

JUNE 1971

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Editor: Anthony Evans

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Comments and Quotes

- Why it doesn't always work
- Harmsworth's hobby
- Popular carp's demise

Take Some Water

ON more than one occasion we have thought how nice it would be if an absolutely infallible blue-print for successful fish keeping and fish breeding could be produced. The same thought has, no doubt, often occurred to others. A suggestion that something like this should be done to help goldfish breeders is made in the current Bulletin of the GOLDFISH SOCIETY OF GREAT BRITAIN and we have every sympathy with the proposal.

It is so tempting, the notion that a Step 1, Step 2, Step 3 etc. approach to the matter can be made, that it is difficult to restrain the urge and accept that a foolproof schedule is not and cannot ever be practical. The reason for this negative to the whole idea is expressed in two words: biological variation. By which is meant, of course, that all living individuals are different from one another in ways that do not readily allow them to be regimented in cut-and-dried schemes. Even the proverbial 'two peas in a pod' could lend themselves equally as well to being described as 'unlike as two peas in a pod'. And the biological variation that hinders one from making sure-fire sets of rules to govern plants and fishes in an aquarium applies also to the individual who would be the keeper. Man himself is none the less, if anything even more, variable than his charges.

A simple rule can be interpreted or misapplied in all kinds of ways. Think about a simple directive such as 'keep the water temperature at 24°C'. Do you measure this at the tank's top, middle or bottom? Is the thermometer used reliable? Will 22°C or 26°C do?—there will be plenty for whom 2° away is close

enough! Of course we all work to rules in our aquarium-keeping. Of course most of our fishes most of the time do what might be predicted. But the set of rules that will look after every contingency arising from biological variation within the aquarium would be vast indeed and would turn the whole operation into a laboratory exercise.

Harmsworth's Hobby

QUOTE from an article about the life of Lord Northcliffe (Alfred Harmsworth) in THE OBSERVER: 'Alfred kept an aquarium with two compartments in his bathroom. On one side of a glass partition swam goldfish, on the other a pike. When it amused him, he would lift the partition and study the results.' Oh well, we've often heard it said that you can tell a lot about a fishkeeper from what he keeps in his tanks.

Farewell Clarissa

AFTER 19 years of gracious living in the Aquarium of the London Zoo, Clarissa the carp died peacefully in her aquarium last month. She had gained about 6 lb over the recorded weight of 44 lb when she was donated to the Zoo in 1952. Her age on capture from a pond in England was probably 14 or 15 years, so that her death after some 33 years indicates a rather more moderate longevity for carp than has sometimes been claimed. It is hoped that another sizeable replacement for Clarissa at the Zoo Aquarium can be found as she had always been a good draw for visitors.



LETTERS



Your comments and views on all topics of interest to aquarists are welcomed. Address letters to PFM Letters, 554 Garratt Lane, London S.W.17

Prices of Common Market Aquatics

Prices in France

BEFORE this country is finally committed to joining the Common Market, perhaps the readers of PFM might be interested to know the effect this could have on the fishkeeping hobby in this country. On a recent visit to France, my wife and I made a point of visiting a selection of aquatic dealers and pet shops in the Paris area: as in England the quality of the stock varied immensely from shop to shop, but what did horrify us were the prices. Tropical fish were generally costing about twice as much as in this country (small plecostomus catfish £2.00, clown botias £1.50), and the more

common species such as zebras and small characins were rarely below 30p each. Goldfish bowls, smaller than those used over here, were around 50p, and quite unimpressive aquaria, about 16 in. by 9 in. by 9 in., ranged from £8 upwards.

Since many of the fishes on sale in France probably originated from the same sources as those available here, perhaps this is an indication of how well the dealers in this country manage to keep costs down. But I wonder what will happen if we do join our European cousins—would any U.K. hobbyist really be prepared to pay these prices?

Carshalton, Surrey

CLIFF HARRISON

Proud Scat Owner

IN the May issue of PFM, Mr D. L. Maskell refers to brackish water being an essential for the well-being and good health of scats. I have a community tank (3 ft. bow) with approximately 35 fishes from neons to plecostomus and redbell shark, including one scat 3 years in the tank and 6 inches from nose to tail. He is in perfect health and every day he gets fresh lettuce. He also eats fresh raw beef, liver, earthworms, cooked cabbage and many other items.

He is a very well-behaved fish but of a marked territorial disposition. I may be very fortunate, for other tank owners have told me that they are unable to keep scats alive in fresh water for more than a few weeks.

(Proud Scat Owner)

London, E.16

C. R. BOND

MAY I reply to Mr D. C. Maskell's letter, published in May's edition of PFM, re Malayan angels. I purchased a Malayan angel and at the time of purchase the retailer said that they lived in brackish water. He asked me what kind of tank I intended to put the fish into and also what size. I told him my 24 in. by 12 in. by 12 in. community tank; he then gave me the safe amount of salt per gallon that I could introduce into my tank without any harm to my other fishes. When I arrived home with my fish I put it straight into the tank and added less than half a teaspoonful of salt—a lot less than the retailer had suggested.

As I clean and siphon one-quarter of the water from my tank every 14 days and add fresh tap water without salt, it would not take long to get rid of the salty water in the tank. Also, as I made my purchase 6-9 months ago, I would say my Malayan angel has lived in freshwater for 6-7 months and is still going strong. I would like to purchase another one and do the same again. If I do I will report my efforts in PFM.

Some fellow aquarists have tried with scats and other brackish water fish to keep them in freshwater without success—the fish develop white filaments over their eyes and eventually die from this sudden change of water. With my recent experience I would say that the way to bring the fish from brackish water is to add freshwater every so often until it is pure freshwater.

Blantyre, Glasgow

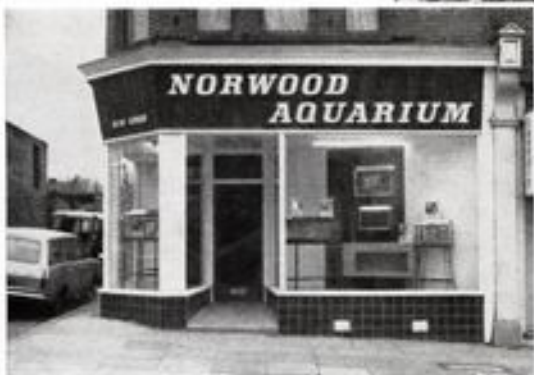
JOSEPH HONE

Three-Spot Gourami

MANY thanks for the article by Rudolph Zukal on the opaline gourami; it helps to prove an argument that I have been having with aquarists and dealers for several years. When I have asked for three-spot gouramis (the eye being the third 'spot') I have been offered either the opaline or the

Continued on page 59

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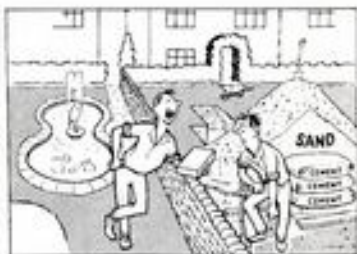
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supposed to be humorous, Neptune preserve us from such sardonic heaviness. 'Where is all this leading the hobby' he asks. Why should it lead anywhere? A hobby is for fun, even serious fun, which is not such a contradiction as it seems.

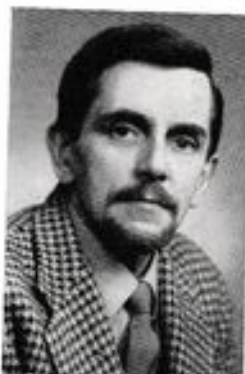
He suggests that the people who run open shows are misguided sheep. If they have to deal with people like him, they must begin to think that they are at least misguided. Oh, the guppy varieties are *not* Mr Esson's. They are the product of three

generations of guppy breeders.

The last paragraph of his letter contains a contradiction that gives us a clue to his mentality: 'Thinking about this hobby as seriously as I do', and 'Let the "pseudo matt mock metallic" boffins stew in their own juice'. Think seriously—let the researchers stew—should we laugh at Mr Wilson, or, perhaps, shed a pitying tear?

London, W.12

L. SANDFIELD



TRANSATLANTIC TOPICS



By JIM KELLY

MOST aquarists could cope with one piranha—I even managed five once (and have the scars to prove it)—but how would you make out with 700 of 'em? For the first time in the history of the New York Aquarium, piranhas have been hatched and reared successfully. Very successfully, judged by the numbers quoted.

Now their prowess has become a headache for the Aquarium officials. They cannot give the surplus away because a State law requires a permit to keep these fish in captivity, and how many own such a piece of paper? That New York has more miles of waterfront than all the canals of Venice doesn't help either because there are also strict laws about dumping.

The young fish are the result of four hatchings, starting in June last year, from just one pair of black piranha, *Serrasalmus niger*. Last I heard the fish were still spawning!



On show at the Vaughan Aquarium-Museum, in the Scripps Institute, is a scythe butterfly fish, *Chaetodon falciifer*. According to the director, Donald Wilkie, this specimen is only the tenth of this marine fish ever caught.

First discovered in the waters

around Guadaloupe Island (Baja) in 1954, this bright yellow, 6-inch butterfly fish derives its common name from a sickle-shaped black marking on its body running from just below the mouth to the caudal fin.

The chaetodonts are noted for their graceful shapes and bright colours. Ceaseless activity, plus a defensive coat of scales extending into their fins, enables these fish to hold their own in the struggle for existence. A member of this family has been adopted as the emblem of the Bermuda Islands.



I have received a rather interesting fact sheet from the City of the Angels (California) describing the researches carried out by Marineland Aquarium Products. It deals with avitaminoses, which has nothing to do with the sense of smell as the name suggests, but with deficiency of vitamins.

Lack of essential protein, carbohydrate, vitamins and minerals in fish diet can manifest themselves by signs very similar to those seen in man. For instance, lack of sufficient vitamin B₁₂ can result in poor appetite, instability and loss of equilibrium, even convulsions.

Our fish are capable of detecting

minute quantities of substances in solution and Marineland have used this fact to advantage in a new product aimed at feeding responses. When our finny friends go off their pro-vender, a few drops of this solution in the aquarium resulted in even finicky feeders returning to the feeding ring like some aquatic Oliver.

Though the actual mechanism of this appetite enhancement is still under investigation, the addition of amino acids plus vitamins to the tank water has apparently had remarkable successes.



Seen the ABC-TV series 'Smith and Family?' Playing the role of the friendly neighbourhood Cop is actor Henry Fonda, and to those in the know it came as no surprise to find the Smith household boasted a tropical fish tank.

Mr Fonda's fondness for aquatics started during his long Broadway run of 'Mr Roberts'.

'I saw an aquarium in the apartment of a friend and decided that I would like to have some fish of my own,' he said. 'Between shows I would head for the stage workshop at the Alvin Theatre and work on my set-up.'

The results of his labours was a 40-gallon tank ensconced in an antique Chinese chest. Like most things Henry puts his hand to, the hobby flourished. His interest for ponds and large carp started when some friends took him to visit a Parrot Farm, of all places. On leaving the establishment he headed straight

Continued on page 62

'First All-Alaskan Aquarium Exhibit'

By CHARLIE WITHERS



Mrs. Tawni Reynolds of the Alaskan Aquarium Association receiving her trophy for the best fish in the show from the author at Anchorage



Display aquarium by a dealer at the All-Alaskan Show—made entirely from fibre-glass with the exception of the front viewing panel of glass

At the beginning of June last year I received a letter from Mr. George Schmalzried, president of the Alaskan Aquarium Association. He had seen my address in an American aquarium magazine and asked if I could give any advice on the organization and running of an aquarium club. By pure chance I was leaving for Anchorage that day in my capacity as Flight Engineer for a British airline, so I was able to speak to a very surprised George that evening by telephone.

The Alaskan Aquarium Association was founded in February 1970. Between then and February 1971 the membership has grown from the original dozen or so founders to 75, of which only one has ever been in a fish club of any kind before. On the occasion of my first phone call to George we were unable to meet, as it was a Friday evening and

he was just leaving for a hunting expedition to supplement the winter meat supplies. (I have since had some of the moose that he shot that weekend and it is delicious, and I might add that all our aquarium fish do very well on moose heart!)

Over the next few months I was able to visit Anchorage about six times, and although I was never fortunate enough to be there for a club meeting as such, on each occasion there was a get-together of about 12-15 members in someone's house, where we talked fish and furnished aquaria until the wee small hours, and at which I was always 'wined and dined' regally. On one Sunday, after a very late Saturday night when I had been explaining the importance of matching rocks and gravel in a furnished aquarium, half a dozen of us set forth in freezing rain on a rock-hunting expedi-

tion. However, the rocks we obtained turned out to be extremely alkaline and the one tank that was set up without testing them became a disaster in about a week.

Time passed and the 'Board of Management' (which is a long way of saying 'Committee') and the very enthusiastic membership decided to put on a big show in association with the 'Alaskan Fur Rendezvous', which is held in Anchorage each February. The 'Rondy' is the time of fur auctions and in addition has become the traditional time for many other holiday activities. These include Sled Dog Racing, Snow-mobile races, Blanket Tossing by the Eskimos, Indian Dancing, Handicrafts exhibitions and, of course, the election of a Beauty Queen.

I was able to attend a special meeting of the show committee and the basic arrangements were set up

under the management of John Miller, who was the only one who had ever shown fish before. I had the honour to be asked to judge this 'First All-Alaskan Aquarium Exhibit', which was to start on 13th February and be open to the public for 8 days.

