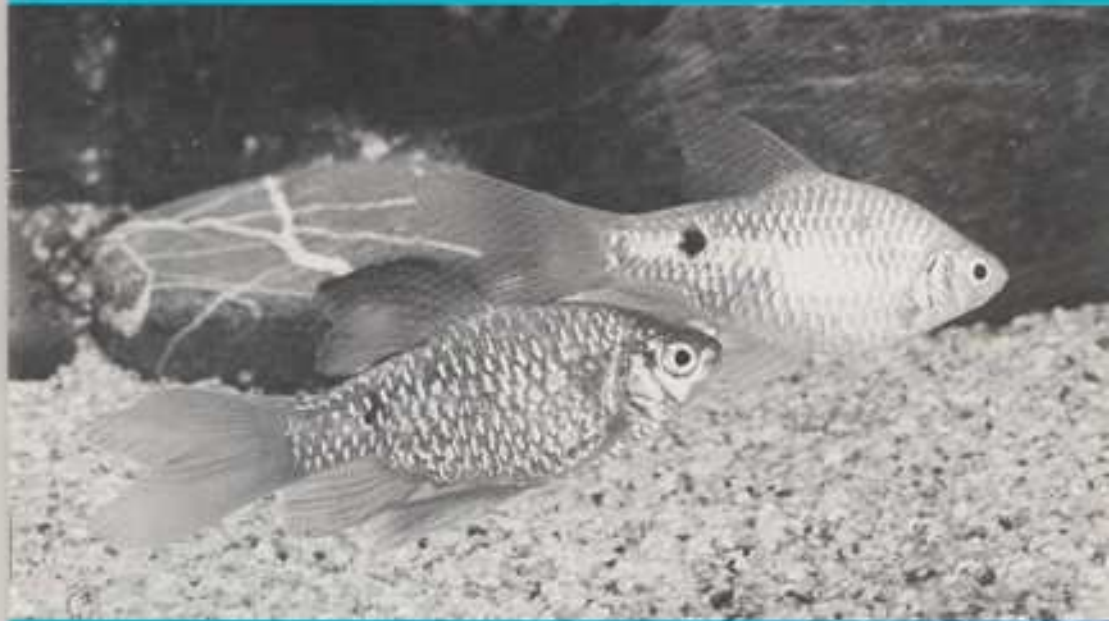


APRIL 1975

20p

Pet Fish

# PRACTICAL FISHKEEPING MONTHLY



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Marinist's Notebook  
New Goldfish Varieties from Japan  
Development of a Fish

A Small Community Tetra  
Echinodorus Centre-piece  
Is it New to You?  
Readers' Queries Answered, etc.



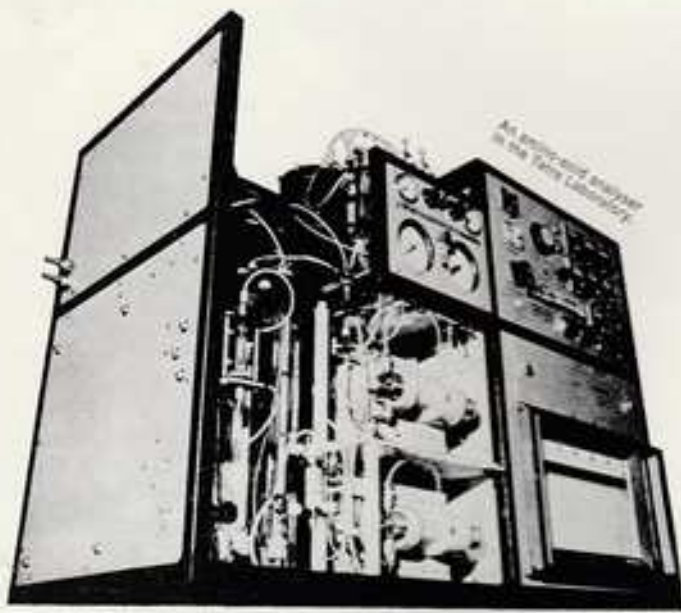
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Vol. 9 No. 12  
April 1975

Subscription rates: £3.00  
for 12 issues; £1.50 for 6  
issues (U.S.A. and Canada  
\$7.50 for 12 issues)

Editor: Anthony Evans  
Advertisements:  
G. Bellenger

### In This Issue

	Page
Comments and Quotes	565
Letters	573
Meetings and Changes of Officers	574
Beneath the Egg Shell	575
Personal Comment	578
Marinist's Notebook	580
Is it New to You?	581
Veil Variety of the Rosy	582
A Centre-piece for the Larger Aquarium	583
Coldwater Scene	585
A Small Community Tetra	588
New Goldfish Varieties from Japan	591
Readers' Queries Answered	593
Club News	594
In Brief	598
Dates for Your Diary	600

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## Comments and Quotes

- Eels yield secrets of early life
- Commercial fish feeding
- Dates and announcements

### Secrets of Eels

FOR obvious reasons, in view of the elaborate life history of the eel, not very much is known about the early stages of development (in the egg) of these fish. Some success in obtaining early fertilised eggs artificially in the laboratory has been reported from Japan, where fishery scientists K. Yamamoto and K. Yamauchi injected Japanese eels, which had been caught in rivers and raised to adulthood in seawater tanks, with hormones to induce sexual maturity. By hand-stripping the males and females to obtain sperms and eggs, fertilisation of eggs was brought about in glass dishes. The development of the eel eggs from the earliest stages could then be studied beneath the microscope. Hatching took place at 38-45 hours at 23°C, it was reported in NATURE, and the larvae obtained lived for up to 6 days. Who will succeed in encompassing the life history of the Atlantic eel in an aquarium by similar methods?

### Elemental Feeding

AQUARISTS who collect their own live foods have known for a long time that water fleas thrive in the ponds to be found near some of the older sewage works. Producers of fish on a large scale are known to make

a rather more direct use of animal excreta for fish feeding. Carp breeders in Israel use, among other items, poultry droppings for feeding and breeders in the Far East are known to add both animal and human excreta to ponds as fish food.

The latest example of this kind of economy feeding is from Britain, however, where tests at Rye Meads sewage works in Hertfordshire show that roach in settlement lagoons, which receive the sewage effluent, put on weight at an accelerated rate and feed readily on the suspended solids of the sewage effluent as well as on the plentiful live foods that also develop. Carp also grew at a highly satisfactory rate, it was reported in the SUNDAY TIMES, when kept in the same ponds. The report concluded: 'One uncertainty remains — what sewage-fed carp would taste like. So far the Chelsea College scientists have refused to make this last vital test — even in the cause of science.'

### Forthcoming Events

WE overheard some quite undeserved harsh comments on the subject of press announcements of dates of aquatic events recently under circumstances in which we could not reply. To set the matter to rights — we make every effort to include announcements of events from any society or organisation sending the written details to us in

good time (exigencies of printing schedules mean that 'in good time' is by the 1st of the month before the cover month, i.e. 1st April for May issue). Complaints about non-publication of dates more frequently than not lead, on investigation, to the finding that the details believed to have been sent were not in fact sent by the member whose job it was, or sent so late as to preclude publication. Our own source of despair are societies who announce dates well in advance but who fail subsequently to tell us they have decided to cancel their show or to change the dates after we have printed them.

## Pure Water on Tap

IF ways and means of obtaining very pure water for aquarium use are of interest to you there is an opportunity in London this month to find out more about 'de-ionisers'. This is at Labex International 75, an exhibition at Earls Court on 14th-18th April. Portable de-ionisers that can be directly connected to the water tap, to supply pure water immediately the tap is turned on, will be shown by the Permutit Standard Plant Division of Houseman Hegro Ltd on stand F14. Mains water is puri-

fied by passage through Zerolit 'cation-exchange' and 'anion-exchange' resins, which convert dissolved salts in the water into acids which are then removed by adsorption. Units have battery-operated conductivity meters to denote exhaustion of the exchange resins, which can be replaced in cartridge form or from packs of resin.

