. by 10 in. tropical tank and stocked it with a dozen Valliseria plants and nine pairs of small fish. I feed the fish twice a day on a well-known dried food and take them out of the tank every week so that the compost can be well washed and the dirty water changed. Yet though I take all this trouble with my aquarium I keep losing fish. Is there any way I can prevent these fatalities?

You are going wrong in emptying your aquarium and setting it up afresh every few days. Few fish are likely to survive such treatment. To guard against pollution of the water, make as much food as the fish will clear up in a matter of about 10 minutes. Food that comes to rest on the compost, except that intended for the nourishment of bottom-livers such as catfish, should be removed as soon as possible with a sediment-remover or siphon. Water lost through evaporation or siphoning should be made good by the addition of cooled water from the kettle. Instead of a few plants dotted here and there in the compost, you should see that the back and both ends are well stocked with submerged vegetation; for plenty of growing plants help to absorb the wastes of the fishes, provide oxygen and do a lot towards ridding the water of dust-like particles of sediment.

I am desirous of breeding the neon tetra, but understand that the water has to be acid. Is it possible to determine the degree of acidity of aquarium water without going to any great expense or trouble?

You can obtain a kit for testing the pH value of aquarium water for as little as 7s. 6d. With one of these kits you can ascertain the degree of acidity or alkalinity of water in a few moments. But we must point out that neon need soft as well as acid water. Your local water department

February, 1965

Many queries from readers of “The Aquarist” are answered by post each month, all aspects of the fishy being covered. Not all queries and answers can be published, and a stamped self-addressed envelope should be sent so that a direct reply can be given.
will give you any information you require about hardness at the mains. Alternatively, well-stocked dealers in aquarists' requisites retail a water hardness testing kit for 1s. 6d.

I am thinking about breeding *Daphnia* in a large goldfish bowl to supplement my fishes' diet. What are the 'flea's requirements in the way of food?

You will not be able to breed many *Daphnia* in a goldfish bowl. It would be better to obtain an old sink or half tub and install it in a space room or garden shed. Fill it with water and let it stand for a week or two before introducing any *Daphnia*. Meanwhile throw some discarded lettuce leaves, plant curtails or banana skin into the water to decay and introduce minute organisms for the *Daphnia* to feed on. After the *Daphnia* have been introduced continue to feed them with pinches of dried blood, brewer's yeast and more discarded vegetable matter. Thick green water is another much disliked food. Do not overfeed to cause pollution and add a little fresh water every now and then to improve conditions. *Daphnia* do best in well-oxygenated water.

I have obtained a steel aquarium frame measuring 60in. by 15in. by 15in., and would like to know the thickness of glass required to glaze it.

You will need 3in. plate glass for the sides and ends and the same thickness in toughened glass or wire glass for the bottom.

My aquarium has been set up for about 8 weeks and though the fish appear to be doing well, the water, under bright electric light, seems to be full of tiny living creatures of a greyish white hue. Is this condition anything to worry about?

Your water has not properly matured and what you have
noticed is probably an excessive number of large Infusoria. So long as you do not overfeed the fish and keep the bottom well dip-tubed to get rid of decaying matter, the tiny forms of life will gradually diminish in numbers. So far as your fish like plenty of plant life to absorb substances dissolved in the water and help to create a proper balance.

I am desirous of breeding top quality platys, and should like to know the sort of water and temperature which suits them best.

Plats appear to thrive best in soft, neutral to slightly acid water well planted and lighted and maintained at a temperature of about 72°F (22°C) to 75°F (24°C).

I am fearful of introducing harmful parasites on water plants into my well-cared-for aquarium. Can you tell me a way of sterilising them without doing them any damage?

Mix up a deep pink solution of potassium permanganate and swish the plants around in this for a short while before introducing them into your aquarium. While cleaning operations are going on make sure that you do not subject choice plants to any abrupt changes of temperature. Use tepid water for the initial cleansing and final washing.

I should like to grow a money-looking plant between the fissaures of rockwork in my tropical tank. I have tried ordinary *Papillorhiza ammophila* which soon dies in the warm water. Can you suggest any other plant which would prove suitable?