The show committee meeting lasted a long time and the following classes were decided upon: 1, Furnished Aquaria up to 15 gallons capacity; 2, Furnished Aquaria 16 gallons capacity and over; Custom Class (where the exhibit is set up in an unusual container, either hand-made or converted from another use); Novelty Class, unusual tank decoration involving a theme.

All these classes, except novelty, were to be divided into two divisions, senior and junior, the age barrier being at 16 years. In addition there were to be five single fish classes: Guppies, Bettas (Siamese fighting fish), Killifish, Live-bearers, Egg-layers.

You will see that this is greatly different from the way we do things in Britain, but it was decided to use the F.B.A.S. pointing system. It was also decided that plastic plants could be used, but not in the same tank as natural ones. This is because Alaska in winter is not the best place in the world to grow plants (those that are available 'cost an arm and a leg', as my friends would say).

Now to the show itself. The entry was essentially all from the one club, although it was open to all comers, and in fact my own Society, Mid-Herts A.S., sent seven entries. When I arrived to start judging I got a surprise of my life. There were 42 furnished aquaria and

only 18 single fish entries. (Remember, this was from a total membership of 75 people, so that should make our British societies open their eyes a bit.) As you can well imagine, this took quite a long time to sort out and when I eventually joined the Mayor of Anchorage in cutting the blue ribbon to open the show to the public, I had kept 'His Honour' waiting for 20 minutes.

With the tank limitation being on volume rather than dimensions the tank shapes were many and various, ranging from one about 10 in. by 8 in. by 6 in. to several about 3 ft. long. However, what was lacking in standardisation was well made up for in enthusiasm, and in the majority of tanks the Design and Technique were excellent. My main criticisms were non-matching of rockwork and gravel and the mixing of fishes from various parts of the world.

The single fish entries were disappointingly few, but the public were much more interested in the furnished tanks. The standard of fish was quite high, so good in fact that only one Mid-Herts member, Tom Timms, got an award—a third in Egg-layers with a cherry barb. Best fish in the show was an excellent dwarf gourami that didn't have a single broken bar on either side; this fish was owned by a young lady named Tawna Reynolds, who had been keeping fish for only 5 months.

During the time that the show was open to the public over 20,000 people passed through. Unfortunately for the A.A.A. entrance was free, but they sold many tickets on a raffle for a stainless-steel tank, 6 ft. long, and many people said they would join the Association.

I stayed in and around Anchorage with my wife and son for 12 days and spent much time at the show. Although I had not 'pulled any punches' in my criticisms I did not have one single complaint, but thousands of questions. I appeared on two live television shows and gave a talk at a Salvation Army hostel for senior citizens, all of which were received with great enthusiasm and gave me great pleasure. At the awards banquet I was asked to present the awards and in turn was presented with a carved Soapstone 'Killer Whale', which is the badge of the A.A.A. This had been carved by the Association's publicity and art director Mrs Karen Warren, at great expense of both time and money, and will always remain one of my most treasured possessions.

The outcome of all this is that the A.A.A. is applying for affiliation to the F.B.A.S. and next year the show will be run to the F.B.A.S. rules, with perhaps slight variations to allow for local conditions. I find this most gratifying, as many members of the Association will return to the 'Lower 48' states of the U.S.A. and perhaps pass on some of our ideas to other clubs that they join there. Who knows, perhaps from this small but very enthusiastic beginning we shall end up with a set of international show rules based on our system.

I would like to take this opportunity once again to thank all members of the Alaskan Aquarium Association for the great welcome and generosity extended to my family and myself, and in particular to thank George and Millie Schmalzried, who entertained us for the whole 12 days and would accept nothing in return.

Transatlantic Topics

continued from page 60

for the Aquarium Stock Company. His hillside home at Bel Air has boasted evidence of the hobby, both indoors and out, ever since.

* * *

Those who think the development of a new fish food is as good financially as a present from Ernie, would

have been interested in a conversation I had with a manufacturer from the States.

Not only has the product to contain all things nutritious but it must also conform to certain standards—does it foul the water?—how long will it keep fresh? Even the food's taste and smell (to the fish) has to be considered.

To help in their search for food many species of fish have a highly developed sense of smell. Two small pits in the snout provide a maximum of absorptive surface riddled with

nerve cells that pass on the smell information to the brain. That this 'olfactory system' is not connected to the mouth and is thus separate from the sense of taste is evidenced when a fish is attracted to the food by the odour, only to spit it out of the mouth when their sense of taste finds it displeasing.

Some manufacturers are discovering the attractions of this sense of smell with delight. Anything new will make a pleasant change from that smell that nearly all fish foods once seemed to have.

FISH SHOWS AND SHOWING

Setting up a Furnished Aquarium for Competition

By STAN NELSON

I THINK that one of the most attractive features of an open show is the furnished aquaria section. Rows and rows of jars with single fish in, although of great interest to the aquarist looking for outstanding fish, are not so attractive to the general public; furnished tanks, especially well set-up tanks, always please them.

Another thing that strikes me about the open show is that the skill of an aquarist is shown only in two classes, namely breeders' teams and furnished aquaria. Individual fish can and often are bought already in

show condition and with the one object in mind that is required is to keep them in show condition and present them in clean water and clean jars or tanks. The breeders' teams, however, reflect the true skill of the aquarist. Getting the fish to spawn and raising the fry in perfect health is the ultimate aim of the aquarist and the more difficult the task the greater satisfaction it gives.

Similarly furnished aquaria show the aquarist's skill; skill of a different kind. Presenting the fish of his

choice in a beautiful setting. No two tanks seem to be alike; the individual skill in arranging the setting can be compared, just as in a flower show the arrangement of flowers is compared. Here is where the lady members of the club can shine, for a woman's touch is often that much more delightful to the eye than that of the more clumsy male.

In spite of the undoubted attraction of furnished aquaria this is very often a poorly supported section. The reason for this might be the club's fault. Some clubs provide tanks, hoods and lighting; other clubs



Tank furnishing on the large scale. This 14 ft tank, 18 in deep, is in the bar of the Eden Hotel, Bayswater, London, and contains 250 tropical fishes. Planted mainly with sword plants and cryptocorynes, the tank has Windmill biological filters, a water circulator and fluorescent lighting. A brass strip frames the front glass. Installation was by Tachbrook Tropicals Ltd.

provide nothing. Then again it might be that the club members think the effort too much for a one-day show. Certainly transport is needed and not everyone has transport.

I'd like to see a minimum of six entries at each club show, and surely with a little determination this is possible. Start preparations early; perhaps a few hints now for any member who would like to try his hand would help to decide him to have a go.

The club must specify what size tank is to be used. It may be 18 in. by 10 in. by 10 in., or 24 in. by 12 in. by 12 in., or 24 in. by 12 in. by 15 in. It is important that, whatever size is chosen, all the tanks be of the same size. Similarly the lighting on all the tanks must be equal. A tank brightly lit looks better than a dimly lit one. A judge seeing all tanks equally lit and of equal size can now compare them on an equal basis.

The competitor knowing what size tank is to be used can also prepare beforehand. For instance, a 15 in. high tank requires taller plants than a 12 in. and a 24 in. tank will take more fish and plants than an 18 in. tank.

It is wise to go to the show prepared for any contingency. I usually take a bucket for carrying water, a jug and a piece of cardboard to pour water on to avoid disturbing the gravel, a pair of scissors, spare electric wiring, insulating tape and/or connecting pieces and plugs, bulb holder and bulb, a small screw driver, backing paper for the back of tank, with adhesive to secure it, and a towel.

I take my own compost, even if compost is provided, because nothing is worse than a cloudy tank and compost has to be thoroughly washed beforehand. Also it has to match your own rockwork. Bring the fish of your choice in water filtered from your tanks. Water clarity is an important point. Select your plants well, picking only plants in good condition. Decaying leaves, or leaves with holes in—the result of too many snails in your tank, only downpoint your effort.

The rockwork that you choose must be of a type that will not dissolve in water over a period and thus affect the fish. Avoid sharp edges that might damage the fish and try and match the rockwork with the compost to give the effect that the

compost has actually come from the rockwork.

Often a piece of driftwood or bark can be used with very good effect. If you decide to use driftwood, or the very attractive twisted tree roots that you may find, be sure that they are not harmful to the fish. Boil them in water over and over again and let them soak for months in a barrel or bath of water before using in the tank, and then try the water with a few guppies first. This preparation can pay off, for the effect in the tank is a very natural one. Have some idea in your mind of how you are going to set up the tank and the whole job can be done in half an hour. If you have a spare tank at home practise your set-up in it beforehand.

Now let's have a look at what the judge is looking for and how the tank is to be pointed. The F.B.A.S. give the following points.

Points Allocation

Freshwater

Fish	20
Plants	20
Rockwork	20
Design	20
Technique	20
	100

Marines

Fish	20
Other animals	20
Rockwork	20
Design	20
Technique	20
	100

Let's take these points in turn. The fish must if possible be fully grown and in show standard condition. Faults in colour, condition, shape, fins and department lose marks. If, however, a fish fully grown would be out of proportion to the tank size, then fish of around 3 or 4 inches would be more suitable. The fish should, if of one species, be matching in size (like the breeders' teams). Overcrowding must be avoided. The whole effort would be spoilt if the judge sees the fish gulping for air at the surface. An aerator can be used if

it is well hidden by plants, and provided that the clarity of the water is unaffected. A guide to the number of fish is to allow at least 6 sq. in. surface area per inch of fish body length.

The selection of fish is up to the competitor. It is no use showing fish that hide all the time, or fish that wreck your set-up. If you want to show fish that eat plants or upset them then leave the plants out altogether, and design the tank with rockwork instead. A good judge will understand your motive and be allowed to re-allocate the 20 points for plants between design and technique.

Some competitors like to show fishes at different water levels—a few active surface-loving fish like the danios, middle of the tank fishes like harlequins, cardinals, neons, glass lights etc. and some bottom fishes like Corydoras, loaches, kribia, ramirezi as examples.

Others like to show all one species perhaps that they have bred themselves. A tank with only tiger barbs for example, is a lovely sight. The choice is yours and what a wild choice it is. Beware, though, of choosing to put both large and small fishes in the same tank, or the small ones might suffer.

Now for the 20 points allowed for the plants (unless, as I have already pointed out, they are best left out with some fishes). Points are given for variety, colour and texture in relation to each other. Don't overdo the variety; overstocking the tank with plants reduces the swimming area and creates more hiding places for the fish. The rockwork and/or driftwood should go in before the plants are positioned. Obviously the rockwork must be seen and not blotted out. If any design in the rockwork include openings don't plant in front or behind the opening.

Looking at the tank through the front, when planting try to obliterate from sight the rest of the tank, so that the picture is perfect. To do this plant out the sides and the back angles of the tank. The tank must not be seen through (hence the coloured paper to be stuck to the outside back of the tank). For hiding the back angles bunch together myriophyllum, cabomba, sagittaria, vallisneria, elodea or any tall plant that will completely hide the angle iron. There is a huge variety of plants to choose from. Try to choose plants that go

well with the fish of your choice. Try also to give a little variety in the colour, light green, dark green, and reddish hues, the taller plants at the back and the shorter growing varieties such as dwarf amazon sword and some cryptococcyne in the middle area or front.

Remember that the tank must be set up on a permanency basis and if the finer plants are going to grow large and later obliterate the picture, plants will be lost. When planting see that no roots are showing, nor strips of lead if this is used to weight them down. Exceptions here are if the plants normally show roots when growing. Where plants propagate by sending out runners the crown of the plant must be just above the compost. If a plant with runners complete is put in, plant it with the runners descending in order of size, to give the effect that the tank has been set up a long time. Remove any leaves that are off colour and any bits which surface. To remove surface scum or bits of plants, place a piece of clean newspaper on the surface and when it is soaked draw it together from the sides and lift it out with all the bits trapped in it. Be careful not to damage good plants. This must be done when the tank is full, of course, and otherwise completed.

I should point out here that artificial plants are not allowed and anything in the tank that is artificial is frowned upon. According to Jim Kelly, in America everything goes. In their 'Aquarium Beautiful' as it is called go mermaids, moving wheels, opening clams and crocodiles and even under water log cabins. In this country the tank must look completely natural, and although points may be awarded for an unusual layout, if it means spoiling the natural appearance, don't bother.

Twenty points are allowed for rockwork or other accessory feature. Here again if you decide not to use rockwork and use only plants and the result is justified in the general beauty of the tank the 20 points will be split between design and technique.

When using rockwork remember that the tank is being set up supposedly to last, and any rock such as limestone that will slowly dissolve and affect the water, will downpoint the tank. Stones from a riverbed, or granite, slate and even coal are used. Don't use one huge rock that takes up half the tank and the swimming

area. Rather use different sizes of the same rock and chippings from the same rock in the compost. If you can achieve the appearance of the compost being derived from the rock all the better. Make sure that no sharp edges are showing, and if you knock these off save the chippings for the compost. If you have natural strata showing see that it is all running in the same direction. Don't put coral in a freshwater tank (I've seen this done for novelty effect, but coral is not only sharp—it is made of lime and hardens the water).

Experiment with the laying out of rockwork at home. Remember not to provide too many hiding places for the fish, and avoid placing the rockwork in any position that might trap the fish.

For design and general effect 20 points (and sometimes 30 points) are awarded. Here is probably the first thing that strikes the eye: the layout and general appearance; the grouping of the rockwork and plants; the choice of fish and the whole balance of the tank is considered.

Here is where the skill of the individual comes in. A tank that looks both practical and out of the ordinary will gain more points than a purely formal layout. Compost that is uneven looks more natural than completely flat compost, so I suggest creating hollows and sweeping it up to one side for a change; anyway, the choice is yours!