## John M. King

THE death has occurred in the U.S.A. of Mr John M. King, vice-president and general manager of Aquarium Systems Inc. He died on 5th February, after a lingering illness, at the age of 29 years. Mr King, a native of Erie, Pennsylvania, and a graduate of Syracuse University, joined Aquarium Systems Inc. to work in the Research Department. He was appointed in 1970 as director of Research and Marketing. In 1972 he became general manager. He was the founder and editor of SEASCORE, an international publication related to aquatic life support systems. Mr King was author of a number of articles on marine culture systems and water management and was co-author of the books MARINE AQUARIUMS IN THE RESEARCH LABORATORY and MARINE AQUARIUMS: PRINCIPLE AND PRACTICE.

## News from Es-Es

GLASS-encased aquarium heaters have been around so long it's easy to forget that the idea had to be thought up, and that before their advent only low-voltage metal tubular heaters from the Continent were available. Mr S. Singleton was the pioneer for the glass aquarium heater, in 1931, and very quickly this type of heater made all the earlier versions obsolete. Singleton Brothers Ltd was the company formed to manufacture heaters and thermostats and other aquarium accessories, and today continue production from their Cornish factory.

Latest news of the company's development is that they have joined the Armitage Group. 'We have rather concentrated on export markets in the past but we shall now have the means to bring our products to the notice of all aquarists throughout the U.K.' says Sid Singleton, 'and it will mean more time for me to increase production and concentrate on several interesting new items I have up my sleeve.'

The Singleton Es-Es range embraces a wide selection of precision aquarium equipment such as the Preset-matic thermostatic heater, the Standard and Superb immersion heaters, the Major and Minor thermostats, the Super Summit pump, and the Dumpy thermometer, together with a number of other first-class aquatic accessories.

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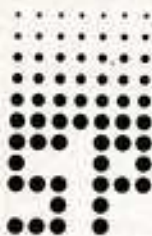
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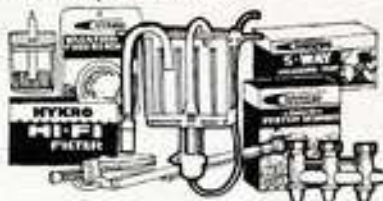
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# LETTERS



Your comments and views on all topics of interest to aquarists are welcomed. Address letters to PFM Letters, 554 Garratt Lane, London SW17 0NY

### Fish for All

I VERY much enjoy reading the whys and wherefores of fish breeding and line breeding and so on, but I always end up wondering what's wrong with my attitude. Mr. Frank Orme in his article for March is talking about how the successful breeder of fancy goldfish keeps the strains pure. He asks what good it would do if a moor were crossed with a veiltail and asks 'Would you be pleased to find that the fish that he sold to you produced progeny with moor-type eyes?' That pulled me up short as I read the article and I did ask myself the question, and really the answer is that I wouldn't mind at all. I think the resulting fish might be rather nice. I suppose it's like the dog world — some concentrate on the pure strains while the rest of us just go on enjoying our Heinz 57.

Legton, London, E.10 H. DAVENPORT

### Policy of Marine Association

I WAS interested to read Arpee's comments in the February PFM concerning the British Marine Aquarists' Association and feel that one or two points should be raised further to his article. The BMAA has, thankfully, a management committee who continually review the progress the Association is making and the directions in which it is travelling. As can be expected with such a large body, its members (over 600) have all differing views on what they wish to get out of the BMAA and the way in which they would like to see it develop. While all are united with a single common aim — an advancement in knowledge pertaining to the maritime hobby — it has always been the policy of the BMAA to give as much encouragement to the pursuit of individual interests as possible.

I therefore cannot agree with Arpee that the setting up of a scientific study group in the BMAA could lead to a possible split within it. Indeed I would envisage such a move would strengthen it by increasing our present knowledge about the

cultivation of marine animals and plants in small closed circuit aquaria: information which will be of use to all marine aquarists.

While most of the members would be interested in the results of such studies as were undertaken, not all have the necessary inclination, scientific background, time or whatever, to partake in such a small group. The BMAA caters for a wide spectrum of interests in its monthly journal 'Marine News' and, through this medium, disseminates knowledge on both the scientific as well as the purely practical aspects of marine fishkeeping.

Should any marine aquarist wish to join the BMAA he will be made welcome: no matter at what level his interests lie, for absolute beginners are catered for just as much as the more advanced mariners. I would advise anyone interested to write to secretary Mr John Vickery, 26 Rosalind Avenue, Bramford Estate, Woodsetton, Dudley, Worcs., for details and a membership form, enclosing a SAE for a speedy reply.

GRAHAM C. ROBERTSON,  
*Journal Editor,*  
*British Marine*  
*Aquarists' Association.*

### Fish Behaviour

THE letter about the behaviour of red-tailed black sharks (PFM, January) raises a question. Should such warring fish always be separated, even when they appear not to damage one another? I have two angel fish in a 24 inch community aquarium which have been there for about 4 years and in that time have grown to quite a size from their original 50p piece proportions. Through most of this period they have kept up an apparently vicious hatred of one another (we call them Punch and Judy), and quite loud thumps are often heard outside their tank as one or other hits the glass in escaping from its opponent. No signs of

damage are shown, however, and both of the fish will accept crushed snails from my fingers. Would they be better apart? I doubt it and in the light of past experience I would expect that if one were to die the other would not long survive it.

Guildford, Surrey

E. MATFIELD

#### Marine Stockists

**T**HE British Marine Aquarists' Association is in the process of compiling a list of retailers in the United Kingdom who stock marine fish and equipment. I would like to ask, through the pages of this magazine, all members to help in this. The idea is that the information gathered

would be collated in order of counties and distributed to the membership for the benefit of all. All you have to do is to send the name and address of any dealer you know, together with a list of marine equipment stocked, to myself and the Nottingham group of the BMAA will do the rest.

If any dealer reads this and would like to be placed on the list, please write to me giving the relevant information.

So come on you BMAA members, let's make this the most comprehensive list of its kind in the country.

J. J. SUTCLIFFE

273, Wicklow Court, Old Basford,  
Nottingham, NG6 0QB.

## Meetings and Changes of Officers

**BASINGSTOKE & DAS.** Secretary, Mr M. Strang (10 Loddon Court, Neville Close, Basingstoke, Hampshire); show secretary, Mr R. Rich (83 Pinkerton Road, Basingstoke, Hampshire; phone Basingstoke 27874); Meetings on Friday at Wolf Street Club, Basingstoke.

**BRISTOL AS.** President, Mr S. Lloyd; vice-president, Mr E. Baden; treasurer, Mr W. Hain; secretary, Mr C. Summers (8 Heath Gardens, Coalpit Heath, Bristol, BS17 2TG); registrar, Miss H. Morgan.

**CARDIFF AS.** Chairman, Mr D. Warne; vice-chairman, Mr C. Harding; secretary, Mr S. Hurley (35 Spring Gardens Terrace, Roath, Cardiff; phone 48007); treasurer, Mrs E. Bealch; show secretary, Mr S. Guy; P.R.O., Mr R. Daws.

**COVENTRY P & AS.** Chairman, Mr A. Nash; secretary, Mr D. Easingwood (7 Cordale Craft, Coventry, Coventry CV5 5SE); assistant, Mrs L. Woodbridge; treasurer, Mr F. Watts; newsletter editor, Mr A. Simmons; show secretary, Mr S. Woodbridge (73 Lime

Tree Avenue, Tile Hill, Coventry); P.R.O., Mr P. Hirst; social secretary, Mr P. Chappell.