There is a form of *Fontinalis* (F. *pratensis*) which does well in clear water tropical tanks. Better still, plant up with Java moss (*Vesicularia sylvana*), which is ideally suited to tropical conditions. Although not a moss, *Utricularia gibba* looks most attractive when stuffed down between the fissures of rockwork, where it will soon sprout delicate, thread-like stems which grow up towards the light.

COLDWATER FISH-KEEPING QUERIES answered by A. BOARDER

My pond is 7 ft. by 7 ft. by 2 ft. and is polythene lined. I recently bought two dozen goldfish but I cannot get any of them to eat. I have tried them with worms, maggots and all other fish foods. The fish are always down below the bottom and close to each other. They never move except that one will sometimes swim to the surface and then return. Why do they not feed?

The reason may be that the water is colder than that from which the fish came. Most goldfish on sale have been imported from Italy. They have been bred under warm conditions and when they get into cooler water they become very timid. The colder the water the less the fish move about and need any food. When the water warms up they probably will be all right. Make sure that the water is in good condition and has not been through any copper pipes, as this can be very dangerous for fish.

I have a John Brydon water Lilly in my pond (8 ft. by 5 ft.). The water is rather green; can I have another water lily to help shade out the light?

Your pond is not large enough for another water lily, except perhaps a miniature one. As your pond has not been made very long you will do well to wait until the lily has become established when it will be quite large enough to give you all the shade you need. As the sun loses its power you will find that the water will clear of its own accord.

I have a 30 in. by 15 in. by 15 in. tank and have made some rockwork for it. I used a bucket of cement and the rockwork has been in soak for 3 weeks. Will this be satisfactory or shall I paint it with water glass?

You seem to have used a lot of cement and I trust that you have managed to leave plenty of swimming space in the tank when the rockwork is inserted! Remember that rocks are of no value in a tank to the fishes, they only help to make up a picture. Too many rocks will deprive the fish of valuable swimming space. The rocks should be safe after a good soaking, but you can change the water after scrubbing the rocks and give them a further week’s soak. Use of water glass should not then be necessary.

I have a pond in my garden and I am thinking of growing water lilies in it. It is covered with duckweed and I wonder if I can have a few ducks on the pond to clear this up. Would wild ducks fly away?

Wild ducks would certainly fly away, as they like to fly round about the area, especially at night when they do most of their feeding. They would have to be pinioned to stop this flying. However, I do not hold out much hope of success with water lilies and ducks together unless yours is a large pond. In small ponds the ducks would soon destroy the lilies. If you want to get rid of the duckweed just play a strong jet from a hose from one side of the pond to the other. The duck weed can be rolled over into a tight mass, when it can be raked out of the pond.

I have two common goldfish, one moor, one veiltail, one oranda and two catfish. What surface area would I need to keep these fishes when mature?

The necessary surface area for healthy fishes is 24 square inches of surface area to each inch of fish. Do not reckon the tail in this amount. The goldfish can grow to 9 inches in length, the other types to 4 or 5 inches. The catfish can reach over 30 pounds in weight in time, if they are the type known as European catfish. However, if the catfish have enough space in which to grow they will be likely to eat all your types of goldfish and so have more space for themselves!

THE AQUARIST
Readers are invited to express their views and opinions on subjects of interest to aquarists. The Editor reserves the right to shorten letters when considered necessary and is not responsible for the opinions expressed by correspondents.

Terrified Angel

I HAVE kept an aquarium of tropical fishes for 5 years and have not until now experienced such a strange occurrence as the one I am writing to you about. I have an adult angelfish measuring about 4½ inches who is normally very friendly, but he has taken an instant dislike to a new sweater which I wear. The sweater is mainly pale blue with a black and white tooth-like design across the chest. The first time I approached the tank wearing the sweater, the angelfish dived straight to the back of the tank, plunging himself headlong into the gravel. I was astonished at this, and stood back awhile and it was a few minutes before the fish reappeared, a little apprehensively.

At the time, I did not associate the sweater as being the reason for the fish’s fear. Later, I approached the tank again at the normal feeding time—and alas, the angelfish dived off pale with fright. The next day I wore a different sweater and all was well; the fish came up to me as usual for food.