Practical Procedure

For technique also 20 points (and sometimes 30 points) are awarded. Here is considered the clarity of the water and what measures have been taken to ensure that a mature and well-established appearance is achieved and that the pleasing qualities of the tank will last. Here one tip is very important and that is see that no compost shows above the front angle iron of the tank. This will downpoint your tank as compost that shows in the front glass will blacken in time and so points are lost on permanency. Also avoid the myriads of tiny bubbles that give the game away that the tank has just been set up.

Now, knowing what is required—how to set about it quickly? If it can be done the night before the show, all the better. Don't forget to let the

show secretary know you are entering so that a tank will be allocated to you!

(1) Place your coloured paper (green, blue or black is effective) in position behind the tank so that the judge cannot see through it. Sometimes a mirror is cut for this purpose and is also very effective, especially if fish like the Siamese fighter are being shown.

(2) Tip in the compost, which I hope you have washed so well that it will not cloud the water.

(3) Half fill the tank with water. Before tipping water in the tank add boiling water to the cold water in your bucket and get the temperature about right; whisk it a little to remove surplus gases. Pour it on to the cardboard (before mentioned) so that little disturbance is caused.

(4) See that the front glass is clean inside and out.

(5) Place rocks in position, and if satisfied, place plants in position. If a heater and thermostat is to be used see that this equipment is well hidden.

(6) Your fish will be in plastic bags or containers, in the water they are used to. If in containers, mix the water with the tank water slowly; if in plastic bags, place the bag in the water, open the neck and roll it down to water level. With the jug slowly pour water from the tank into the bag. Finally let the fish swim out of the bag into the tank. In this way they are not shocked.

(7) Top up the tank to almost full, connect up the light and put the hood on and view the result from the front as if you were the judge.

(8) Make any adjustments now to the plants, hide the roots that are showing and see that everything satisfies you.

Satisfied? Then top up the water to just above the top frame and the job is finished. If you go prepared it shouldn't take all that long. Don't feed the fish during the show as this might cause a dirty tank, and the fish won't hurt for a few days without food. (By the way, if you can top 80 marks you have done marvellously!)

Some of you, I hope, may have been looking at the points awarded for marine furnished aquaria. As I would like to see more marine tanks in furnished aquaria sections at shows, I propose to discuss the possibility of this and the technique of seawater furnished tanks in next month's issue of *FFM*.

FANCY GOLDFISH VARIETIES

Can You Identify an Imported Fantail?

By D. SMALLEY

Photographs by the author



Fig. 1. One of the author's fantail goldfish that has been bred from imported stock. The long pointed caudal fin lobes are an unacceptable feature for the approved form of the fantail variety

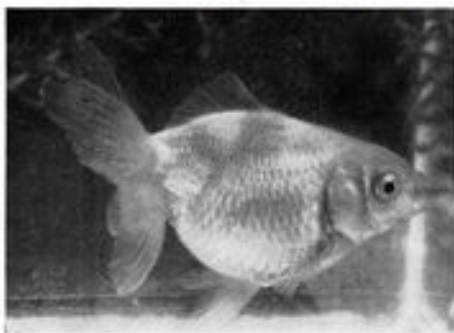
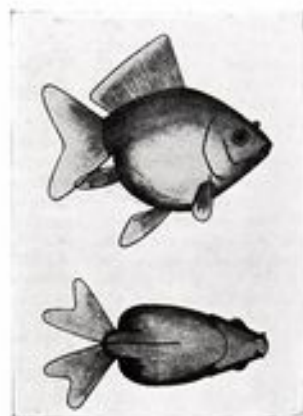


Fig. 2. A female fantail goldfish developed within a British strain of this variety. This fish is in breeding condition. Fantails showing such short finnage are seldom seen these days and form excellent breeding stock

INCREASING numbers of garden pools are being installed each year and many more people are becoming attracted to goldfish-keeping and water gardening. Beginners are usually surprised to find that fancy varieties of the goldfish exist and are often confused by differences between varieties offered in shops and the descriptions given in books. The more popular types of fancy goldfish recognised in this country by the specialists are listed here together with a few remarks of general interest on each. In coming issues of *PetFish* each one of the more common fish will be dealt with in turn in greater detail, together with hints and golden rules for successful goldfish-keeping.



Reproduction from the last-published Standards book of the Goldfish Society of Great Britain showing the aimed-for fantail form (by kind permission of the G.S.G.B.)



Fig. 3. Although having rounded caudal lobes the tail of the fantail bred from imported stock is too large; its body is too deep and the concavity of the nose-dorsal outline is an undesirable feature.



Fig. 4. A fantail of the kind worth searching for. This fish has lived in an outside pond since it was 2 in. long and has spawned each season.

These articles are intended not only to help the beginner but to be of interest as well to the established goldfish-keeper.

The Fantail

The fantail goldfish is a firm favourite in this country and has been bred here for many years. It is best to aim for a fish closely resembling the standard set by the G.S.G.B. This should have a good deep orange colour, if metallic, or strong areas of blue/red/black in the nacreous fish.

When starting with fantails, the choice is

between purchasing foreign stock and obtaining British fish. With some varieties of goldfish there is little difference between these two groups, but with the fantail I think that the differences are very marked. Whichever you finally choose to buy, provided that you have an indoor aquarium or suitable container for wintering smaller fish, it is far better to purchase six youngsters from good stock than to buy larger fish, which will be much more expensive.

Let us first look at imported fish. Every year, many thousands of fantails find their way into this country from abroad. Most of the fish are

Goldfish Glossary

G.S.G.B. Name	Other Names	Remarks
Twintail	Veiltail	Much sought-after fish. Specialist breeders produce good stock. Fish near to show standards are difficult to obtain and not cheap to buy.
Globe-eye	Black moor	Should be soot black with deeply forked caudal fin. 'Moors' in shops are usually this variety.
Broadtail moor	Black moor	Should be soot black with square-cut caudal fin. Specialist breeders in South and Midlands. Hardy fish. Stock difficult to obtain. No known specialist breeders.
Bubble-eye	—	Mainly imported stock available but quality is often lacking. Care is required with eye sacs.
Pom-pom	—	Stock not easily obtained.
Celestial	—	Stock not easily obtained.
Bramblehead	Lionhead	Hardy within reason, especially without bramble development. Imported stock available. Specialist breeders are forming good strains.
Singletail	Bristol or Bristol shubunkin	Hardy. Show standards of leading coldwater societies in this country differ in minor detail. All basically agree on the feature of the variety, which is the caudal fin (well held with rounded lobes). Foreign fish virtually always lack this characteristic. Very hardy. Stock available.
London shubunkin	—	Imported stock available. Select carefully as quality is sometimes poor.
Oranda	—	Imported and British stock available. Specialist breeders. Foreign fish tend not to be near to British standards and not so hardy as British fish.
Fantail	—	

small, of reasonable colour, and cost at the present time about 40p to buy. You have probably seen such fantails in many aquarist shops and have wondered just how these fish fare under conditions in England. The main problem, of course, is that our climate is so much cooler than that in their country of origin; therefore imported fantails are best suited to indoor aquaria. Sometimes they will winter outdoors in pools, but generally it is advisable to winter them under cover.

This may be done in two ways. They may be kept in an aquarium indoors (take care, though, not to bring the fish suddenly from the cool waters of an autumn pond into a warm indoor room) or alternatively in a fairly large container in an unheated shed or greenhouse. An old water tank makes a good container, but small tanks should be avoided because even in winter the rays of the sun can be powerful at midday, with the result that the water in a small tank could become reasonably warm during the day and yet at night the temperature may fall very low.

If therefore you have wintering facilities and do not intend to breed or show the fish, these imported fantails will meet your requirements if you are attracted to them.

Production of Specimens

I have kept and bred from imported metallic fantails over a number of years, to discover the conditions they will withstand and how broods of youngsters would turn out, and my comments on this fish are from personal experience. The best time to introduce them to a pool is in the summer months. If you do not remove them from the pool for the winter, swim bladder trouble is very likely to occur. Further, this fish, having longer finnage than is recommended by any standard in Britain, is also prone to fin rot and congestion, especially in the caudal fins.

If you compare Fig. 1 with the G.S.G.B. standard and with the fish in Fig. 2, you will easily spot the difference between imported and British stock. An undesirable feature of some fish is the concave outline from the nose to the dorsal fin. This 'beak' effect of the head should be avoided in the dorsal contour if possible; Fig. 3 illustrates in an average degree the point in question.

In Britain there are a few devoted breeders producing excellent fantail fish, especially metallics, suitable for our conditions. If you require fish for an outdoor pool and have no under-cover wintering facilities it is well worth while trying to locate some of these fish. For the prospective breeder and aquarist interested in showing, again any extra outlay will pay dividends. British strains are not free from faults but generally those that I have

found, such as hooding and defective dorsal do not affect the hardiness of the fish. An example of the type of fish to go for is shown in Fig. 4. Note that the fish is not too deep in body, with reasonably short rounded caudal colour should be deep orange.

Some metallics are very hardy and, provided that their overall length is at least 2 inches, trouble should be experienced in wintering them outdoors in the southern half of England in 18 inch deep pools. Nacreous fantails with excessive finnage and body depth are not so hardy and it is advisable to winter them under cover in the spring in the same way as imported fish.

Obtaining Stock

Locating good specimens of British or foreign fish is not easy. If you decide on imported fish have a look around as many aquatic shops are possible from this month until August, when they come into the country. Look for alert, healthy fish with fins erect and good colour. As a precaution, I recommend a period of quarantine in a separate container for new fish before introducing them to established inmates just in case they are carrying disease.

A different approach is required in obtaining good British bred fish, and stock is available a time of the year if you know where to obtain it. One sure way of contacting breeders is by going to the big shows that have 'coldwater breeding classes'. The main societies holding such shows in different parts of the country are the G.S.G.B. (Annual Convention), B.A.S. and M.A.P.S. open shows. Dates for these events will be found in the *FFM* Dates for Your Diary. When visiting the show pick out from the breeders' exhibits the type of fish you are looking for, whether they are winners or not, and try to contact the owner when the show is over and the stands are being dismantled. Remember that the fish on the bench will be the best of a year's hard work, so be content with some good healthy 'throw-outs' that he may have for sale; never expect show-winners, but you will almost certainly have show 'blood'.

Your local aquatic dealer will probably also be able to supply you with British stock from reputable breeders, as many breeders maintain contact with dealers to dispose of their surplus stock. This way the price you have to pay may be a little on the high side, but at least you are assured of getting the fish if you know what you are looking for.

Last, but not least, keep an eye on the advertisements. Over the last 2 or 3 years I have seen fish from many well-known sources advertised at various prices.

THE INTERTIDAL AQUARIUM—I

A Tank for Seashore Animals

By H. J. VOSPER & G. J. VOSPER

In the summer months, especially during weekend or holiday visits to the coast, many aquarists may think about keeping some of the British sea water animals to be found on the seashore. The intertidal zones support a very wide range of species; one is not restricted to fishes since several kinds of invertebrates make suitable and interesting inhabitants for home marine aquaria.

The art of keeping British littoral animals is old enough to have existed successfully before the advent of electric light, electric pumps, complicated filtration techniques and so on. Many field naturalists are quite ignorant of some practices well known to experienced aquarists, yet they maintain marine aquaria. Perhaps they are successful because of their ignorance: there are some good grounds for suspecting this to be true.

Animals of the seashore can withstand incredible hardship. Suffering twice-daily submergence beneath the sea and exposure to the atmosphere, heated quickly in the summer months, cooled quickly when rock pools are flooded by incoming tides, battered by stormy waves, subjected to changes in pH and specific gravity both irregularly (heavy rain) or regularly (effects of the outflow of freshwater from rivers and streams) or both—the twin hazards of dilution and pollution—yet nevertheless the littoral zones are abundantly occupied by many and diverse animal forms. No worse a situation indeed, than can be provided readily in an aquarium tank!

An old angle-iron tank, not more than two-thirds full of sea water is required. We can offer no advice about protective paints, special frames etc. because we have had virtually no experience of this kind; we have always used old angle-iron tanks. Two such tanks now used for photography and research have

variously contained both fresh and salt water, have been allowed to dry out, have never been especially treated—but have been in almost constant use for over 20 years. Undoubtedly it would be best to use 'seasoned' tanks when making a start with British marine organisms.

All-glass tanks can be used, of course, as can glazed earthenware sinks, china bowls and so on. Although one cannot see the animals through the sides of the last-named this is not necessarily as great a disadvantage as it may be when only fishes are maintained. In fact, the beginner might well use bowls of this kind before going into the business further.

Reasonably unpolluted sea water is best to use; collected from rock pools at around mid-tide level, on an outgoing spring tide and with an off-shore wind that may have removed diluted surface water to some extent. A clear and deepish, still pool, without overmuch seaweed (so pH is not affected) should be chosen, the water dipped out with as little disturbance as possible and poured into a plastic bucket, from where it is siphoned off carefully after being allowed to settle for an hour or two. It may prove useful to siphon off through a glass-wool and gravel filter, these materials being packed into a plastic funnel or into a strong plastic bag that has had holes made in the bottom. We carry several yards of hose-pipe on all expeditions to the seashore for emptying pools where the situation allows this technique and the nature of the operation warrants it.