**FANCY GUPPY ASSOCIATION, RADLETT SECTION.** Chairman, Mr H. Gerhill; secretary, Mr G. H. Goodell (13 Turner Avenue, Tottenham); treasurer, Mr R. F. Rumley; show secretary, Mr St. Harpur; Meetings: Committee Centre, Allam Lane, Soreham Wood, Herts., 2nd Sunday of month; all welcome.

**HARLOW AS.** Chairman, Mr R. Kennedy; vice-chairman & P.R.O., Mr M. Williams (285 Brocklewood, Harlow); secretary, Mr J. Duncan; treasurer, Mr L. Haines; show secretary, Mr S. Jordan; social secretary, Mr P. Hynes.

**HIGH WYCOMBE AS.** Secretary, Mr Jack Sushby (13 Hawthorn Walk, Haslemere, High Wycombe, Bucks.; phone Fern 3825); Meetings: alternate Thursdays, White Horse Inn, West Wycombe Road (corner of Oakridge Road), High Wycombe.

**KINGSTON & DAS.** New secretary, Mrs M. West (233 Kingston Road, New Malden, Surrey; 01-549 3385).

**LEAMINGTON & DAS.** Chairman, Mr C. R. Chamberlain; secretary, Mrs P. M. Stoodley (4 St John's Terrace, Tachbrook Square, Leamington Spa); treasurer, Mr C. G. Chamberlain; show secretary, Mr T. Dobson; social secretary, Mr F. Stoodley; editor, Mr K. A. R. Spinks; Meetings: 1st and 2nd Tuesday of month, Trinity Hall, Trinity Street, Leamington Spa.

**LLANDUDNO & DAS.** Chairman, Mr K. Jones; vice-chairman, Mr S. Anton; secretary, Mr R. Morgan (22 Greenfield, Penrhynside, Llandudno, N. Wales; phone Llandudno 40275); treasurer, Mr B. Halliday; editor, Mr K. Jones; Meetings: 1st Thursday of month, 9.00 p.m., Llandudno Youth Centre. Visitors welcome.

**MARLOW AC.** New Society. Secretary, Mr D. Handerson (31 Berwick Road, Marlow, Bucks.; phone Marlow 8505); New members welcomed.

**MIDHERTS AS.** President, Mr T. Tyrms; chairman, Mr D. Barfoot; vice-chairman (temp.), Mr R. F. Rumley; secretary, Mr S. Birch (7 Station Terrace, St Albans, Herts.; Park Street 72425); treasurer, Mr E. F. Rumley; show secretary, Mr J. Boswell; Meetings: Barking, London Road, St Albans, 4th Friday of month. All welcome.

**NAILSEA & DAS.** Secretary, Mr M. J. Elick (12 Burrington Close, Nailsea, Bristol; phone Nailsea 8188); Meetings: 4th Tuesday of month, 7.25 p.m., Church Hall, Nailsea. New members and visitors welcome.

**PETERSFIELD & DAS.** Chairman, Mr P. Wood; secretary/treasurer, Mr W. P. J. Crookford (19 Gifford Road, Petersfield, Hampshire, GU31 4ER); show secretary, Mr G. Barkham.

**ROEHAMPTON AS.** New Secretary, Mr C. Lewis (30 Sarah House, Arisbella Drive, Putney, London, SW15).

**SOCIETY OF AQUARISTS FOR SOUTH STAFFS.** P.R.O., Mr James Goodell (19 John Riley Drive, Coppice Farm, New Invention, Willenhall, Staffs.). New venue: Crown and Anchor, Colmore, Willenhall; on alternate Wednesdays. New members welcome.

**SUDBURY AS.** Chairman, Mr J. Dayley; P.R.O., Mr J. Waldman; secretary, Mr A. P. Taylor (23 Priory Park Road, Wembley, Middlesex; phone 01-908 2765).

**WESSEX AS.** New Society. Secretary, Mr K. Barnes (35 Bramshaw Close, Havantock, Hampshire; phone Winchester 881557); Meetings: 2nd or 3rd Wednesday of month, The Ship Inn, Winchester. New members welcome.

**WEYMOUTH AS.** Chairman, Mr C. Taylor; vice-chairman, Mr J. Fancy; secretary, Mrs J. A. Grundell (85-7 High Street, Wake Regis, Weymouth, Dorset); treasurer, Mrs J. Manley; Meetings: 2nd Tuesday of month, Barcliffe Hall, Queens Road, Weymouth. New members welcome.

#### Amazon Adventure

**FURTHER** to our note in last month's issue about the 5-days escorted tour, 'Amazon Adventure', organised by Keith Barraclough Aquarist Ltd, Mr Barraclough has told us that his firm has been able to make arrangements for deferred payments for the tour by aquarists who wish to join the 'Adventure' and would prefer to meet the costs in this way. Enquiries should be addressed to Keith Barraclough Aquarist Ltd, Hayfield Mills, Haytiffe Lane, Bradford 5.

**THOSE** who are visiting Paris in the Spring this year, or who may be passing through Paris on their way south on the 10th, 11th or 12th May, will find an international exhibition ANIMARK 75 being held in the Parc Floral in that city. This has been co-ordinated with the Exhibition Animales that was to be held in Nancy and will have on view a vast array of products and equipment connected with the care and maintenance of birds, fish, cats and dogs and other domestic creatures. All details can be supplied by Animonde, 86 Avenue Daumesnil, 75012 Paris; phone 628 70 74 or 628 17 91.

## DEVELOPMENT OF A FISH — 1

**Beneath the Egg Shell**

By

IAN C. SELICK

Illustrations by  
the author

**H**OW many aquarists, watching anxiously over a batch of eggs lest they develop fungus, know the complex and wonderful processes that are occurring, could they only see them, beneath the egg shells of the very eggs they so jealously guard? How does the egg, a minute approximately spherical blob of oily yolk become organized into an almost exact replica of its parents? Unless we are to believe that the egg originally contained a fish in miniature, a theory disproved centuries ago, then some other process must be unfolding within.

By using the Japanese rice fish, or medaka (*Oryzias latipes*), it is possible to follow in detail the events occurring, owing to the completely transparent egg shell,

or chorion, of this fish. But before I go on to describe the development of the embryo in detail, a few preliminary remarks about the fish themselves, and how to breed them.

The medaka has a wide distribution in China and Japan, with other related species covering the whole Far East. It is found in pools, streams and rice paddies. Adults measure up to 4 cm, and the sexes may be distinguished by the difference of shape of the dorsal and anal fins. In the female, the former is short and lobular, whereas in the male it is long, reaching the base of the caudal fin, and has a distinct notch at its ventro-posterior margin. The anal fin of the female is triangular, and that of the male a parallelogram. There is little



Let's: Adult male *Oryzias latipes*, showing the parallelogram shape of the anal fin, and long dorsal fin with notch at posterior margin. Above: adult female *Oryzias latipes*, showing the triangular anal fin, and lobular dorsal fin. This female shows eggs attached to her body in a clump. The eggs are attached to each other and to the female by sticky threads

difference in colour between the sexes in the gold variety usually sold in aquarium shops in this country, although during courtship the males appear brighter than the females.

Water conditions are immaterial, my specimens being kept in hardish tap water (about 250 p.p.m.) at pH 7. Temperature is also not critical, the fish withstanding a range of 12° to 30°C plus. The fish were housed in a 24 in. by 12 in. by 15 in. aquarium densely planted with *Cryptocoryne affinis*, *Sagittaria* and with unplanted *Najas*. Feeding was on proprietary flake supplemented with *Daphnia* and *Tubifex* daily. The actual temperature was 25°C.