A few days later I had occasion to wear the original sweater, and as I approached the tank, off dived the fish once more. I walked away immediately, and my husband, who was convinced that it was the sweater that had been horrifying the fish, went up to the tank very gently and out came the fish for his food. To satisfy ourselves of the cause of this incredible occurrence, we waited a week (during which time the fish acted normally) and I again wore the sweater. Needless to say, the fish dived off again.

Could it be that the angel thinks that it is another enormous fish approaching him? After all, the design of the white tooth-like stitches on the darker background obviously terrifies this fish into thinking that it may spell instant death to him!

I would welcome details of similar experiences or suggestions from other readers of The Aquarist.

(Mrs.) Anne Cocks,
Marlow, Bucks.

Thermostat and Air Pump

I HAVE been keeping tropical fish for about 5 years now, and also coldwater fish. I set up a 24 in. tank some months ago and by mistake I wired the vibrator pump up to the thermostat. What happened was that when the heaters came on the pump started as well; when the thermostat cut out the pump went off with it. This seems to have some advantages: when the heaters come on the pump comes on with them making sure that the water is the same temperature from top to bottom by circulating it. As the pump is on for about 10 to 20 minutes this ensures that the filters are doing their job. As the pump is off in spells it must mean longer life for it and also less noise. You must also save on replacements at the same time saving on electrical bills throughout the year.

G. Scarrott,
Brentford, Middlesex.

A Correction

WITH reference to my article on Trichogaster pectoralis in the January, 1965, issue, will readers please note that in describing the antennae-like fins of this fish I used the word ‘pectoral’, which is wrong. I should have written ‘ventral’.

Jack Hems,
Leicester.

White Spot Disease

I BECAME interested in tropical fish with the acquisition of a 24 in. by 12 in. by 12 in. community tank, but with a limited knowledge of this unique pastime. My only help came from the local library, a fellow workmate and the December issue of The Aquarist.

Among the fish I purchased were a penguin and red-finned shark, the latter indulging in twisting and turning through the plants at all times of the day. As this action was too persistent, I took a closer look and found him to be suffering from white spot. Further investigation showed that the penguin and a pair of limias also were suffering from white spot—the penguin dying the same day.

Imagine my relief at finding two letters on this disease in your December issue and I immediately went in search of some methylene blue. A whole Saturday was wasted in this search, every chemist apologising and saying that methylene blue was out of use commercially.

I therefore had to curtail my search until the Monday, by which time the disease had spread to two platys and a Siamese fighter. Finally, a work’s chemist was able to help me and made a 2½ per cent solution.

I administered this to the tank at the concentration of one drop/gallon of water, repeating this dose daily, until the white spot had been eliminated, on the following Friday. At the same time the temperature was raised to 90°F (32°C), and aeration and lighting were kept on continually. At the end of the treatment the plants showed no signs of after-effects, and the fish were back to normal.

This summary may give heart and help to any other
novice who finds this disease in his tank. Now, I'm waiting hand and foot on a gravid puppy!
C. Best,
Luton, Beds.

A proprietary bottled methylene blue solution is usually obtainable from aquarium stockists; as Mr. Best has found, the chemical has to be specially ordered if required in the solid state from a chemist.—EDITOR.

Thermostatically Speaking
(continued from page 200)

paint the plastic case with contact adhesive and apply a layer of aluminium cooking foil, cut to fit beforehand. The thermostat is fitted to the tank in the usual way and, with an expanded polystyrene ceiling tile as raw material, a little box is made to enclose the thermostat completely and to be a good fit to the tank glass. Some means must be found to hold this in place. This may be left to the ingenuity of the reader as the requirements will vary according to the lay-out.

To add the finishing touch, stick expanded polystyrene to the ends and back of your tank and, if it stands on a metal, marble or other cold surface, get a piece of strawboard about an inch thick to stand it on. After this treatment I guarantee you will imagine your thermometer has become stuck at the chosen temperature!

London Aquarium Show
Meeting

THE Aquarium Show Exploratory Committee, whose formation was announced in our December issue, has prepared a questionnaire on the subject of a large-scale aquarium show in London in 1966. This document has been sent to all aquarium societies with a request for its return by 1st March with answers to these questions: Do you want a show in London in 1966? Should such a show be a championship show, which would be of interest only to aquarists, or a show with separate society exhibits, and with trade stands that would attract the public, or an aquatic section to a much larger show that would include other pets and attract a much wider public?