Enough water should be collected to maintain the specimens and to allow for a complete change of water in case of loss through accidental damage or pollution. Water that becomes cloudy or takes on an unpleasant odour can be recovered. If but mildly polluted it might be

restored by filtering through glass-wool and gravel, allowing the water to be aerated in the process. Mussels can often clear such water, though these animals will themselves die of starvation in due course. The safest method of recovering is to make a complete change of water: the polluted water is passed through the filter, after which it must be left standing for 2 or 3 weeks in a cool, dark place in jars. The openings are covered with linen or fine muslin—to keep out dust without entirely sealing up the jars. The non-clear water is then siphoned off carefully, leaving the settlings undisturbed and, again in a cool, dark place with the container openings well covered, stored as the standby supply.

Sea water as collected can be expected to be at a specific gravity about 1.026—this can be checked by a floating hydrometer specially for the purpose (cost fairly high) or by a urine hydrometer (urinometer: often much cheaper) or by taking a sample along to a local chemist where fair words may enable the specific gravity to be checked for nothing. Sea water we have collected has never been other than correct or very slightly dilute, when there is no problem because evaporation can be allowed to correct matters.

The tank or other container used as an aquarium should not be more than two-thirds full, thereby ensuring a good surface to volume ratio. Mark the water level clearly on the side. If and when evaporation causes the water level to drop slightly it should be brought back (slowly) to just a little above normal by the addition of fresh tap water that has been aerated or agitated well and allowed to stand overnight. Since our littoral animals can withstand diluted waters more readily than they can tolerate the opposite condition, a number of naturalists introduce a small amount of fresh water into the tank at the very beginning,

so that as the water level drops through evaporation they can introduce freshwater well before lethal conditions arise.

The pH of sea water in the tank should be within the range 8.3-8.5 (average 8.4); this should be checked from time to time, especially during the first 2 or 3 weeks ('Universal' indicator papers purchased in strip-book form can be used). A fall in pH might be remedied by aeration or agitation or else by the addition of a small piece of soft white chalk if the excessive carbon dioxide dispersed by aeration has not remedied the condition. Although the pH of the water can be on the low side, remember that it should never be higher than 8.5, though in Nature pH 7.4 to 9.0 might be encountered in rock pools. As indicated, aeration need not be by mechanical means. We have nearly always employed agitation.

The minimum depth of water should be about 3 inches (80 mm), or at least enough to cover the animals by 25 mm of water. Many seashore animals will appreciate being able

to emerge above the water surface, therefore we always arrange for a few rocks to be raised in the centre of the tank (not at the side) so that crabs and certain fishes can 'air' themselves if they wish. There is no need to arrange some complicated method of tidal flow by raising and lowering the water level from time to time.

The tank must not be set up in a bright situation. If artificial illumination is used it should be sparing in both strength and the period of time it is employed. Incidentally, it is very much advised that the rocks alone should form the decoration in the tank; leave experiments with marine algae (seaweeds) to those willing to experiment and to risk fouling the water.

Tank temperature should be kept within the range 45°-50°F (7°-10°C). Never below 40°F nor above 60°F, and some animals will die at even these extremes; if they are northern species particularly high temperatures are generally lethal, as they are for sublittoral and extreme lower shore organisms. Natural low-water

temperature is never above 68°F (20°C).

A bottom cover of several inches of coarse sand and small pebbles should be used, taken off the shore, very well washed in fresh water and then very well rinsed through with sea water. Any rocks, with the exception of chalk, taken from the shore can be used as decoration. Of inland rocks, avoid soft sandstone (and chalk, of course), while achrom must be scrubbed with a wire brush. All rocks should be steeped in sea water for at least one week before introducing them into a permanent set-up.

Close-fitting top covers for the tank must be avoided, though a sheet of glass raised reasonably clear of the tank frame is ideal because certain fishes and swimming crustaceans leap well; the green shore crabs are excellent climbers. Such a top cover will reduce the extent of evaporation, while permitting the air to circulate and so aid in the exchange of gases between water and atmosphere.

Readers' Queries Answered



Small Tank

I am thinking of buying a tank about 15 in. by 12 in. by 12 in. roughly for coldwater fish. Do I have to watch the temperature in summer if it gets warm?

With a tank of this size, yes. It is really rather small for coldwater fishes. They are 'large-bodied' fish and three or four small fish (about 1½ in. in body length) will be sufficient for the tank. Check during the hottest weather that the fish are not in distress (shown by their hanging about the surface of the water continuously mouthing). The tank must not be placed in a window or where it will get continuous sunlight and the easiest way to deal with the hot-weather problem is to siphon

out about a third of the water and replace with fresh. Normally this can be done about once a week, but in very hot weather once a day would help. A third of the water only is the rule—sudden complete water changes are bad for the fish.

'Oxygenating Plants'

Please settle this argument with my workmate. What is the major source of oxygen in pond water—from oxygenating plants or from the water surface?

The air above the water surface is the major source of dissolved pond oxygen. It should be remembered that the so-called oxygenators (a title that is not very meaningful) produce oxygen only in bright light.

At other times they consume oxygen just as do fishes. Don't let this lead you to any assumption about the necessity of having water plants—pond conditions are obviously greatly improved by the presence of growing submerged water plants, but for reasons other than their value as 'oxygenators'. In light they use the carbon dioxide and nitrogenous wastes excreted by the fishes that would otherwise build up in the water with harmful results.

Meal Worms

I have recently seen 'meal worms' for sale in a local pet shop. Are they a useful part of a fish's diet and to what degree? I find the large and stout cichlids eat them readily. This would be a cheap food if it has a good protein content.

Meal worms (larvae of the meal beetle) can form quite a useful item in a fish's diet. They have a good protein content and you can continue to feed them to the cichlids. Some fishes will not touch them because of the tough skin, but the

Continued on page 77



Personal COMMENT

by
ARPEE

I LIVE in an area where, over the years, there has been widespread sand, gravel and rock winning from the local deposits. As a result of this there has grown up an extensive series of excavations and waterholes, gravel pits and the like. Some are old, some are comparatively new. Some are quite shallow and some are deep and menacing and have claimed the lives of the unwary and the innocent. What they all have in common is water, which attracts every sort of wild thing, bird, fish, plant, mollusc, and these have had their human followers, sometimes admiring, sometimes killing and destroying.

Certain of them have become fringed with reed mace, others have filled up with pond weed of one sort or another; some contain fish, but all reveal something of interest to those who go 'ponding'. I define the 'ponder' as a rather happy and not too serious dipper and dabbler into natural waters who has every respect for their contents. He is essentially an observer and a conservationist, a preserver rather than a predator. There are other visitors, too, to ponds: small boys and fishermen. Taken all in all none seems ever to do great damage, certainly not the 'ponder', rarely the small boys and only the fisherman if they indulge themselves to excess. Even in the last-named instance the setbacks are usually but temporary and of minor consequence.

One of the village boys disclosed that there were lots of roach and rudd in several ponds in a nearby field, which has for some time been leased by some local quarriers from a farmer. It so happened that one evening we found ourselves with nothing special to do so I equipped the family with a variety of nets and containers and we carried out a reconnaissance of the territory. It was an especially beautiful evening, which promised to be a long and warm one, and the moist air carried the delicate and heady perfume of newly mown fields. The only discordant note was struck by the sight of an earth-moving vehicle in the corner of the field, but in the magic of the moment its significance was missed.

We spent an hour or so exploring a vast area

which had been torn apart and left to mend itself in the quest for sand and ballast. Left for another year or so the sores would gradually heal and things would go on much as before. There were numerous ponds, some with clear water and others with oily scum and tin cans floating in them. The contrasts were extraordinary. The children and I had one thing in common, and this was a hankering to pull out some fishes to put in the garden pond. Small children will never pass by an opportunity to fill their cans to overflowing with fishes large or small. I was in like mind because I felt the need for some importations.

Two pools in particular gave me great hope. One seemed to be teeming with fishes of about an inch or a little more in length, and the other contained shoals of 3 and 4 inch roach and rudd. We decided to put off our fishing trip until the following morning, when time was less at a premium. We completely rejected one small lake with crystal clear water and no contents but some ten or a dozen clumps of submerged grass.

The morning came up bright, warm and sunny again and we returned to this promising territory with all our equipment of the previous evening. The shoals of larger fish proved beyond our limited skills so we concentrated on the pool with the better chances. Within a short time we had rounded up about 40 smart little fishes, mostly roach, with a few rudd here and there. One of the boys called over to say that there were some large rudd in the clear pool with the grass so we disbelievably gave this the once-over on our way back home. We pulled out myriads of newt tadpoles but nothing else, even after poking vigorously in the clumps of grass with our nets. In final desperation I plunged the net into the clump with which we had started, and a beautiful 4 inch rudd flashed into captivity. Encouraged, I moved to the next clump and out came another, but only half the size.

We returned home delighted with a little less than 50 clean netted fishes, which would, with a little luck, settle down and do well. The following day we repeated the expedition almost exactly, even to the capture of another two rudd of the size taken previously in the 'empty' clear pool! On the Sunday afternoon we lazed in the sun and watched the little fishes join up into shoals, disintegrate and form up again, as they explored their new surroundings. It was immensely satisfying to see them settling in so well, and I don't think we lost more than a half dozen. Shoaling is one of the characteristics which goldfish and shubunkins do not possess, so here was novelty as well as new blood.

Then came the dawn and the recollection of that menacing earth-moving machine in the corner of of the field. Of course, if we were to have any

more fishing trips, we should have to take them soon in case the pools got filled in. There was always the thought, though, that there was a lot of space in this huge field, and that the little pools round the edge which had been there longest might be spared. However, we decided that we would lift as many fishes from the pools as we could and transfer them to other waters, private or public, no matter, so long as they were more or less permanent. The thought that all this life might be buried alive was a spur to urgent action, and we returned with rather more equipment than before some ten days later.

The earth-moving vehicle was still at work at seven that evening and it had done a fine job if the children's faces were anything to go by. The entire field was now as flat and featureless as a desert except that that machine churned on remorselessly in a cloud of dust, continuing to restore and to rationalise. We had never had any right to that field or anything in it but we felt that that chap in the bulldozer was just about the lowest thing we had ever come across. Quite irrational, of course, but what a depth of feeling can this sort of thing evoke from lovers of the countryside. It is now all finished. The quarriers have got their winnings and the bulldozer driver has been paid. The farmer has got his field back and the fishes lie dead under the clay. We had no business in the act anyway; we were just bystanders.

It is not for the fishes especially that I feel sorry and angry. It is for those who will live in

the countryside 10 and 20 years hence. By this time, if not before, almost every square inch of the land will have been rationalised, evaluated and docketed as a unit of this or that productivity, or worse still, scheduled for development. It is depressing in the extreme that local responsible people have not even given a thought to the wisdom or unwisdom of acts of which this little incident is typical. They do not seem to realise, because they do not understand, that although those ponds were little bits of inefficiency, they were little bits of sheer joy to many of those who visited them, be they human or animal.

Little bits of inefficiency are being rubbed out all over the country in order that the ideals of planners who live above the clouds may come to fruition. There is small wonder that when these plans evolve into masses of glass and concrete with never a weed to mar them, young people wonder where on earth they are being led and indulge in practices and fantasies which are almost unbelievable.

The answer is not in the direction of communal pleasure parks and fishing tanks, much as some would have it this way. We are an independent and individual people and like certain of our pleasures to ourselves. Those who plan our affairs would therefore do well to remember always to leave some untidinesses and illogicalities around. They give great pleasure to more, perhaps, than they would think possible, perhaps because more of us are untidy and illogical than anyone would possibly think.

Meetings and Changes of Officers

DUKERIES A.S. President, Mr J. Hutchinson; chairman, Mr D. Jackson; treasurer, Mr J. Dennis; secretary, Mrs L. Dennis (by Sparkes Hill, Worksop, Notts.); show secretary, Mr M. Woodley; P.R.O., Mrs L. Dennis and Mr D. Jackson.

FANCY GUPPY ASSOCIATION. Management committee: chairman, Mr G. Goodall; secretary, Mrs R. Fletcher (at Maple Road, Peñal, nr. Walsall, Staffs.); treasurer, Mr G. Fletcher; show secretary, Mr D. Beacham; assistant, Mr M. Browning; P.R.O., Mr S. Cook; members' rep.: Mr D. Phillimore.

GOLDFISH SOCIETY OF GREAT BRITAIN. President, Mr M. Chase; chairman (re-elected), Mr G. H. O'Neil; secretary, Mr G. A. W. Fleming; assistant, Mrs M. Dudley; P.R.O., Mr R. E. Dudley; lay member, Mr R. Dodkin.

HALFAX A.S. Chairman, Mr D. Taylor; vice-chairman, Mr D. Shields; secretary, Mr M. Fletcher (at Town Gate, Southdowns, Halifax); assistant secretary, show secretary

and press officer, Mr J. Grundy; treasurer, Mr N. Small. Meetings: alternate Wednesdays, at the Forest Cottage Community Centre, Cousin Lane, Halifax.

HIGH WYCOMBE A.S. Secretary, Mr P. Newman (16 Ashley Drive, Tylers Green, Penn, Bucks.; phone Penn 2642). Meetings: alternate Thursdays, at the White Horse, Oxford Road, High Wycombe, Bucks.

INDEPENDENT A.S. President, Mr F. Tomkins; chairman, Mr S. Appin; secretary, Mr M. Harth; treasurer and vice-chairman, Mr J. Kettle; show secretary, Mr E. Lilip; P.R.O., Mrs E. M. Appin (19 Crutshank Street, London, WC1N 3HF).

LEAMINGTON & D. A.S. Change of secretary, Mr R. M. Cleary (15 Mosspond Close, Leamington Spa, Warwick; phone 29963).