Spawning invariably occurred at dawn, regularly every day for about 5 months in large females, no separation being necessary either before or after spawning. The eggs are fertilised *in copulo* immediately after expulsion. The eggs have a large number of sticky threads attached to the 'shell' (chorion) which serve to hold the eggs together in a clump, and this adheres to the flanks of the female for several hours until the eggs are rubbed off in small numbers on to foliage in the water. As the eggs are thus easily visible, the females that have spawned can be caught up and placed in a shallow dish, where the eggs are picked off with forceps by their sticky threads and put into the incubation tanks; I used large (500 ml) glass flasks incubated at 25-28°C with moderate aeration, each flask containing no more than ten eggs. Once the eggs have been removed, the females can be put back in the breeding tank where they will spawn again quite happily the next morning with no ill-effect.

For anyone with a microscope, the most exciting stage is now beginning. If one or two eggs are placed in a chamber formed by a ring of plasticene about 2 cm in diameter kept filled with aquarium water on a glass slide, the first 4 or so days' development can be watched through the microscope. To observe the very early stages, you'll either have to get up before dawn, or completely black out the aquarium regularly at night, and only expose the fish to light at a more convenient time, say 9 a.m., when they will spawn, thinking it is dawn!

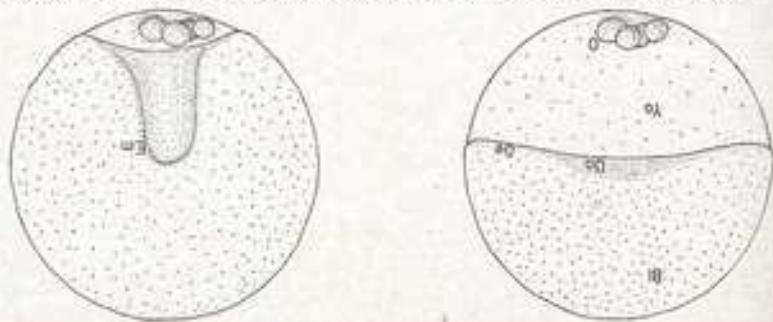
The unfertilised egg is about 1.3 mm in diameter, and is opaque owing to the pre-



Magnified view of the fertilised egg, 6 hours after fertilisation. A bulge of cells is visible at the animal pole (top), still quite large. The large oil droplets produced by ooplasmic segregation are clearly visible (right). Magnification x 50

sence of a multitude of yolk granules and small oil droplets in the yolk. However, on penetration of a spermatozoan, 'ooplasmic segregation' occurs, a process by which all the oil drops drift towards the vegetal pole (the bottom of the egg), leaving the yolk clear. The oil droplets then fuse into a small number of large drops, easily seen in the accompanying photographs. The yolk granules themselves drift in the opposite direction, and a bump is formed on the surface of the egg at the 'top' (the animal pole). Meanwhile, the egg shell has enlarged and hardened and become lifted from the egg, making a gap of about 0.1 mm (the perivitelline space).

The bump on the surface soon divides in half to form two cells, then again to form successively 4, 8, 16, 32 cells as a flat cap on the surface of the yolk. Each division takes about 30 minutes. At the 32 cell stage, two distinct layers of cells are formed, and subsequent divisions, now asynchronous, produce a rounded cap of cells which become progressively smaller in size, but which do not cover a large area of the animal pole. This stage is called the blastula, and begins to flatten



Diagrams showing the first stages of gastrulation, with cells moving down over yolk towards vegetal pole piling up at the advancing margin to form the germ ring (Gr), with the cells thickest at the dorsal tip of the blastopore (Bl), where cells roll underneath the advancing margin. Bl=blastoderm, Gr=germ ring, Em=embryonic shield. Left: egg 15 hours after fertilization. Right: egg 18 hours, the cells that are moving under at the dorsal tip have formed an elongated band, the embryonic shield (Em).

a few eggs were removed from their warm bath at the 10 hour stage, and were placed in a small dish overnight on a windowsill at approximately 10-12°C. By this method, gastrulation was retarded sufficiently for observation of the later stages to be possible the following morning.

Gastrulation involves the cells in the thickened germ ring rolling underneath the blastoderm as it moves down the egg, which the cells move under is the dorsal lip of the blastopore. As the blastoderm moves down, the cells which have rolled under remain in approximately the same position relative to the egg, and thus form a band which elongates progressively at the end nearest the vegetal pole to produce the embryonic shield. By the time the trila has expanded to cover nearly the whole of the yolk surface, a band of cells is just visible in the centre of the shield, the embryonic keel.

To be continued

HEARTY congratulations are the order of the day for Arm-40% for 2 consecutive years. Besides their aquatic interests, Arm-40% are also the manufacturers of many items for the dog, cat and bird 'world' and their products have been particularly successful in north America, Scandinavia and the R.E.C. countries.

We extend our congratulations to Mr Frank D. Perry, sales director, whom many of our readers will have met over the years at The Aquarium Show on the Armistage trade stand, and to their export team headed by Mr V. Woolgar and Mr R. Busbridge. Such success abroad has a direct benefit for the hobby at home in enabling new products to be developed for both markets.



by  
ARPEE

## Personal COMMENT

I OFTEN get enquiries from local people about the maladies of their fish and the failures of their plants, and nearly always there is genuine and deep-seated concern for the well-being and comfort of each afflicted creature. By far the bulk of these enquiries come from owners of pond fishes, who usually seem to regard the goldfish in particular as just another member of the family, and therefore in a special category all of its own. It is quite remarkable how emotional some folk can get over their pets — even those with fins — and in these days of outrages and lowered standards of all kinds I find it most pleasant that there is this level of concern and that its distribution is as wide as I have seen it to be.

It is not to be wondered at that it is the fish in pools which seem to suffer most. Those which spend their lives in tanks have an altogether softer and less dangerous existence than those in outside ponds, even if the closer confinement does make some specimens run to fat. Feeding is regular, disease is immediately spotted and treated, and any symptoms of unease or discomfort are immediately apparent. By contrast, pool fish have to contend with the ravages of the British climate, with large predators like herons and small predators like hydra: they have to compete with the nasty habits of frogs and toads and sometimes small children. They may suffer from excesses of feeding or quite the reverse, and if disease breaks out it is almost certainly a matter of survival of the fittest.

Perhaps the most frequent ailment is the fluffy white fungus which appears on nearly all fish after an injury. All the books will tell you that this can be cured by salt baths, and this is fine if you find it practicable to net the affected fish. On the

whole this is a major snag to start with, and often no action is taken in fact. You will sometimes get away with this and the fish will recover, but as often as not the creature will succumb and you will only be aware of the fact when counting the heads when the first real burst of spring sunshine brings the fish to disport themselves at the surface in such rare luxury. Sometimes a weak and gasping specimen will be found in the pool margin, possibly too weak to restore to health even in the comfort of an indoor tank.

The causes of fungus are many, but one which came to my attention the other week may be of interest. Probably the majority of lesions are caused by fish hitting rock-work or other submerged sharpnesses. It is probable that injuries in this category will right themselves, assuming that the fish are in good health and in favourable environmental conditions. One of my highly decorative colleagues had recovered a dead fish from her pond and presented me with a jam jar containing a creature which she had removed from the operculum of her fish, and I was somewhat stymied as I had not met this particular species before. It was a long thin affair, of triangular section, with a sucker pad on one end and apparently a small head on the other. It was about an inch long and performed the weaving motion suggestive of tubifex. It turned out to be what I believe is *Hemicleptis marginata*, a leech of still waters.

The unfortunate thing about finding things like this on your fish is the lack of knowledge of how many more there are in the pond. There may be an infestation or there may be only a few, I very much doubted whether, in this case, it would reach plague proportions, but I did advise a thorough search. If there were a significant number I would suggest emptying and restocking — the same sort of treatment as for a hydra infestation. Obviously a lot depends on the nature of the pool and its contents, and sometimes one simply has to accept that Nature will have to take its course, even at major loss to the fish-keeper.