Any society secretaries who have not received a questionnaire can obtain one by writing to the Committee, 9, Crossway, London, W.11. The results of this survey will be announced by the Exploratory Committee at the meeting place of the Hendon Aquatic Society, The Brotherhood Hall, The Broadway, West Hendon, N.W.9, on Thursday, 18th March (not 11th March as previously announced), and interested aquarists are invited to attend at 8.15 p.m.

The Exploratory Committee's recommendations, based on the questionnaire replies, will be published in The Aquarist as soon as available.

The AQUARIST Crossword
Compiled by L. Bradley

CLUES ACROSS

1. Ancistrus hikourai (5, 4, 4)
10. Post of observation (4, 3)
11. See 7 down
12. Surround the castle with a re-arranged storm (4)
13 & 15 down. In a duel reversed before and repeated for this member of the Nandus (3, 5)
14. Remains of a cigne (4)
15. The red variety were usually found in the Wild West (7)
18. Or a sand mixture produces ornamental fish (7)
19. Art of setting glass (7)
22. Type of Cryptocoryne (7)
24. Trees made from the Spanish manuscript (4)
25. Tyrant (5)
26. In which sticklebacks lay their eggs (4)
29. Type of Cryptocoryne that when curtailed produces a piece of string (7)
30. Type of material needed when dealing with the aquarium (6, 9)
31. Used commercially to prevent cannibalism when rearing young fish (9, 5)

CLUES DOWN

2. Corydoras, fish, the jungle cat? (7)
3. No, no reverse ride (4)
4. Foxy, winds taken by 2 down (7)
5. Giddiness (7)
6. Prevents over-loading on a circuit (4)
7 & 13 across. Rasbora mainlandis (7)
8. Andrias nasbinae (8, 5)
9. Cherry barb (6, 7)
15. See 13 across
16. Applied in coats (5)
20. A lover who becomes married (4)
21. Could be blue, green or red (7)
22. Ancestor of man's best friend (4, 3)
23. Named after Ted, God of War (8, 7)
27. Fish produced by many an aquarist (4)
28. A creator of fashion (4)

Solution on page 296
Monthly reports from Secretaries of aquarists' societies for inclusion on this page should reach the Editor by the 15th of the month preceding the month of publication.

AT the first January meeting of the Thorrack Aquarist Club, the club chairman, Mr. R. Nicholls, gave a very interesting talk on the spread of disease. He mentioned many useful tips on preventive measures and cures. The talk was enjoyed by all club members.

The second meeting for January was devoted to the previous judging carried out by the members. In addition the table show for the month was held at the same time. The members were all very pleased with the results, and the prizes were awarded to Mrs. R. Nicholls (tartan), Mrs. E. Nicholls (gold leaf), Mr. J. G. Root (red), and Miss M. F. Paddington (silver). The judges were Mr. R. Nicholls, Mrs. E. Nicholls, and Miss M. F. Paddington. The group of fishtanks was very popular at this meeting and the members enjoyed a great deal of discussion.

THE Macclesfield A.S. held their annual open-tanks show on the 16th May at the Mersey Social Club, Richmond Terrace, Liverpool 3 (off Breck Road). Benchings will be at 12 noon on 29th June. All entries should be made to show secretaries, Mr. F. McConville, 24, Cornice Road, Liverpool 15.

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After an encouraging start to the new year, the members of the Independent A.S. unani-

mously agreed that the present quarter should be well worth patronising, consisting as it does, of five table shows, two or three good in-line events, and the usual events in the club's film show given by the Independent Film Unit based on Marine Aquatic subjects in colour. This will be shown on March 8th.

Having gained many new members recently, the society is looking forward to enjoying more events in the coming months. The club chairman, Mr. R. Nicholls, has laid a special emphasis on the importance of the membership having the opportunity to enjoy a variety of events.

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THE annual general meeting of the York and District A.S. was held recently and the following officers were elected: Chairman, Mr. G. H. Sutton; vice-chairman, Mrs. J. Hildre; secretary, Mr. R. G. Hiday; treasurer, Mr. A. Akins; assistant-secretary, Mr. L. Greenwood; Mr. M. Cooper, Mr. D. Root.