MEDWAY A.S. Meetings held on second and fourth Wednesday of each month, 8.00 p.m., at Dene Court School, Watling Street, Gillingham, Kent.

RESGATE & REDHILL A.S. President, Mr K. Pascott; chairman, Mr F. B. Young; vice-chairman, Mr E. Cascott; secretary, Mrs B. Hambleys (16 Chilterton Drive, Merleham, Surrey); show secretary, Mr J. Wood. New venue: Coronet Suite, Chaggers Head, Horley, Surrey.

SMITHWICK & D. A.S. President, Mr L. Stokes; chairman, Mr E. Woodward; vice-chairman, Mrs M. Scott; secretary, Mr W. E. Downes (27 Arden Road, Southwick, Warley, Wores.); show secretary, Mr J. Hodgkiss. Meetings: fortnightly, on Wednesdays, at Arden Road School, Arden Road, Southwick.

SOUTH PARK AQUATIC (STUDY) SOCIETY (coldwater fish club). New venue. Copson Hall, Copson Road, Wimbledon, second Monday of month, 8 p.m. All coldwater aquarists welcome.

STROUD & D. A.S. Secretary Miss J. H. Smith (vice-president Mrs M. G. Jones at 20th May (14 Fern Park, Lightwell, Stroud, Glos.); Mr M. S. Jones is the Society's show secretary.

THURBROCK A.S. New secretary: Mr J. Furber (19 Chapel Close, Stamford-la-Bishop, Essex).

WEYMOUTH & D. A.S. Secretary, Mr D. Rogers (149 Dorchester Road, Weymouth, Dorset); chairman, Mr Turner; vice-chairman and show secretary, Mr T. Hamon.

WHITLEY A.S. Meetings: fortnightly, at Railway Inn, Hillside Road, Whitley Bar.

A Breeding Programme for Egglayers

By F. W. COLES

LIVEBEARERS used to be by far the most popular varieties of tropicals, but gradually the emphasis has changed and egglayers are the varieties kept by most aquarists today. For the people with fish houses I have said previously that the simplest form of line breeding with live bearers necessitates at least half a dozen tanks.

Since you can only reap from a genetic pool the material that exists in it, after three or four generations it becomes obvious that an outcross will have to be brought in, to put into the pool the factors that are missing. To do this will need the acquisition of further tanks, and if three strains are to be kept (the original one, the outcrossed one and a cross between the two) it will be seen that the more advanced forms of line breeding are both complicated and demanding in terms of space and records. It should be stressed, though, that the demand on time is not so great, and that three or four generations are all that are usually required to evaluate the genetic material available before further action is planned. Perhaps, later, I could return to the subject of more advanced line breeding and inbreeding, but for the present I would like to consider the question of egg-laying and the average breeder.

In some ways actually breeding egglayers is more difficult, and it is not always possible to bring about spawning when desired by the aquarist, although, when desired by the fish themselves it is almost impossible to prevent it unless they are separated. It is one of those times when the aquarist has read the book and the fishes haven't; but apart from inducing spawning, breeding egglayers is easier if the objective is the production of fish for the show bench. In most cases the fish themselves are purely 'natural' specimens (i.e. not a cultivated variety so far as finnage, shape or colour is concerned) and the requirements usually are good natural shape, size, colour etc., so that instead of dealing with a complicated selection of genes, breeders are in the fortunate position of being able to forget about them altogether!

The only real genetical factor to be considered beyond the selection of the best from each brood (i.e. gathering together the influential factors for depth of colour, markings etc., or where more than one gene is required for full expression of a factor) is hybrid vigour.

As hybrid vigour is obtained by outcrossing, it naturally follows that the aquarist is able to reduce the number of tanks required to keep a variety going, by buying in one of the parents for each generation. Naturally he will procure the best he can to suit his purpose, but he is fortunate in not having to 'insure' against the loss of strain by keeping duplicates, as happens in line breeding livebearers, and the requirements are far simpler. How then to set about it?

First, since he is bringing in an unrelated fish each generation it is necessary to decide whether it is best to perpetuate the strain through the male or female line. It is preferable to use the females and buy in a male each generation for several reasons. The male can be used to spawn with more than one female; he is usually the fish carrying the most colour or markings, so we can better assess his qualities when buying him in. The female usually has more effect on size, and as we have reared her we have naturally assured that she is neither underfed nor overcrowded as she grows.

The way to start breeding a species could be by buying a trio of youngsters from one dealer and another from a further dealer or fancier. These will be unrelated to the others. This means that two tanks are needed to start with. Provided that both sexes are present in one of the trios, all is ready to commence as soon as they are of breeding age, and the female is obviously carrying eggs. The parent fish used will, of course, be one from each of the original trios and as soon as this adult pair is available the remaining fish are of no particular interest. They could, of course, be exhibited if good enough but are worth keeping as companions when the sexes are segregated.

In bringing up these fish, breeders are not beset by the difficulties of keeping sexes separate that livebearer breeders have to contend with, and the sexes can remain together until it is possible for breeding to begin. It is best to separate them then for a week or two, and in this connection I do not like to keep fish singly as two or more seem happier than fish kept alone. During this period the breeding tank can be prepared and when the time comes the adult pair placed in it.

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Spawning of a Catfish



Corydoras schultzei Holly

By RUDOLPH ZUKAL

I WAS not very enthusiastic when my friend told me that he had to go away for some months and that I must look after his armoured catfish. I had had nothing to do with this fish before and, in fact, preferred other species. The fish that were entrusted to me I put into a 12 gallons tank with ordinary fresh tap water, at a temperature of approximately 68°F (20°C). By way of tank 'furnishing' I put in several *Cryptocoryne*. Then, for the first time, I was able to watch these fish searching about the tank bottom for their food and I decided that I wanted to know more about them.

These are small fish, growing only to about 2½ inches, and they belong to the Callichthyidae or armoured catfish group. They come from the smaller tributaries of the Amazon basin and were first imported into Europe in 1938.

In adult fish sex differences are easily seen; the male is substantially smaller and slimmer and his dorsal fin is higher and pointed. One can tell that the fish often live in oxygen-poor water for Nature has provided the species with an additional breathing organ—the end-gut serving the armoured catfish for this purpose. Also one can see how they shoot up to the top of the water every now and then to utilise the surface air.

As I sat in front of the tank and watched their intelligent-looking eyes turning in all directions I became quite fascinated by them. I gave them live daphnia and tubifex worms and watched them searching away with their barbels over the tank bottom for their food. It

Photographs by the author

Translated by F. MARSH

took them only 3 days to become accustomed to their new surroundings and early next day that great event—unforgettable to every aquarist—took place: the fish spawned!

When I took my camera to the tank several eggs had already been laid in the plants and on the glass. The entire spawning process usually lasts several hours and mostly takes place in the early hours of the morning. It follows an exact pattern. The literature advises putting two or three males with the one female, as one male should not have to fertilise the number of eggs laid (about 200, according to the size of the female). My tank inmates were four males and two females. Now let me describe exactly what I saw.

The male courted the female while swimming round her and scratching with his barbs at her body, beginning at the tail fin and working in the direction of her head, where he stopped. Then he lay diagonally in front of her jaws. At this moment the fish are holding themselves in such a way that the female's jaws are in front of the male's genital opening, at which she is apparently sucking. After a few seconds the male curled himself into an S-shape and at the same time gave up his milt, which landed in the female's ventral fins. This process took place either in midwater or on the bottom of the tank and the graceful swimming movements of the fishes were remarkable to see. After this process the male was exhausted and rested for a few seconds.

Often the eggs were laid in the ventral pocket during the 'sucking' act, while at other times, I noticed, the eggs were laid in the fins a few moments



On the opposite page the male places himself in front of the female after 'scratching' at her body and head. Above, the female's mouth is applied to the male's genital opening

after ejaculation by the male. Each time one to five eggs were laid. It seems to me that the inside of the anal pocket is furnished with a special substance and that the male milt reaches the female's anal pocket before the eggs enter. The female then searched, with eggs in pocket, for a suitable place on which to deposit them, and while this was being done the male was swimming round her all the time.

Just before the eggs were placed she cleaned the area with her jaws, opened the fin pocket slightly



After the male's sperm has been taken into the female's ventral fins her eggs are laid and held there while she searches for somewhere to deposit them. Here she is sticking the eggs (some are still to be seen held within the ventral fin) on a leaf of cryptanthum, with two males in attendance behind her



Even during egg-laying the courtship of the female by the male fish can continue. Here one male is 'scratching' the female's head immediately before placing himself in the position shown in the picture on pages 74 and 75.

and allowed the very sticky eggs to slip out. It seems to me there is little doubt that the pocket is prepared with a special body secretion—I tried to separate one of the sticky eggs from the plants with a glass rod but it was quite impossible. So she lays her eggs well.

However, I noticed that, at one moment when the laying was disturbed and she went to the bottom of the tank a grain of sand stuck to the eggs

in the slightly opened anal pocket. At this point she opened the pocket wide so that the egg with the grain of sand on it fell to the bottom. Obviously then the inside of the pocket is only sufficiently sticky—largely to trap the male sperm.

It was interesting to see that between bouts of 'courtship' the eggs were touched fleetingly by both sexes with their jaws. Possibly they were being cleaned by this means. The wooing con-



Eggs are visible within the ventral fins of the female as she swims over the glass selecting places to deposit them. Some eggs that have already been stuck to the glass are also to be seen.

times even while the female is placing the eggs and the scratching with the barbels and the placing of the male in front of the female's jaws still goes on. Several males were in fact involved and, as I have said, it was immediately after the partners separated that the eggs were laid in the pocket. The female laid her eggs both on a *Cryptocoryne* leaf and on the tank glass. Finally, with the courtship becoming more and more stormy the fish were not even disturbed when I put a glass rod into the tank to test their reaction.

If the fish are well fed, they spawn during a season that lasts from February to April, each time for a length of 2 or 3 days. Although they are not noted for being egg-eaters, the adult fish should be removed from the tank after the spawning. Or the eggs can be removed, by removing the plant on which they have been laid or by carefully 'lifting' the eggs from the glass surface with the help of a razor blade. At first, the eggs are white, then later become green and the fry appear about after 4-5 days. After 8 days they must be given food. This is not too much of a problem as they can take relatively coarse fry food. Filtration, aeration and frequent part changes of water all help in achieving a successful rearing of the brood. I hope that many aquarists will get as much pleasure from their armoured catfish as I did.



As well as on rocks or the aquarium glass, catfish eggs can be placed on a leaf as shown in this picture. Such plants bearing eggs can be removed from the spawning tank for the fry to hatch and be reared in a separate aquarium from their parents. The author observed a hatching time of 4-5 days.

Queries Answered

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meal worms can still be used in this case. They must be squashed and the hard casing removed; the soft, inner portion only can then be fed to the fish.

Blowing into Bags

When I bought my last batch of fish the fish-shop owner blew into the plastic bag when sealing them. Do we not breathe out carbon dioxide as fishes do? Therefore why should they benefit from a layer of poison gas over the water? Am I right?

Blowing into fish bags means that they are being given an atmosphere of approximately 4% carbon dioxide instead of the normal 0.04% present in air. This obviously does not give the best of conditions, but since there is still some 16% or so of oxygen in human expired breath (compared with 20% in air) the situation is not so bad as it might be, and for short

periods most fish would be unaffected by the practice. However, blowing in the bag is a quite unnecessary procedure since, when dealt with correctly, a plastic bag can be adequately inflated with air under the slight pressure induced by tying the neck of the bag.

Fish and Pain

I have just read in a book 'Pain is perceived in the cortex—fish have no such comparable organ'. Could you please explain, if fish cannot feel pain, how do they know they have white spot? They show every sign of knowing—otherwise they wouldn't try to rub off the parasites on rocks etc.

With regard to the subject of pain, it is probably necessary to distinguish between what we humans experience subjectively (when a 'painful' stimulus is given to the skin, for example) and what the fish experiences. It is true that an unfortunate human being with brain injury may no longer 'feel' pain and yet might make responses to a pinprick, which shows that signals are still being received at an uncon-

scious level. In the same way perhaps (and no one knows for sure, so we must say perhaps) the reactions we see in a fish in what appears to be a painful (to us) situation are purely reflex without any of the sensation we get. Irritation of the skin by the presence of parasites promotes body scratching movements and activities but (1) does the fish 'feel' the itch and (2) does it get worried about it? For (1) the answer is 'who knows?'; for (2) the answer is no. It is the development of a cortex that seems to produce the faculty to worry! Higher animals such as dogs can be made to make scratching movements quite helplessly when their flanks are pressed. Here again is a reflex response triggered off by something that manifestly should not make the dog 'itch', but it is nevertheless just the same response as the fleas start up when they are active. Even if the dog does 'feel' itching in the way we do it is certain that it is not capable of getting all introspective about it any more than the fish is. We, perhaps unfortunately, certainly are.

What a Pump Can do for Your Pool

By BRIAN FURNER

A PART from the pleasure of watching moving water in the garden pool or listening to its pleasant sound when you are dozing in a deckchair there are other advantages in investing in an electric pump to drive a waterfall or fountain.

For the pondkeeper the health of his fish is the prime consideration and even in the best regulated of garden pools moving water in summer is beneficial. True, where the pool is well stocked with aerating aquatics, it is rare to see goldfish gasping for breath at the surface when the water warms up in high summer, but although we may do all to imitate Nature and consider we have balanced conditions things can go wrong.

I am quite sure that many of the sad tales I hear each summer of dead goldfish found floating in small garden pools are due to a lack of oxygen in the water and not to the suspected causes of pests, diseases and wanton vandalism of the kids (always boys!) next door.