The insidious feature of leech attack is that the hosts are progressively weakened over a period. The predator latches on, fills up and then drops off to enjoy itself until it is ready to repeat the attack. Fungus which arises as a result of this



can appear to have killed a fish, whereas in fact it is simply a by-product of something more serious. Many attachments like these can be picked off fish with tweezers (hold the fish in a wet cloth during the process). Hervey and Hems recommend treating all wounds with a very dilute disinfectant and then dabbing a little petroleum jelly on to keep the water (and further infection) from the danger area.

This is but a small incident in the life of a pool, and the more you have to do with pond life the more you will understand quite what a battle it all is. The fish which live from year to year in our outside ponds, without doubt are the fitter and (cleverer) specimens which we have selected. They have to work hard for their survival, and deserve all the help we can give them to keep up with the world they live in.



A reader has written with details of aggressiveness on the part of his retdetailed black sharks, which seemed intent on destroying one another even though physically separated from one another by a tank divider. I have looked through several books to read what the various authorities have recorded on the subject, and nowhere is there anything much to enable the beginner to anticipate the sort of situation described by Mr Roberts. True, there are suggestions that the species indulges in scraps, but these are far removed from the bloody happenings which some fishkeepers have to contend with. I must admit that I have never found this fish seriously vindictive, but I believe the aggressiveness is a feature of male fish, which are establishing a form of territory, and it is something to be reckoned with. It is unfortunate for the fishkeeper that sexing is so difficult, otherwise it may prove less wearing if females were run together and males were reserved for solo appearances in mixed collections of other species. Mr Roberts might do well to put his fish separately into other tanks he might have, in which case they will probably settle down quite well — provided there are no other large sharks present!

It will be found that territorial aggressiveness will develop in many species as individual fish come of age, but there is a golden rule that one should always err on

the safe side and regard fish as individuals. For many this will be rather difficult to swallow, as the millions of our tiny fish are all so obviously the same. But are they? In some cases most specimens are notoriously reliable and they tend to behave according to expectation, yet every so often one comes across the exception which reveals the basic assertion I have made. Neons and cardinals are usually looked upon as unexceptionable, but if you observe them closely you will often detect battles, sometimes with minor injury resulting. Individual lemon tetras have often struck me as quarrelsome, though I doubt whether any writer would ever have classified this species as anything but a good community fish. It does rather seem that fish, like humans, take personal dislikes to other individuals, and this antipathy can be permanent and very bitter. There will be instances where there is absolutely no question of territoriality entering into the argument (fish in adjacent tanks), or of 'growing up' problems (immature fish taking sides).

In most cases separation of the contenders will prove successful, and in alternative company they may never give trouble. But it is most important to recognise in all cases whether aggressiveness stems from a normal tendency of the species or from an aberration. In the former case the fish are demonstrating to you the fact that they want to spawn or that you have put two of the same sex together. Given the right sort of treatment for the real state of affairs, the results of corrective action may be most rewarding, such as a 'first' spawning. The requirements for these situations are usually well documented, and even if the book fails to spell out the needs of each fish, the groups are usually dealt with adequately in available literature, and all the aquarist has to know is whether the fish are cichlids or catfish or loaches etc.

You will find no guidance about individual eccentricities within species, because this is an inexact subject and writers of fish books (with just one or two notable exceptions) usually try to sweep inconvenient things like this under the carpet. Don't panic, though, if you see some of your fish having a fight. If injuries appear on the first occasion you have probably got to do something about it, but if it amounts to nothing much more than 'facing up' and the loss of a few scales,

you may get away with it. My two knife tetras seem to have a regular evening session in which they flash at one another and scales fly everywhere, but they look splendid.

These comments do not apply to what are termed 'rogue fish', which are usually superb examples of any species, but possessed by the devil. They snap at and harry every other fish they meet and are

a perfect nuisance. There is no cure and they are best passed back to your dealer or to a breeder who may find it possible to mate them suitably. The behaviour of all fishes is a topic I find infinitely fascinating and I wish that more readers wrote down instances of unusual manifestations. The subject in general is woefully under-recorded and nothing is too ordinary for most readers to read and ponder over.

## MARINIST'S Notebook

By ROY PINKS

**T**HESE inflationary times are particularly nasty in that they do not treat all alike, and for many people the rapid rise in the cost of living signifies the jettisoning of all the trimmings. If you have cut everything to the bone in order to tackle the saltwater side of the hobby it may be something of a shock to see in cold print what the initial bill is likely to be. Mere cost will not deter the enthusiast, to be sure, but I think it is very important to weigh up all the long-term factors before starting with marines.

This is generally true in all hobbies, but in those areas where progress is measured in modules (the tank being the module in our case), it is highly relevant to the argument that the module itself should be clearly defined and understood before the first irrevocable steps are taken. Marines are the most difficult and the most expensive branch of the hobby, so failures hit one hard: at the same time this is perhaps the most fascinating part of aquarium keeping because of its challenge and because the animal and plant life met with are quite matchless. The incentives to succeed are thus extremely strong and the emotion of the moment often overshadows all reason, to the extent that many a beginner sets himself a completely impossible target from the very outset. Few things are more catching than disillusion, however.

The following is a statement of the approximate cost of a typical tropical marine system:

Tank (for 30 gallons)	10.00
Cover	3.00
Lighting	5.00
Gravel	4.00
or Coral Sand	8.00
Coral etc.	20.00
Undergravel filter	3.00
Pump etc.	5.00
Sea salt mix	4.00
Heater/thermostat	2.50
Thermometer, oddments etc.	1.00

This comes to about £60. The first fish, medication and food will add another £20. So £75 is about the right figure to consider for your module. There will probably be a lot of criticism of this figure, and I shall be pleased to receive and discuss it. High as it seems, there will be many who will expect to lay out nearly £100, which is a lot of money, even today.

Certain items in my list need amplification, and I also need to comment on some which are not there. The tank is given as equating to the 36in. aquarium, probably the most popular size for the modern home. The marinist, for some strange reason, seems to favour 48in. tanks, so on this item I may be undershooting, if anything. I agree that with marines one should

aim at a reasonably sized tank (not the biggest you can afford, as is sometimes recommended), taking into consideration the notion that if expansion proves possible, it will tend to be in progression of units of this size.

All-glass tanks made at home will enable the cost-conscious aquarist to reduce this item considerably (but don't forget to add £2 or so for sealant). If the tank is home-made the cover will also come out cheaper because you can stick some glass ledges just inside the tank top, and these will serve to support the cover glass, which should be thick enough to bear the overhead lighting unit. Some aquarists arrange these ledges in such a way that the cover glass can be made in two pieces, capable of being slid along the bearers — a neat and convenient aid to trouble-free servicing.

As to whether you have gravel or coral sand, I believe this to be a personal decision. Much has been written about the buffering value of highly expensive coral sand, but I am inclined to the view that this has been exaggerated on the evidence of my own tanks. I believe that there is a notional advantage in having coral sand, but the practical advantage in my case has been so insignificant that I would not buy coral sand again for a normal marine aquarium.

I have allotted £5 for a pump, and I am prepared to be howled down over this. I would pay several times this sum for a really good pump, as this one item can make or break a system. My mistake here would again have been an error on the low side, so the £60 figure is still not unreasonable.

As to omissions it will be noted that there are no ultra-violet fitments, ozonizers, protein skimmers etc., which some fanciers declare to be quite essential. Well, I don't believe them any more than certain highly respected authorities do, and I therefore offer these bits as optionals. To include them would put the cost well over the £100 mark, and I do not set out to horrify, simply to inform.