The meeting was held at the York and District A.S. premises on 16th May.

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THE members of the Newcastle Guppy and Livebearer Society took part in a discussion on aquariums, followed by a joint show of plants, judged by Mr. S. Fox. The results were: 1st, R. Skyrley; 2nd, N. Little; 3rd, R. Read. Anyone interested in the Society should contact Mr. T. Skyrley, 309, Florence Way, Walkergate, Newcastle upon Tyne, 6.

THE Sheffield and District A.S. annual dinner and presentation of the Society awards held recently was attended by 60 members. The following awards for table shows and other competitions held in 1964 were presented by the president, Mr. W. Teasdale. Richardson Cup—Club member of the year, Mr. K. Colson; Portwray Cup (best British fish), Mr. D. Richards; Colton Cup (frighters), Mrs. T. Colton; Deepdale Trophy—Junior member, Mr. D. Richardson; Hudston Cup (guppies), Mr. R. Topliah; Tower Cup (swordtails), Mr. K. Colson; Hovels Trophy (A. coldwater), Mr. K. Kayler; Bronze Trophy (A. sword), Mr. A. Watson; Richardson Cup (turtles), Mrs. A. Watson; Birch Cup (characins), Mrs. Teasdale; plaques for members gaining highest total number of points in table shows: 1st, Mr. R. Galloway; 2nd, Mr. A. Watson; 3rd, Mr. H. Crossland; junior member award, Mr. A. Watson; Beverley Cup (outstanding aquaria competition), Mr. D. Crossan; competition for member gaining highest number of points at open and inter-society shows, Mr. K. Colson; Clarke Award, Mr. D. F. Crossland.

THE table show at the Morrisbourn Wood, Morrisbourn Park Road, London, W.5, took place on Sunday, 25th April. Schedules are available from the secretary, Mr. R. A. P. Baker, 9, Darwin Avenue, London, NW3. The society held a meeting on 12th April, 71, Lovelace Avenue, Rochford.

THE Nelson A.S. held their annual dinner recently. Both the Society and the guest speaker, Mr. D. A. Teasdale, were attended. The Senior Cup for the most number of fish showed over the last six months was awarded to Mr. C. Jackson. The Junior Cup was won by Mr. J. R. Palmer. The winners of the table show were: Best open show will be held on 6th April in the Royal Athenaeum, Notcam, from 12.30 to 6 p.m.

SINCE the notice regarding the Regate and Regate A.S. Annual Fish Association held in the December issue, future plans have been revealed about the meetings to be held in the following months: The next meeting will be held on 27th March at the "Tea House", Eastwood Road, Redhill.

All communications and enquiries should be addressed to the secretary, Mr. W. H. Roper, 53, Farm Court, 107, Peaton Albert Square, Earlswood, Redhill, Surrey.

THE main feature at the January meeting of the Aberdeen and District A.S. was a vireo of appreciation to the secretary, Mr. R. G. Duncan, and news letter editor, Mr. K. Russell. Mrs. Pleasance followed with the treasurer's report which was accepted as favourable. Mr. R. Duncan gave a brief summary of the year's activities and encouraged members to carry on and try to make next year even better.

Mr. V. Robinson, Mr. W. Smith, Mr. R. Duncan, and Mrs. Pleasance were re-elected as chairman, vice-chairman, secretary, and treasurer. Mrs. Missaw was re-elected as treasurer, Miss M. Morphew was re-elected as assistant secretary. An executive committee consisting of Mr. Robinson, Miss Pleasance, Mr. Barnard, Mr. E. R. Petterson, and Mr. Whitney, was elected.

THE Clapham A.S. would like to announce that at their annual general meeting, the secretary, Mr. W. H. R. Evans, resigned his office after serving for seven years, and would like to thank him for all that he has contributed to the Society. The new secretary is Mr. K. A. Saunders, and any aquarist interested in becoming a member should contact him at 24, Berber Road, SW11, or are welcome to attend a meeting of the Society, meetings being held fortnightly. Enquiries to Mr. E. Peters, Church Hall, Clapham Manor Street, S.W.4.