It would take more than the usual sort of oxygen shortage to affect tench adversely and from my own observations I have come to the opinion that neither the Nishiki koi nor the hi-goi suffer more greatly from a slight oxygen deficiency than does the goldfish. But orfe and rudd most certainly do—as I know to my cost. So does the mirror carp if the deficiency continues for some time. With a waterfall or a fountain this worry about possible oxygen deficiency may be eased at once at the press of a switch to circulate pool water through the atmosphere and back into the pond. Thus the pool owner with a pump installed may safely include fishes in his collection which at times need a supply of oxygenated water over and above that occurring in the still, warmed water of a small pond.

Before buying a pump I suggest you do as I did—visit a centre where



Brian Furner's waterfall and rockery pool photographed immediately after its construction with pieces of plastic liner sheet left over from the main pool. Rock plants will eventually mask gaps and edges in the surround.

several types are in operation. The next best thing is to see a pump working in a friend's garden. The alternative is to study a catalogue describing and illustrating various models. For a really large pool a surface pump is advised. This is an electrically driven centrifugal pump which needs housing in a brick or concrete chamber alongside the pond. With this sort of pump one may have one or more waterfalls and fountains.

But most garden pools are like my own—small in size—and a small submersible pump suits the needs of the pool and one's pocket. A submersible pump is simply placed in the pool and taken out when not required for use. Mine spends the period October to May in the garden shed. It is advantageous if the pond is sited near to a garden shed or a garage in which there is an electric point. This proximity precludes having to buy extra electric cable and having yards of it trailing around the garden from the house to the pool. In my own garden the cable

crosses a path and, when the pump is in position in the pool, I lay a mat over this section of path to cover the cable. This prevents damage to the wire and bad temper on my part were I to trip over it.

Whether one decides to go in for a waterfall or for a fountain does not rest entirely on personal choice. In an informal small pool a fountain can look very much out of place but singularly attractive in a formal pool—whether square, rectangular or circular. It is alongside an informal pool that a waterfall or a simple cascade fits in so admirably. But the construction of a waterfall presupposes a rockery nearby. Often, during pool construction the gardener makes use of soil excavated from the pool site by piling the earth alongside. With the addition of pieces of rock and the planting of aubrieta, primulas and similar low growers an attractive garden feature rapidly takes shape.

For my own small informal pool with a handy rockery already along-

side I chose an Otter submersible. This pump is so versatile. It may be used to drive a waterfall or cascade, pump out pool water when the pond is having its annual clean and, with the addition of a simple, cheap attachment, be converted if so desired to operate a fountain. The fountain may emerge directly from the pump or be housed within a pool ornament.

For my waterfall I proposed constructing a cement watercourse in which small rocks would be embedded to increase the natural effect. The pump supplier warned me that

the cement would crack in winter and suggested the use of pieces of moulded glassfibre shaped as small cascades or as rock streams. Those exposed for sale looked singularly ugly but where several had been set in position alongside an exhibition pool and the edges of the sections masked with rock plants the effect was pleasing. These glassfibre water course units do not have to be cemented in position; they are just sunk into soil of the rockery. Each section has an overhanging lip from which water falls into the section below. Any gaps between the

units may be filled with stones or seashells.

As things turned out my waterfall was provided at no expense. Last summer I decided to enlarge the pool and to use a liner. Owing to the irregular shape of the pond there were several pieces of liner over-sufficient, in fact, for the construction of a shallow pool near the top of the rockery and for a water-course leading from this pool to the pond below. The pieces of reinforced plastic sheet are held in position by being tucked into soil over which rock plants will spread by July.

Guppy Types No. 11: The Scarftail

THE late 'forties were the embryo period for those British guppy types known collectively as "broad-tails". In 1946, the 45 registered fish societies in these islands were swelled by new clubs. In 1947 we saw the founding of the F.N.A.S., Platy Breeders' Group, British Marine and Herpetological Societies. The Guppy Breeders' Society in the specialist field changed to the F.G.B.S. and one of their first acts was to issue standards for a roundtail female guppy plus two males: the cofer and Subson.

The A.O.V. classes at shows were well supported, each breeder trying to produce new varieties. It was in such a class in June, 1950 that the judge's attention was drawn to one entry named by the exhibitor as 'scarftails'. The derivation of the name was not hard to fathom because each guppy trailed a long, ribbon-like caudal fin, coloured red and blue, as long as its body.

Twelve months later the F.B.A.S. issued new Standards. In these they rejected their own guppy outlines in favour of the specialists' 1951 eight male outlines—two of which were the new veiltail and scarftail, in a 12 page Handbook that cost 1s.

Presenting the prizes at the F.G.B.S. Annual Guppy Show in 1953, Mr W. J. Page, editor of *WATER LIFE*, said about the scarftails he saw that this guppy was against Nature and suggested that it would be some time before breeders could establish true strains! This remark gave the Federation of Guppy

1951
F.G.B.S.



1970
G.S.I.



Outlines of the first scarftail standard (top) and the joint F.G.A. and F.G.B.S. (Guppy Standards Incorporated) standard (1970)

Breeder's Societies president, Henry White, an idea for the motto they were seeking: *Venus tempus et Natura*—against time and Nature.

The original scarftail was not the work of one breeder but three. From sources as widely separated as San Francisco (Dr Weyrauch), London and Australia fish arrived in Britain from which were produced two new strains: the veiltail and the scarftail.

At that time a male guppy (any variety) could be awarded a maximum of 15 points for size, yet the female could earn 25. A new system of pointing was prescribed and it was whilst the Judges and Standards Committee were deliberating on the proposed scarftail standard that the world-famous 'five twenties' pointing system was devised, the brain child of their Committee chairman, the late W. G. Phillips. For that reason alone this ribbon-tailed guppy deserves a place in aquatic history.

Today's fish should have a caudal

width equal to the body depth: 7 mm ($\frac{7}{8}$ in.); length to be that of the body, 29 mm (1 $\frac{1}{4}$ in.). The end of the caudal fin to be square. The dorsal to be long and pointed, broad-based and extending beyond the caudal peduncle. This description differs only slightly from that first outline of nearly two decades ago.

Though many breeders have kept this variety alive over the years, two immediately spring to my mind as being the most successful: Peter Scott, who once confided to me that his secret was acid water, and Charles Pery of Crewe (a name not unfamiliar to readers of *PFM*).

Is it coincidence that these two notable aquarist 'professionals' are virtually neighbours and both firm believers in having their tanks bulging with healthy plants? Perhaps those other 'scarf' fanatics might like to comment?

J.K.

Breeding Programme

continued from page 73

You will need, for egg-layers, a breeding tank, a tank for the spare adult fish and, say, two tanks for rearing. The fry can be kept together for a time, but as it is never policy to crowd them, they should soon need splitting between two tanks. It is not necessary to split further than this and numbers are kept down by culling until the females needed for the next generation can be selected.

It is, of course, possible to have several broods from the same adult pair, and it is unnecessary to move on to the next generation immediately. When the time comes, though, do not delay to buy in youngsters to provide the next male, and it is best to do this when the youngsters being reared for your females are approximately the same age.

You can then continue the cycle as has now been described.

These notes apply to the more peaceful species, and some of the more belligerent kinds may need different treatment, although the basic methods are applicable.

One kind of fish can, under certain conditions, be bred in a community tank, although further tanks are required for rearing. Provided that they are in a tank with peaceful species, anabantids will build their bubble nest and spawn in a community aquarium. The nest can be left for, say, 2 days, and the male will guard it. It can then be floated off into a ladle or plastic box and transferred to a rearing tank for the eggs to hatch and the fry reared separately. If you leave the male a few bubbles he will happily repair his nest and any eggs left will hatch to the subsequent approval of the rest of the tank's inmates, who will no doubt account for them all within a couple of days.



THE inaugural meeting of the SOUTH WEST GROUP of the BRITISH MARINE A.S., held at the home of the group secretary, Mr L. Doubleday, got off to a very good start; 16 prospective members present, from Exeter, Dawlish, Torquay, Paignton and Brixham, were confirmed members by the end of the meeting. Among items discussed were pollution and the effects of detergents on local marine life. A project of observation and recording at selected beaches was planned for future group meetings. A letter from Mr Sanderson, a member in Malta, described some of the colourful Mediterranean wrasses and sea perch. Group members are looking forward to seeing what kind of 'bag' their secretary will bring back from his holiday in Malta in May. The evening closed with a discussion on the desirability of the election of officers. Everyone agreed that, apart from the group secretary, who is the link with the parent body, no officers should be elected, as this would tend to distract members away from the parent body. Members agreed to act as host once a month, in turn.

SIX clubs competed in the MEDWAY A.S. inter-club show, with North Kent gaining the highest number of points (2, Tonbridge; 3, Medway). The best fish in the

show was a *G. metallicus*, owned by Mr I. T. Mathieson of Tonbridge. Miss Medway 1970 (currently known as Miss Blue and White) presented the prizes at the end of a highly successful evening. Awards were as follows:

Barbs: 1, Mr J. Parker (N. Kent, half-banded barb); 2, Mr J. Marshall (Medway, ardius barb); 3, Mr J. Bellingham (Tonbridge, *Barbus chola*). **Anabantids:** 1, Mr C. Hunter (N. Kent, *Ctenopoma*); 2, Mr M. Golding (Tonbridge, *Aising gourami*); 3, Mr J. Martin (N. Kent, opaline). **Cichlids:** 1, Mr P. Robinson (N. Kent, *Tilapia*); 2, Mr P. Wills (N. Kent, *Haplochromis bartoni*); 3, Mr T. Hine (Tonbridge, *P. arthemi*). **Livebearers:** 1, Mr I. Mathieson (Tonbridge, *G. metallicus*); 2, Mr D. Gleadall (Medway, tuxedo sword); 3, Mr D. Simpson (Medway, black platy). **Characins:** 1, Mr T. Hine (Tonbridge, piranha); 2, Mr K. Saxby (N. Kent, *Nannostoma*); 3, Mr L. Getley (Tonbridge, *L. maculatus*).

P.R.O. of BRIGHTON & SOUTHERN A.S. Mr D. M. McFarlane, reports on 'one of the largest and best attended meetings we have held for some time', when visiting speaker Mr R. Skipper, pioneer of European discus breeding, lectured to an audience of over 100 members and friends. In his most comprehensive talk, illustrated by some beautiful slides of the discus, Mr Skipper did not forget one aspect of the keeping and breeding of this noble and magnificent fish. Included in the audience were members from Mid-Sussex, Portsmouth, Hastings, and Reigate & Redhill Societies, who took part in an inter-club seven-classes table show judged by Mr D. Ellis. Mid-Sussex came first with 505 points; 2, Brighton (482); 3, Portsmouth (432).

AT KEIGHLEY A.S. annual Open Show, club member Mr H. Smith

was awarded the Mrs Gear Trophy for the Keighley member with the fish scoring the highest number of points, and Messrs. A. and C. Lofthouse of Huddersfield won the best in the show award, the A.Y.A.S. Diploma and a gold pin. Detailed results are:

Guppies: 1, Mrs J. Stephens (Castleford, 78, section winner); 2, Mr D. Moxley (Blakeborough, 77); 3, Mr K. Shaw (Barnsborough, 76). **Swordtails:** 1, Mrs Burgess (Keighley, 77); 2, A. & C. Lofthouse (Huddersfield, 75); 3, Mr D. H. Hartley (Scarborough, 74). **Mollies:** 1, D. M. & E. Stephens (Castleford, 77); 2, Mr M. Anthony (York, 77); 3, Mr H. Ryan (South Leeds, 74). **Platys:** 1, Mr H. Gardner (Aireborough, 74); 2, Mr G. Kiblington (Doncaster, 72); 3, Mr R. Clough (Skipton, 70). **A.o.v. livebearers:** 1 and 2, Mr S. Hall (Aireborough, 76, 70); 2, Mr G. Thickbroom (Castleford, 72).

Barbs, up to rosy: 1, Mr E. Shead (Swillington, 80, section winner); 2, Mr J. A. Whiteley (Aireborough, 76); 3, Mr G. Thickbroom (73). **Barbs over rosy:** 1, Mrs K. Batty (Swillington, 79); 2, Mr A. Ashby (Bradford, 77); 3, Mr M. E. Donahue (York, 76). **Characins up to 3 in.:** 1, Mr F. Baxton (Aireborough, 79); 2, H. & R. McKenna (Nelson, 77); 3, D. & R. Standen (Loyne, 76). **Characins over 3 in.:** 1, Mr G. Thickbroom (81, section winner); 2, Mr D. Clark (Morecambe, 80); 3, Mr H. Smith (Keighley, 78). **Rasboras and danios:** 1, Mr D. Truby (Nelson, 80, section winner); 2, Mr K. Frew (Castleford, 77); 3, Mr A. & E. Allison (York, 74). **Carps and minnows:** 1, Mrs L. Smith (Keighley, 75); 2, H. & R. McKenna (73); 3, Mr I. Stephenson (York, 70). **Sharks and flying foxes:** 1, D. & R. Standen (76); 2, Mr J. A. Whiteley (Aireborough, 75); 3, Mr N. R. Gibson (Huddersfield, 72).