These are just the bare essentials. The main upkeep item is sea salt mix, and if a quarter of the tank is replenished every month, this will add up to £12 a year. This is the only commitment likely to be under-estimated by the convert from freshwater fishkeeping, as the other running costs like electricity, food, medication, and so on are comparable with normal expenditure elsewhere. For native marines there is a heavy discount on the above, depending rather on how near the sea you live and how many friends you have in the sub-aqua clubs!

## Is it New to You?

Photograph  
by CLIFF HARRISON

Imported as *Leptobarbus hoeveni*, this predominantly silvery South American fish has the habit of remaining stationary in the water for long periods. These specimens (photographed at St John's Aquaria, 140 St John's Hill, Battersea, London), are about 3 inches in body length. Caudal, anal and ventral fins are flushed with red and the caudal and dorsal have slight black tips. The silver scales have dark edges and there is a dark blue lateral line, and dark blue spot behind the operculum. The wide mouth of this fish suggests predatory habits.





## Veil Variety of the Rosy

By RUDOLPH ZUKAL

*Photograph by the author*

**I**T WAS many decades ago that this decorative barb was first imported from northern India, Bengal and Assam and ever since it has been much loved by aquarists. It is an ideal fish, not only for the beginner but for the experienced fishkeeper as well. Real veterans amongst the fishkeeping fraternity may remember the early days of this barb's arrival among us (its very first appearance was in 1903). Not only the beautiful red colour of the

male's body, with its black-edged fins, but also the vivacity of this fish in the aquarium made it a firm favourite.

In June of last year, during a visit to East Germany, I saw specimens of this fish with beautiful outspread fins, and I could hardly believe my eyes. My interest was aroused at once. I then learnt that my friend, Herr Pederzani, the editor-in-chief of East Germany's aquatic magazine, was on a visit to Leningrad and could obtain

three pairs of this beautiful long-finned barb there, and that from the first spawning in Germany I would be able to acquire three pairs and so propagate them in large numbers.

I am delighted that this new fish — more correctly, perhaps, new variety — will enrich our aquaria. Although the long-finned form possesses the typical barb-shaped body, it does look somewhat slimmer. It is, I think, the effect of the finnage — all the fins, except for the pectoral, being extended. Particularly in the male the dorsal fin is drawn out and it is coloured a deep black. During its breeding display the male's body radiates a blood-red colour to which the black dorsal makes a magnificent contrast.

A temperature of 65°F (18°C) even is not too low for the original strain of rosy barb but the long-finned variety requires rather more warmth and water tempera-

ture should not fall below 68-70°F (20°C). At spawning time the temperature should be raised to 79°F (26°C). The care and breeding of the long-finned form of the rosy barb presents no special problems — it is just as simple as with the original strain. This fish, too, spawns readily in a medium-sized tank normally planted and filled with water from the tap. The male can be put into the spawning tank a day or two in advance of the female, and once the female is added, provided that the fish have been well-conditioned in advance and are ready, spawning takes place shortly afterwards. The fish spawn in the plants and they must be removed at the end of the spawning as they will eat the eggs. The young hatch after 48 hours and with good feeding the sexes can easily be recognised after 3 months. The longer fins also begin to be visible about this time.

## A Centre-piece for the larger Aquarium

By K. RATAJ

Photographs by RUDOLPH ZUKAL



Close-up view of the flower of *Echinodorus macrophyllus*

**T**HIS plant is one that has been known to aquarium keepers for a long time — although often by the incorrect name *Echinodorus grandiflorus* or *E.muricatus*. (In fact *E.muricatus*, or *Escaber* as it should be called, has a leaf blade with a blunt incised tip whereas our plant, *E.macrophyllus*, has an elongated tip to the leaf.) It belongs to the water plantain family (Alismataceae) and is to be found throughout eastern Brazil, as far down as the temperate zone of Argentina. Its greatest concentration is in the south Brazilian states of Sao Paulo and Santa Catarina.



Under water the plant develops a rosette of leaves, 12-16 inches (30-40 cm) long. The leaf blades (about 8 in. long and 8 in. wide) are dark green, sometimes spotted with a red-brown colour, heart-shaped and with a distinctly elongated tip. Their margins are undulate, or wavy, which is one means of distinguishing it from another similar plant, *E. longiscapus*, though the latter does also carry long, transparent lines on the leaf blades that are missing in *E. macrophyllum*.

Leaves above the water can grow up to 4 ft. (120 cm.) long—with leaf blades of 12-16 in., as wide as they are long and

triangularly heart-shaped. The upright, cylindrical, stems are about twice as long as the leaf blades. The flowers form irregular clusters of 6 to 13 whorls, each of which bear six to nine flowers.

Because of its tendency to put out emerge leaves, *E. macrophyllum* requires no extra nourishment and does best in a simple gravel substrate, where its growth may be slowed down. Apart from the need to control its growth by regulating the nourishment and light it receives, water conditions and temperature are not critical, since it can be used in both the tropical and the coldwater tank.

## COLDWATER SCENE



By FRANK W. ORME

**Buying New Coldwater Stock**

● **Pond Planting** ● **National Goldfish Show Mooted**

**T**HIS is the time of year when a great many coldwater fishes of all sorts are sold to novice fishkeepers. Only too often the eager purchaser finds that, after a while, disappointment awaits as the fish start to die off. To some extent this risk can be avoided by selecting only those specimens that appear to be in good health.

First take a close look at the seller's stock tank to see whether it is unduly overcrowded: are the fish active or sulking, is the tank clean, are there any dead fish? If all seems well the chosen fish can be given a very close inspection. The fish should be swimming actively without jerkiness, the eyes clear and bright with no sign of a cloudy film, fins should be clear and well spread with no signs of milkiness or blood streaks. The body must look well nourished with no sign of injury. Avoid fish that show any of the following faults: a wasted body that makes the head appear large; dull, cloudy eyes; split or torn fins; blood spots or streaks on either body or fins; white film or bloom over head or scales; scales that seem to stand up instead of lying flat. Nor should there be any sign of small white 'cotton-wool' tufts of fungus. Any minute white spots, pimples or ulcers, or apparent pieces of thread, anywhere on the fish and the specimen must be avoided, together with any seemingly healthy fish in the same tank. Exercise caution at all times, especially with imported stock, for it is better to be safe than sorry — far better to go away empty handed and try elsewhere.

Having obtained the fish, the same caution should be exercised when they are brought home. On no account should they be put with established healthy fish — the apparently healthy newcomer may be carrying a latent disease that has yet to show itself. It must be given a period of quarantine of at least 14 days. As an added precaution the new arrival can be treated for flukes. There are a number of methods

that can be used but the safest is, probably, the treatment with Sterazin; if the instructions on the plastic bottle are followed this medicament will clear flukes safely from both young and adult fish. An advantage of the treatment is that it is not necessary to change the tank water either before, during or after treatment.

During the quarantine period the fish should be fed with good nourishing foods in order to build up its strength, the likelihood being that the fish has received little food for some time whilst passing through the hands of the various dealers.



April is also the start of the pond planting season and, amongst pond plants, pride of place goes to the water lily. There is hardly a garden pool that does not contain at least one specimen of this popular plant, dedicated by the Greeks to Nymphs, before the birth of Christ. The genus name *Nymphaea* was bestowed upon lilies by Linnaeus — the celebrated botanist. The water lily family ranges from the diminutive *N. tetragona*, that will grow in a mere 6 inches of water, up to the gigantic tropical *Victoria amazonica*, which has leaf pads so large that they can support the weight of a man without sinking.