THE table show of the Sittingbourne and District A.S. received an excellent show by the judges and special award, Mrs. W. A. Gilchrist, 1st, Mr. J. Bland; 2nd, Mr. K. L. F. Eggleston; 3rd, Mr. R. Horrington; 4th and special award, Mr. R. Horrington; special award, Mr. H. Lowder; 4th special award, Mr. J. Bland.

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A special award was given when the judge, who is the start of a total 100. This represents a very high standard in the fish shown. A programme of "Any aquas" was held, and the winners are as follows: Husband: S. Church, Sittingbourne, and any new members will be elected by the treasurer.

In the absence of a speaker, a chryzox quiz session was held at the December meeting of the Girls' and District A.S. Quizmaster was the Society chairman, Mr. J. H. Hampeley, and the winners of the competition were Mr. A. Picking. The winners of the table show in four classes were as follows: First class 1st, Mr. B. Smith, 2nd, Mr. A. Gilchrist, 3rd, Mr. J. Bland; 4th, Mr. E. Price. Second class: 1st, Mr. B. Smith, 2nd, Mr. A. Gilchrist, 3rd, Mr. J. Bland; 4th, Mr. E. Price. Third class: 1st, Mr. B. Smith, 2nd, Mr. A. Gilchrist, 3rd, Mr. J. Bland; 4th, Mr. E. Price. Fourth class: 1st, Mr. B. Smith, 2nd, Mr. A. Gilchrist, 3rd, Mr. J. Bland; 4th, Mr. E. Price. The majority of the Society's fish are kept in the Society's home aquariums, which is aówed, and are: Mr. J. Bland, and Mr. E. Price. The Society is a very successful one, and is to be congratulated on the excellent work done by the members. The Society meets on the first and second Thursday in each month at the Church Rooms, Duke Street, Corsham, at 7.30 p.m. and prospective members in the area are very welcome.

THE Portsmouth A.S. home aquarium competition consisted of three competitions for the purpose of inspecting and marking, established four years ago by an independent judge. It was divided into two sections. The coldwater and tropics, judge was Mr. R. Metley, of Bournemouth and the results and the findings of his was as follows: Coldwater: 1st, Mr. W. Ryder; 2nd, Mr. M. Ryder; 3rd, Mr. V. Hunt; 4th, Mr. V. Hunt; Tropics: 1st, Mr. A. Topliah; 2nd, Mr. J. Stowell; 3rd, Mr. D. Peacock; 4th, Mr. D. Peacock. The Society held their "Celebration Night" meeting for the benefit of all newcomers to the hobby of fish-keeping. The evening's proceedings were conducted by Mrs. T. Stowell, who was assisted by four of the established members ranging from Mrs. T. Stowell to the individual aspects of the aquaria on stage. Mrs. T. Stowell and Mr. W. Ryder, their feeding (Mr. W. Ryder), the planting out of the aquaria (Mr. M. Metley), and, lastly, the electrical appliances associated with tropical fish (Mr. J. Stowell).

A MEETING was held in the Adult Education Centre on Thursday, 21st January with the object of re-organising the Worthing Tropical Fish Club. The meeting which took the form of a general discussion evening, was presided over by a five member committee, with the club secretary taking the chair, being the only elected officer at present. During the evening two new members were elected, one of whom, Mr. W. G. Engish, won the first prize in the cello, which was a pair of Japanese fighting fish. Mr. Engish was also elected to help serve on the committee.

The meetings are held on the third Thursday in each month. Any persons interested in fish-keeping are most welcome.

For any further information, please contact the secretary, Mr. David Newport, 11th, Western Road, Eastbourne, Sussex, who will be pleased to supply details.

A NEW chairman was elected at the Derby Regent A.S. annual general meeting, when Mr. P. Bland, after several years' service, did not seek re-election. Mr. J. Burrell, an enthusiastic and ever-ready member, was elected chairman for number of years, was chosen to succeed Mr. Bland. Mr. T. J. Jermyn, of Wilmot Street, Derby, was re-elected for another term, and John M. Finch (president), Mr. J. Burrell, Mr. T. J. Jermyn, Mr. J. W. Platts, Mr. J. D. Cochrane, Mr. P. Hard, showed committee, Messrs. Widdowson, Hallow, Kendrick and Hanks.

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