Fighters, true colour: 1, Mr J. A. Whiteley (72); 2, Mr J. Rhodes (Scarborough, 70); 3, Mr R. Megon (Aireborough, 68). **Fighters, multi-colour:** 1, Mr S. Popsen (Scarborough, 70); 2 and 3, Mr J. Rhodes (66, 67). **Anabantids up to three-spot:** 1, Mr J. A. Whiteley (77, section winner); 2, Mr S. E. Whitehead (Tadcaster, 75); 3, Mr K. Frew (Castleford, 74). **Anabantids over three-spot:** 1, Mr K. Shaw (Blakeborough, 70); 2 and 3, Mr A. E. Hoop (Keighley, 75, 74). **A.o.v. tropical:** 1, Mr H. Smith (Keighley, 80, section winner); 2, D. & R. Standen

Layne, 79); 3, W. & M. Morris (Loyne, 78).
 Toothcarps: 1, A. & C. Lofthouse (Huddersfield, 84, section winners); 2 and 3, M. M. & H. Crowther (Swillington, 83, 81).
 Angel fish: 1 and 2, H. & R. McKenna (Nelson, 81, 79, section winners); 3, Mr E. Booth, senr. (Sheffield, 77). Dwarf cichlids up to 4ribensis: 1, Mr N. R. Gibson (Huddersfield, 79); 2, H. & R. McKenna (78); 3, Mr P. Reynolds (Swillington, 77). Cichlids over 4ribensis: 1, D. & R. Standen (86); 2, Mr G. Fairclough (Bradford, 79); 3, Mr J. A. Whiteley (78). Corydoras catfish: 1, Mr J. Whiteley (Keighley, 78, section winner); 2, Mr E. Wells (Doncaster, 75); 3, Mr B. M. Booth (Leeds, 74). Loaches and Botias: 1, Mr and Mrs J. Coward (Loyne, 77); 2, Mr and Mrs Zamiteas (Bradford, 75); 3, Mr P. Bamford (Loyne, 74). A.o.v. catfish: 1, Mr A. Shillam (Keighley, 77); 2, Mr J. A. Whiteley (76); 3, Mr H. Illingworth (Nelson, 75).

Breeders, livebearers: 1, Mr H. Gardner (Huddersfield, 78, section winner); 2, Mr D. H. Hartley (Scarborough, 77); 3, Mr B. Thickbroom (Castleford, 76). Breeders, egg-layers: 1, Mr F. Buxton (Aireborough, 79, section winner); 2, M. M. & A. Crowther (79); 3, Mr S. Gear (Keighley, 77). Pairs, livebearers: 1, Mr S. Caslake (Swillington, 86, section winner); 2, Mr S. Pogson (Scunthorpe, 79); 3, Mr A. E. Heap (Keighley, 77). Pairs, egg-layers: 1, Mr J. A. Whiteley (79); 2, Mr A. Curchin (Independent, 77); 3, D. & R. Sharp (Castleford, 76).

Common goldfish: 1 and 3, Mr S. Hall (Aireborough, 72, 67); 2, Mr C. Asquith (Castleford, 69). Fancy goldfish: 1, 2 and 3, Mr S. Hall (77, 76, 75). Shubunkins: 1 and 3, Mr A. Isherwood (Accrington, 86, 75, section winner); 2, Mr G. Thickbroom (Castleford, 77). A.o.v. coldwater: 1, Mr B. Johnson (Independent, 79); 2, Mr A. Turner (York, 69); 3, Mr I. Stephenson (York, 68).

Janets. A.v. livebearers: 1, M. Hislop (Swillington, 86); 2, L. Danielson (Huddersfield, 79); 3, G. Thickbroom (Castleford, 75). A.v. egg-layers: 1, G. Thickbroom (83, section winner); 2, D. & D. Sharp (Castleford, 79); 3, Miss A. Gregory (Nelson, 77). E.v. coldwater: 1, L. Danielson (50); 2, G. Thickbroom (45).

ENTRIES at this year's NELSON S.S. Open Show were 50% up on last year, with 549 exhibits benched by 352 entrants representing 34 societies. There were two trade stands at the show, from Byner Aquatics and PFM. Judges were Mr C. Walker, Mr B. Pengilly and Mr J. Wiseman, and the awards were presented by Society president, Mr T. Truby, as follows:

Guppies: 1, Mrs M. Cobb (Belle Vue, 74); 2, Mr Moylan (Blakeborough, 73); 3, Mr Ross (Independent, 70). Swordtails: 1, Mr N. R. Gibson (Huddersfield, 74); 2, Mr K. Shaw (Blakeborough, 72); 3, Mr S. Cohen (Nelson, 70). Mollies: 1, Mr V. Knowles (Nelson, 77, section winner); 2, Mr and Mrs Shaw (B.V., 74); 3, Mr S. Harrop (Ostram, 71). Flats: 1, Mr K. Callow (Independent, 71); 2, Mr S. Robinson (Sunnybrow, 72); 3, Mr Moylan (Blakeborough, 69). A.o.v. livebearers: 1, Mr L. Kaye (Top Ten, 74); 2, Mr Davis (Privateers, 72); 3, Mr E. Smith (Sheffield, 68).

Small characins: 1, Mr F. E. Gregory (Nelson, 83, section winner); 2, H. and R. McKenna (Nelson, 80); 3, Mr and Mrs Bentley (B.V., 76). Large characins: 1, Mr Wood (Sherwood, 82); 2, Mr D. Kennedy (Sheffield, 81); 3, D. and R. Standen (Loyne, 78).

Janets: 1, Mr and Mrs Grimshaw (Sunnybrow, 80, section winners); 2, Mr and Mrs Breatley (79); 3, H. and R. McKenna (78). Dwarf cichlids: 1, H. and R. McKenna (79); 2, Mr and Mrs M. Cooper (Sheff, 78); 3, Mr and Mrs Jessop (Huddersfield, 77). A.o.v. cichlids: 1, D. and R.

'All tickets sold and a reserve list of 900' is a mark of the enthusiasm with which hobbyists greeted the efforts of HEMEL HEMPSTEAD A.S. in presenting a programme of films on freshwater and marine aquarium fishes by Mr Carels and Mr Wante. To those present who may have had the opportunity of seeing the films previously, it was a pleasure to be reminded of the immense skill and humour embodied in their making and to hear Mr Wante's rib-tickling commentary. And to those who were seeing the films for the first time—three hours of delight! Although Messrs Carels and Wante were proposing not to take these films out of Belgium again, as so many people were disappointed in obtaining tickets the organisers are hoping to prevail upon these brilliant Belgian cinematographers to make a return visit to this country in the autumn.

Standen (Loyne, 76); 2, Mr J. Dawson (Ostram, 78); 3, Mr Shaw (Morecambe, 77). Corydoras: 1, Mr J. Mosley (Keighley, 76); 2, Mr R. Davis (B.V., 75); 3, Mr Sewell (Sherwood, 74). Catfish: 1, Mr Aubrey (Bradford, 77); 2, Mr A. B. Wilke (Streetford, 74); 3, Mr and Mrs Bewick (Middleton, 72). Loaches: 1, Mrs Davis (Privateers, 76); 2, Mr Sewell (Sherwood, 72); 3, Mr J. King (Valley, 70). Sharks and foxes: 1, Mr and Mrs Ashton (Middleton, 79, section winners); 2, Mr B. Bottomley (Privateers, 78); 3, H. and R. McKenna (77).

Rasboras: 1, Mr D. Kennedy (Bradford, 78); 2, Mr D. Charlton (Liverpool, 78); 3, Mr T. Hallett (Accrington, 77). Toothcarps: 1, Mr J. Allen (Middleton, 80, section winner); 2, Mr K. Ankers (N. Staffs., 79); 3, Mr K. Harrop (Ostram, 78). Danios and minnows: 1, Mrs M. Cobb (B.V., 78); 2, Mr Moylan (Blakeborough, 77); 3, Mr and Mrs Risley (Ashton-U-Lyne, 78). Small barbs: 1 and 2, Mr F. E. Gregory (Oldham, 85, 82, section winner); 3, Mr F. Ledger (Top Ten, 79). Large barbs: 1, Mr R. Dickens (Nelson, 79); 2, Mr A. B. Wilke (Streetford, 78); 3, Mr A. Hurs (Hyde, 76).

Fighters: 1, Mrs M. Cobb (B.V., 77); 2, Mr J. Rhoades (Scunthorpe, 74); 3, Mrs Davis (Privateers, 72). Anabantids: 1 and 3, Mr Sewell (Sherwood, 81, 71, section winner); 2, Mr A. E. Wylock (Tadcaster, 76). A.o.v. tropical: 1 and 3, D. and R. Standen (Loyne, 81, 79, section winners); 2, Mr M. Jones (Middleton, 80). Pairs livebearers: 1, Mr and Mrs Grimshaw (Sunnybrow, 78); 2, Mr S. Pogson (Scunthorpe, 76); 3, Mr W. Smith (Middleton, 74). Pairs egg-layers: 1, Mr and Mrs Ashton (Middleton, 79, section winners); 2, Mr Page (Independent, 75); 3, Miss A. Gregory (Nelson, 74). Breeders livebearers: 1, Mr N. R. Gibson (Huddersfield, 78); 2, Mr Ross (Independent, 74); 3, Mr Gardner (Aireborough, 74). Breeders egg-layers: 1, Mr and Mrs Bewick (Middleton, 80, section winners); 2, Mr J. Burton (Huddersfield, 78); 3, Mr S. Harrison (Huddersfield, 77).

Fancy goldfish: 1, Mr C. Whiteley (Accrington, 84, section winner); 2, Mr A. Isherwood (Accrington, 81); 3, Mr S. Walsh (Accrington, 79). A.o.v. coldwater: 1, Mr D. Charlton (Liverpool, 79); 2, Mrs M. Cobb (B.V., 78); 3, Mr C. Whiteley (77). Juniors livebearers: 1, Master A. Kaye (Top Ten, 78); 2, Miss B. Kaye (Top Ten, 77); 3, J. Quinton (Valley, 76). Juniors egg-layers: 1, Master A. Kaye (Top Ten, 86, section winner); 2, Master F. Cobb (B.V., 79); 3, Miss A. Gregory (Nelson, 77).

The best fish in the show award was presented to the chequer barb bred and owned by Mr F. E. Gregory of Oldham (85 points), and H. and R. McKenna received the award for the Nelson members gaining the most points.

THERE were 411 entries in the HOUGHTON & D.A.S. Open Challenge Show, judged by Mr J. Robertson and Mr A. Brunton. Trophies and prizes were presented by Mrs M. Leighton as follows. The best fish in the show award went to Mr J. D. Ambrases's tinfoil barb; President's trophy for competitor with highest number of points, Mr and Mrs Cohen (Castleford, 19 points); Castleford and Peterlee both received 27 points, and share the Blue Riband trophy (6 months each). Details of results are:

Furnished jars: 1, Mr Frazer (Priory); 2 and 3, Mr Duncanson (Priory). Guppies: 1, Mr A. Bebbington (Peterlee); 2, Mr N. Crowther (Swillington); 3, Mr Gough (B. Auckland). Mollies: 1, Mr Kinafick (Mt. Pleasant); 2, Mr Boedis (Mt. Pleasant); 3, Mr Neworthy (Peterlee). Swordtails: 1 and 3, Mr and Mrs Cohen (Castleford); 2, Mr Atkinson (Mt. Pleasant). Flats: 1, Mr Atkinson; 2, Mr Duncanson; 3, Mr Elliott (B. Auckland). Barbs. Small: 1 and 2, Mr Newasime (Clavland); 3, Mr W. Warrel (Peterlee). A.o.v. barbs: 1, Mr J. D. Ambrases (Mt. Pleasant); 2, Mr Drummond (Washington); 3, Mr Davidson (Mt. Pleasant). Characins. Small: 1, Mr Heptinstall (Castleford); 2, Mr R. Walker (Houghton); 3, Mr Atkinson. A.o.v. characins: 1 and 3, Mr Duncanson; 2, Mr Heptinstall. Cichlids. Small: 1, Mr S. Hall (Aireborough); 2, Mr J. Tate (Peterlee); 3, Mr Heptinstall. A.o.v. cichlids: 1, Mr Drummond (Washington); 2, Mr K. Meek (Houghton); 3, Mr A. Bebbington (Peterlee).

A.v. fighter: 1, 2, and 3, Mr and Mrs Cohen (Castleford); 1, 2, and 3, Mr and Mrs J. Tate; 2, Mr Atkinson; 3, Mr Morton (Independent). Sharks: 1, Mr J. Hellens (Houghton); 2, Mr Adams (Hartlepool); 3, Mr Lee (Priory). Rasboras and danios: 1, Mr Watson (Hartlepool); 2, Mr Arwell (Peterlee); 3, Mr Buck (Stockton). Egg-laying toothcarps: 1 and 3, Mr N. Crowther (Swillington); 2, Mr Hollis (Hetton). Corydoras: 1, Mr Arwell; 2, Mr A. Bebbington; 3, Mr Cohen. Catfish and loaches: 1, Mr Lowthian (Priory); 2, Mr Gates (Castleford); 3, Mr Dixon (Priory).

Breeding pairs, livebearers: 1, Mr and Mrs Cohen; 2, Mr A. Bebbington; 3, Mr Adams. Breeding pairs, egg-layers: 1, Mr McCrystal (Priory); 2, Mr Hollis (Hetton); 3, Mr Dixon. Breeders, egg-layers: 1, Mr J. Tate; 2, Mr N. Crowther; 3, Mr W. Warrel (Peterlee). Breeders, livebearers: 1, Mr Scothern (Peterlee); 2, Mr Cohen; 3, Mr and Mrs Cohen. A.o.v. fish: 1, Mr J. Whiteley (Aireborough); 2, Mr Cohen; 3, Mr C. A. Enright (Houghton). A.o.v. coldwater: 1, Mr S. Hall; 2, Mr C. Gregory (Jarow); 3, Mr R. Elliott (Independent).