Horticulturists have produced a number of lily hybrids which bear most attractive coloured flowers; many of these are suitable for growing in our climate and will do well in the garden pool if proper care is given to the planting. A nurseryman's catalogue of water plants will usually list a number of varieties suited to differing size, and depth, of pool. Our own native water lily is *N. alba*, which is common to many lakes and still waters; it bears large pure white flowers with bright golden stamens. Unfortunately this lily is not suitable for the average pool as it grows very large and requires very deep water,

I do not propose to suggest the names of any variety as this is very much a matter of personal choice (and depth of pocket). However, I would caution against purchasing plants that are recommended for water that is either much shallower or deeper than can be offered by the pool in which they are to be planted. A shallow water plant will never be happy if planted out of its depth and may well fade away. On the other hand, the more robust water lily will settle down fairly well to shallow water and commence to cover the pool surface with crowded overlapping leaves that exclude light from both fish and other submerged plants — then it becomes a nuisance rather than the subject of admiration. True, the leaves can be cut back, but this will not cure the problem that has been created for anything but a short time. Keep your choice within the nurseryman's recommendations and all should be well.

The water lily can be planted in a good stiff loam — preferably in one of the plastic baskets that can usually be purchased from the same source as the lily; no fertiliser need be added as the roots will seek out nourishment in the bottom silt, as the plant grows. Make sure that the lily rhizome is secure, without the growing crowns being covered; the container can then be gently lowered into the water, taking care that the planting medium is not disturbed. Ideally the container should be placed on house bricks, or supported in some other way, so that any young leaves are just below the water surface. As the plant grows it can be lowered, brick at a time, until it stands upon the base of the pool with the leaves at, or just below, the surface.

Established plants that have become overcrowded can be lifted and the rhizome swilled clean. Inspect the lily carefully to find a new growing crown and then, with a very sharp knife, cut through the old stock to remove the young crown together with a few roots. This young plant can then be firmly inserted in fresh loam and lowered, as already described, into the water.

As with any plant, it pays to remove the heads of spent lily blooms, which will encourage further flowers to form and, of course, prevents the dead flower rotting in the pool. During the autumn the leaves and stalks can be gently pulled off the plant, as they die back, so that as little pollution as possible is caused as the lily becomes dormant for the winter.

Give the water lily the care it deserves in the early days and, when established, it will grace your pool for many years with very little further attention, providing shade for the fish and pleasure to the eye of visitors on warm and sunny summer days.

Good news for all who are concerned about the pollution of our natural waters was a report in a Midland weekend newspaper, *THE SUNDAY MERCURY*. The story stated that fish are slowly returning to the 33 miles network of once-dead rivers that lie within Birmingham's boundaries. In most it is the lowly stickleback that has put in an appearance, but in others, such as the River Cole, Council Researchers have netted both perch and roach. Some stretches of water are still unable to support fish life and the worst of these is the Tame, which becomes polluted as it passes through the heavily industrialised 'Black Country' before it enters Birmingham.

The report claims that the City Fathers are so pleased with their pure water success that the scientific data are being made available to other conservation bodies. This made very pleasant reading — being so different from the more frequent tales of gloom, strife and mayhem that we read. However, the report ended by drawing attention to the potential threat of further pollution that could arise from the growing number of do-it-yourself car maintenance enthusiasts, who thoughtlessly pour dirty engine oil down drains. This habit is to be deplored by all aquarists, for the oil will, of course, eventually reach open water.

★                      ★                      ★

Those who were able to watch TV West during the latter part of January might have seen the early evening item in which cameras visited the fish house of Mr Graham Bell, of Bristol AS. The shubunkin was given great publicity, and the programme also covered some of the other fancy goldfish varieties, with a brief mention being given to tropical fishes. Mr H. C. B. Thomas, secretary of Bristol Aquarium Society, was interviewed and described how the Bristol shubunkin was developed in the city and, over the years, has become widely known throughout the world by fishkeepers. This sort of publicity should have a beneficial effect and could attract many newcomers to the ranks of goldfish keepers.



A move has been made, in the Midlands, to set up a National Goldfish Show. The letter setting out the proposal invited the country's six specialist societies to participate in the setting up, and prior negotiations, of the suggested venture. As twenty classes were envisaged, this might provide the means for those interested in a National Show of Lionheads and Orandas, to show their fish within a single-variety class as part of a comprehensive National Show of Fancy Goldfish Varieties. The final lines of the letter of proposal suggested that this could be a means of bringing unity to the hobby. Provided that all are willing to work together, putting aside politics and differences of opinion, it could be.

★       ★       ★

The season of open fish shows is now with us and this month the Coventry Pool and Aquarium Society stage their one-day Open Show at Coventry (see 'Dates for Your Diary'). This year the coldwater section has been arranged by the Association of Midland Goldfish Keepers and comprises nine classes: 1, common goldfish and comets (metallic scaled); 2, Bristol shubunkins; 3, metallic scaled fantails and pearl-scales; 4, orandas (metallic scales) and veiltails (metallic and nacreous); 5, moors; 6, bubble-eyes, celestials, lionheads and pom-poms (metallic scaled); 7, any other variety of singletail goldfish; 8, any other variety of twintail goldfish; 9, pond and

river fish. This is a great improvement upon the more usual restricted classes that are provided for the coldwater exhibitor in one-day shows. It allows all varieties to be shown to better advantage for both exhibitor and spectator and, of course, the judges' task becomes a little easier when like is judged against like, avoiding the complaint that a common goldfish has been placed over a veiltail, or whatever the case may be.

Perhaps other show committees will endeavour to follow the lead given by the Coventry Society, for surely the coldwater fishkeeper should be given as much consideration as those who show tropical fish; wider classes, will, no doubt, encourage many more coldwater fishkeepers to exhibit their fish. How often I have had said to me: "I am not interested in showing my fish in a mixed class — even for one day", and I must admit that I sympathise with this point of view! Whilst I can accept a fish being pushed out of the cards by a similar variety of goldfish I would, nevertheless, feel most upset if a fantail, for instance, were to take precedence over one of my lionheads — unless it was a very good specimen of the fantail goldfish variety — and the fantail exhibitor would be equally annoyed if his fish was beaten by a common goldfish! (For the benefit of the newcomer to goldfish keeping it should, perhaps, be explained that the reference to common goldfish is in no way derogatory but merely refers to the variety.)

## The Aquarium Show '75

ROYAL HORTICULTURAL SOCIETY OLD HALL  
VINCENT SQUARE, LONDON, SW1

### 24th - 26th October

Presented by The Federation of British Aquatic Societies

All enquiries: The Show Organiser (Tel. 01-947 2805)

PetFish Monthly  
554 Garratt Lane, London, SW17 0NY

## A Small Community Tetra



*Hyphessobrycon georgettae*

IT is some years now since I first enjoyed the friendship of the best of Hungarian aquarists, Mr Zsilinszky Sándor. This friendship is maintained by correspondence rather than visits and, of course, is further strengthened by our mutual hobby as aquarists. If I, or Sándor, come across a novelty in the fish line, then we exchange not only information but also fish. So it was that for some small *Steatocranus casuarinus* I received six small tetras, *Hyphessobrycon georgettae*. My supposition that the fish would grow bigger was quite incorrect for, at a length of 1½ inches (3.5 cm.), they proved to be fully grown. The male remains the slimmer and smaller fish.

Sex differentiation is shown not only in size but also in differences in the dorsal fin. In the male, the dorsal is almost completely dark coloured, whereas the female's dorsal carries more of a dark fleck. In body shape these fish look very much like smaller versions of *Hyphessobrycon bifasciatus*. The ground colour is orange-brown, lighter on the belly. Although the dorsal is dark the first fin-ray remains white and the other fins are reddish.