ANY society within reach of Warrington interested in taking part in inter-club table shows is invited to contact the show secretary of WARRINGTON A.S., Mr J. Higham, 42 Hood Lane, Gt Sankey, Warrington; phone 36939.

FEDERATION



NEWS

F.B.A.S. Championship Classes 1971—First Results

Class K Danios and W.C.H.M.	Thurrock A.S. Winner Mr A. Kinsey
Class C Characins	Independent A.S. Winner Mr G. Greenhall
Class N Pairs of fish	Hendon A.S. Winner Mr P. Grovener
Class F Egg-laying toothcarps	Tottenham A.S. Winner Mr K. Nutt

CHAMPIONSHIP Class Trophies are issued by the Federation each season for each basic class (plus those sub-divisions that are well-supported) in the Federation's recommended classes for open shows.

Certain qualifying conditions, on the part of the affiliated Society organising the open show, must be fulfilled before a Trophy is awarded. These include: a draft of the schedule must be sent with the application form together with a provisional date and names of judges. A final copy of the show schedule must be sent to the Trophy Secretary 3 weeks before the show. After the show, a report on the number in the class, name and address of Trophy winner, name of awarding judge, plus the winner's society (if applicable), must be sent to the Trophy Secretary within 28 days. Failure to comply will result in the Trophy being withheld and preference given to other societies the following season.

Winners of Federation Championship Trophies automatically become eligible for the Supreme Championship Trophy Competition (to be staged at The AQUARIUM SHOW '71 at the Royal

Horticultural Society's Old Hall, London S.W.1, 29th-31st October).

The aquarist may think that 25 or so Trophies will not go far amongst the 120 affiliated societies. However, not all societies hold open shows and some open shows may not qualify for a Trophy as they may be for specialist societies, or the show may not have the necessary 20 basic classes. It is Federation policy to support those shows offering the competing aquarist the widest choice of classes in which to enter.

Societies also have other Trophies available to them on request. These additional Trophies are not won outright, as are the Championship Class Trophies, but are annual, perpetual awards. A qualifying condition for these Trophies is that the society must provide a free replica for the winner. Although these trophies are 'annuals', because some societies hold early shows whilst others wait until the autumn the Trophy may be held only until called for—in effect these Trophies may be won at least twice per season.

The Council Trophy—awarded to a class shown at The 'AQUARIUM SHOW', nominated by the Council,

The Lester Coatman Memorial Trophy, the Major Trophy and the Ted Jessopp Memorial Trophy are all available upon application, for any class staged at an open show. The Colindale Plant Cup is for any approved plant class at open shows. The Junior Trophy is for any class staged for junior competition only at an open show. British Furnished Aquarium Trophy is for any approved class of furnished aquaria at an open show. The Assembly Cup—awarded to a class shown at the Fish-keeping Exhibition, nominated by the Council.

If you think still more trophies are needed, the Federation invites member societies to donate a Perpetual Trophy in the society's name for use at open shows within the Federation. In addition to swelling the numbers of Trophies available, it will also advertise your society, so how about it? If you are a specialist society, a Trophy for your sort of 'niddlers' is a good way of attracting the attention of others to your cause—and, there is no doubt about it, pots bring entries!

TOM W. GLASS
Trophy Secretary, F.B.A.S.

In Brief

... THE BRITISH CICHLID ASSOCIATION, SOUTHERN AREA, are holding a meeting on Monday, 7th June at 34a Church Road, Hove, Sussex. Details from Mrs Shirley Taylor at that address; phone Brighton 739652.

... THE new Chairman of the F.G.A., Mr George Goodall, is a member of the Radlett Section, holder of the golden jewelled badge and an authority on guppy breeding. Visitors to The AQUARIUM SHOW at the RHS Hall each year will have seen Mr Goodall on the F.G.A. stand. Mr Goodall takes over from Mr Jim Kelly who has been the Association's only chairman since its formation in 1960. The elec-

tion of Mrs Rosemary Fletcher as general secretary sees the first election of a general secretary from 'the other side'

... MEETING night schedules for WHITLEY A.S. can be obtained from Mr F. Coleman, 6 Burnside Road, Cullercoats, Tynemouth, Northumberland or from Tropical Fish Centre, Esplanade, Whitley Bay.

... MR J. WHEELER judged the inter-club show between YEOVIL & D. A.S. and TAUNTON A.S., both F.B.A.S. affiliated societies. The trophy is a hand-engraved wooden plaque and was first competed for in 1964. Yeovil regained it by 58 points to 49. Members from both societies turn out in force for this competition and regard it as a local derby. The best coldwater fish award went to Mr V. Collins (Yeovil)

as did the best fish in the show award, Mr K. Forward of Yeovil won the best tropical fish award.

... WHEN Mr Frank Vickers and colleagues from the EAST LONDON A. & P.A. made what has become an annual visit to COBBY & D. A.S. they were presented with a trophy by members of Cobby in appreciation of the courtesy they have shown over many years and for all their efforts to further the hobby. The trophy will be competed for with pairs that have been bred.

... TWO junior members of BRISTOL A.S., Christopher Laking and David Saphier, found themselves among the card winners at the club's quarterly table show. Class winners were: goldfish, Mr H. Ball; characins, Mr E. Bowden; cichlids, Mr E. Wilson; guppies, Mr H. Ball.

Dates for Your Diary

14th June. F.B.A.S. Assembly. Conway Hall, Red Lion Square, London, W.C.1.

14th June. LINCOLN & D. A.S. Open Show. Drill Hall, Broadgate, Lincoln.

14th June. ACCRINGTON A.S. Open Show. St. John Ambulance Drill Hall, Bull Bridge, Accrington. Schedules: Mr K. W. Clayton, 66 Pasturelands Drive, Billington, Wigan.

14th June. BOURNEMOUTH A.S. Open Show. Kinross Community Centre, Pelham Park, Kinross. Schedules from Mr J. Johnson, 30 Brasemar Avenue, Southbourne, Bournemouth. BH6 4JF, after 1st April.

14th June. BISHOPS CLEEVE A.S. Open Show. The Tythe Barn, Bishops Cleeve on the A435, Cheltenham to Evesham Road. Schedules from Mrs C. F. Scrivin, 17 Warden Hill Road, Cheltenham, Glos.

14th June. LLANTWIT MAJOR A.S. Open Show. Town Hall, Llantwit Major. Details from Mr A. Ibbertson, 84 St Marys Avenue, Barry, Glam.

14th June. LOUGHBOROUGH & S. A.S. Open Show. The Sports Centre, County Street, Loughborough, Leics. Show manager, Mr M. L. Farndon, 12 Silverton Road, Loughborough, Leics.

14th June. HIGH WYCOMBE A.S. Open Show. West Wycombe Hall, nr High Wycombe. Details from Mr B. Leslie, 26 Meadow Walk, Tylers Green, Penn, Bucks.

14th June. HOYLAKE A.S. Open Show. Madonia Hall, Salisbury Avenue, West Kirby, Wirral, Cheshire. Details: Mr A. Bevan, Ponsdole, Birkenhead Road, Meols, Cheshire.

14th June. THORNE A.S. Open Show. Thorne Grammar School. Schedules: Mr R. C. Jenson, 94 Hawthorne Road, Thorne, nr Doncaster, Yorks.

14th June. GLOSSOP A.S. Open Show. Glossop Adult Educational Centre, Talbot Street, Glossop (A.M.D.A.S. Show).

14th June. SWILLINGTON A.S. Open Show. Swillington County Primary School, Swillington, nr Leeds. Schedules: Mr P. Barnwell, 56 Lawrence Road, Leeds LS8 2JL.

14th June. W.K.F.B.A.S. (Coleshill) first Open Show. Details: Mr P. R. Tromans, 17 Minshall Road, Birmingham 34.

24th-26th June. BRISTOL TROPICAL FISH CLUB Open Show. Congregational Church Hall, Newton Street (Stapleton Road), Bristol 5. Details from Mr E. Newman, 71 Somerdale Avenue, Knowle, Bristol 4.

27th June. WEDNESBURY & D. A.S. Open Show. Boys High School, St Paul's Road, Wednesbury (1 min. off M6). Schedules from Mr T. Shipton, 9 Gloucester Road, Wednesbury.

27th June. STRET福德 & D. A.S. Open Show. A.E.I. Club, Moss Road, Stretford. Benching 12.00-2.0 p.m. Details: Mr A. Stear, 63 Derbyshire Lane, Stretford. Phone 061-865 3423.

27th June. ALFRETON & D. A.S. Open Show. Adult Education Centre, Alfreton Hall, Alfreton. Details from Mr B. Hickling, 15 Meadow Close, Eastwood, Nottingham NG16 3RQ.

4th July. LYTHAM A.S. Open Show. Lowther Gardens, Lytham, Lancs.

5th July. GOSPORT & D. A.S. fifth Open Show. The Fareham Community Centre, Kings Road, Fareham, Hants. Schedules: Mr K. Clough, 19 Newport Road, Gosport, Hants.

10th July. G.S.G.B. Quarterly Meeting. Conway Hall, Red Lion Square, Holborn.

10th-11th July. ROMFORD & BEACON-TREE A.S. Open Show (Dagenham Town Show). Central Park, Dagenham, Essex. Schedules 8.00m from Mr D. G. Kent, 74 Lynwood Drive, Collier Row, Romford: phone 70-67804.

11th July. GRANTHAM & D. A.S. second Open Show. Schedules: Mr M. Pattison, 8 Witham Terrace, East Street, Grantham, Lincs.

AT the 21st annual Open Show of BLACKPOOL & FYLDE A.S. on Sunday, 1st August, the star prize for the exhibitor gaining most points overall is listed in the Society's handbill as 'his own choice of fish up to the value of £1.00 to be collected from the dealer'. We understand that, in fact, the winner will be asked to collect his fish after his return from a four-day paid-for holiday for two in Benidorm, which some might regard as being the substance of the prize (not fishkeepers, of course!).

London's Annual Exhibition of Fishkeeping

The AQUARIUM SHOW '71

Friday 29th October to Sunday 31st October

Royal Horticultural Society's Old Hall, London S.W.1

All details from Show Organiser,
PFM, 554 Garratt Lane,
London S.W.17
01-947 2805

11th July. TADCASTER & D. A.S. Open Show. Collingham Memorial Hall, Collingham, Wetherby, Yorks. Schedules: Mr H. Truswell, 43 The Fairway, Sutton Road, Tadcaster, Yorks.

17th July. BASINGSTOKE & D. A.S. Change of date. Fifteenth Open Show (formerly to be held on 10th July). Carnival Hall, part of Basingstoke Carnival activities. Show schedules from Mr M. Strange, 10 Loddon Court, Neville Close, Basingstoke, Hants.

18th July. RUNCORN A.S. first Open Show. Schedules: Mr J. Faulkner, 30 Leinster Gardens, Runcorn, Cheshire.

25th July. Second TEESIDE Open Show. Stewart Park, Middlesbrough, Teesside.

1st August. BLACKPOOL & FYLDE A.S. Open Show. Raikes Parade Annexe (Old Grammar School), Church St., Blackpool. Souvenir programmes, Mr G. Howard, 56 Stamford Avenue, Blackpool (phone 42676) from mid-June.

5th August. IRISH FEDERATION OF AQUARIST SOCIETIES. Open Show 'Aqua '71'. The Wellington Hall, Belfast. Show manager, Mr W. McAuley, 43 Benview Avenue, Belfast 14.

25th September. BRACKNELL & D. A.S. Open Show. Priestwood Community Centre, Priestwood Court Road, Bracknell (opposite Admiral Cunningham Hotel). Schedules from Mr L. Jordan, 62 Fernbank Place, Ascot, Berks.

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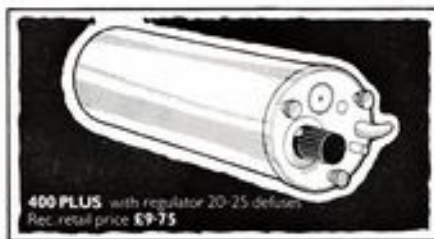
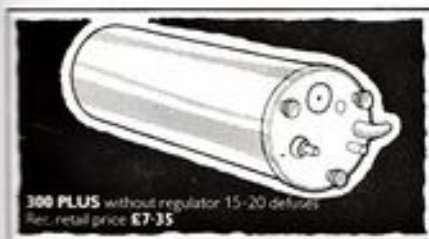
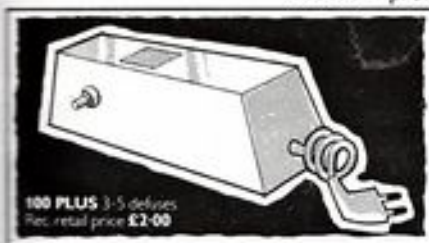
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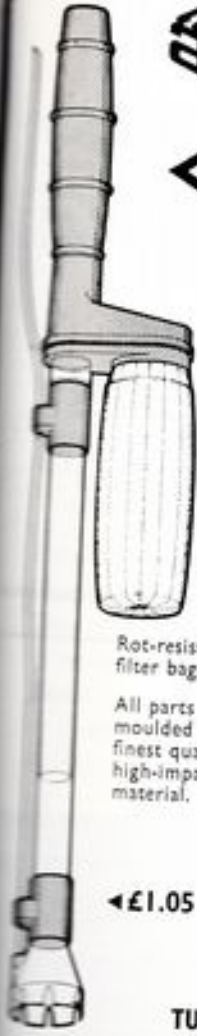


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