These little characins come from northern Brazil and were first imported into Europe in 1962, but they are not

By RUDOLPH ZUKAL

Photographs by the author

Translated by F. MARSH

In the course of the 2 hours during which eggs were laid by this pair of *Hypessobrycon georgianus*, they spawned in all parts of the aquarium, sometimes just beneath the surface of the water (right)



Most egg-laying took place in the plant masses, as shown here, spawning occurring near the bases where foliage was thickest



Close-up view of the numerous clear eggs falling through the water and adhering to plant leaves after they were scattered during the spawning.

very often available, at least in my country. Why is this? Well, possibly their rather unspectacular coloration and small size may account for some of it. In themselves the fish are entirely peaceful tank inhabitants and generally undemanding. Care and breeding is similar to that for neons — the difference is they need more warmth. Temperature required for maintenance is at least 72–75°F (22–24°C) and for breeding 79–82°F (26–28°C).

It goes without saying that when I received my fish I wanted to prove my aquaristic ability with this species, too, and so I prepared a 2½ gallon tank (10 litres). I took water from the top of their holding tank and mixed it with about a gallon (3 litres) of distilled water, to give me a fairly soft water. Temperature was 79°F (26°C). The fish spawn easily and I

was able to watch next day and record the breeding with my camera.

Spawning took place as with other *Hyphessobrycon* species. The male swam towards the plants and tried to entice the female. This did not work so he rammed her softly in the belly. I could see no sign of biting or other wounding — possibly because the female soon reciprocated his interest and followed the male into the plants. There she searched for a suitable place. As she hesitated for a moment, the male joined her, there was a twisting movement, the fish fell apart and a small number of tiny, crystal-clear eggs fell to the bottom and remained partly stuck to the plants. After about 3 hours, when the spawning was over, I removed the parents (as they will eat the eggs), turned on a light, fine aeration and awaited events. Unfortunately, overnight, the temperature

fell to below 68°F (20°C) — I had forgotten to regulate the heating system properly — and the eggs developed fungus. Since then I have been presented with

more adults, but I have made no efforts to repeat the spawning. Still I am delighted that these fish turned out to be so ready to breed.

## Two New Goldfish Varieties from Japan

By R. M. WHITTINGTON

Illustrations by P. WHITTINGTON



The Tosakin: a 3 year old fish  
(from above)

ONE of the pleasures to be obtained from being Bulletin editor of the Goldfish Society of Great Britain is correspondence exchanged with the membership. As we have a high proportion of overseas members, understandably such correspondence is in the main between them and myself.

It was with great interest that I received in early 1973 a letter from a new member in Japan inviting exchange of correspondence and offering articles for our Bulletin. He said his main interests centred around the Ranchu (bramblehead), the Azumani-uhiki (nacreous oranda), the Tosakin and the Jikin. In my reply, welcoming exchange of views between us, I had to confess that the latter two goldfish varieties were new to me. I have now been supplied with information which is offered as being of considerable interest to goldfish lovers.

### The Tosakin

The Tosakin is probably the rarest, most delicate and difficult to maintain of all known goldfish varieties in the world. It appears to exist only in the metallic form, and frequently late colouring (up to

3 years), due to selection for other factors. This fish is similar in general outline to the fantail; the caudal fin is longer, however, and joined at the top. From 1 year old through to 3 years, the bottom lobes of the caudal turn right over in a fold and sweep towards the front of the fish. One could take as standard these lobes reaching up to the gill covers, and in the very best specimens they would go to the level of the eyes.

This fish is essentially for the amateur enthusiast. Good quality young are only one or two per 1,000 hatched. The formation of the caudal means that the fish is only able to 'waddle' around and the usual method of keeping Tosakin is in large round bowls. This encourages them to keep swimming slowly in circles, which assists an even tail development. Hand-spawning is normally carried out when breeding as the fish is unable to have a good chase round in the usual way.

The home of the Tosakin is around Kochi in Shikoku (the north island), where they are kept and bred by a small number of enthusiasts, now united into a preservation society. It is not certain



Photographs on this page show a 1-year-old specimen of the Jikin. Areas appearing dark in the pictures are red. (Reproduced from colour photographs)

whether the variety arose (in the 19th century) by cross or mutation. The present-day stock has been bred from one pair which survived the 1939-45 war to produce 200 young. The total stock in Japan probably does not exceed this number even today. In 1969 government assistance was provided when the Tosakin was declared a 'Prefecture Treasure' (for Prefecture in Japan, read County in Britain). The variety is presently unknown in this country but a very few have been imported into the U.S.A.

#### The Jikin

Another very scarce and expensive goldfish, again strictly for the hobbyist. The body contours are similar to a common goldfish; a little deeper, perhaps, but certainly nowhere approaching a fantail. The fins generally are also similar in size to those of the common goldfish. Two features set the Jikin apart, though: the caudal fin and colour pattern.

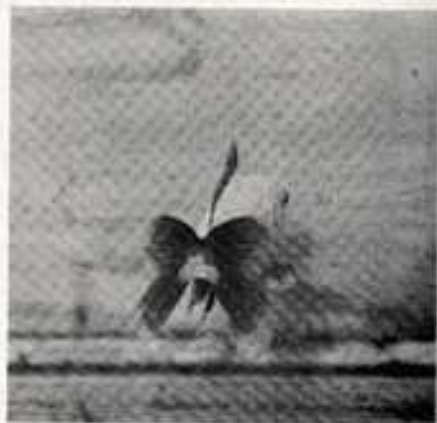
The caudal is double, but each half is set at right angles to the body, so when viewed from the rear whilst the fish is still, the caudal takes the form of a letter X. Another description is that of the outspread wings of a butterfly. This position of caudal gives the impression that the fish is 'strutting' through the water rather

than swimming. In these two ways we have the popular Western names of 'butterfly tail' and 'peacock'.

The body is white in colour (metallic) and the fins are brilliant red, as are the lips. This is the ideal colour combination for a Jikin and the fish is extremely attractive in appearance. Selection for correct tail leaves around 1 or 2% of the spawning, from which the right colour pattern (known as 'six point red' — tail, lips and fins) brings us down to one fish remaining per 1,000 eggs hatched. This is for naturally coloured fish; certain breeders, however, are not above peeling off a few red scales from the body to achieve the desired result!

The Jikin is pond-hardy and requires no special conditions or diet. It has been imported into the U.S.A. in small numbers, and the very first pair to arrive in England did so in 1974. It is not yet known whether they are a true pair but they are being carefully studied.

This then is a description of two goldfish varieties so difficult to produce in their accepted forms that they approach the impossible, requiring great dedication by the breeders. Between them they incorporate genetic variations which have not so far been studied over here. It is hoped to establish the Jikin at any rate in reasonable numbers over the next few years, in order to carry out further research and to make some attempt to introduce this very appealing goldfish to the British scene.





## Readers' Queries Answered



### Plant-eaters

*I have two small tinfoil barb and I would like to get them to full size. I would have thought a fish that was going to get so large would have been pretty hardy from the beginning but I lost the previous two I bought before they put on any size at all. The two new ones are also very thin, and I want to give them every chance.*

Assuming that the stock you are obtaining is disease-free, good feeding, plenty of swimming space and regular part changes of the water are basic requirements for growing fish on. The trials of the journey to this country that many imported fishes suffer should not be underestimated — even after quarantining and feeding in the dealer's tanks they may require extra care and atten-

tion at the start. Your *Barbus schwanenfeldi* could be fed with white worms, daphnia, tubifex and flake foods, progressing, as they grow, to tablet dried foods, large flake foods, chopped or small earthworms, tubifex. But whatever size they are they need plenty of vegetable matter — scalded lettuce, duckweed, plants pruned from other tanks, riccia, water lettuce, cooked spinach. Do not expect to be able to have a good display of water plants in their tank!

Tank size will also play its part in their growth — the biggest possible tank should be used and preferably not one less than 36 in. long. Matured water should be used and the tank kept free of excess of mulm. A siphoning-out every 3 weeks or so could be used to replace about a quarter of the tank water. Don't forget these fish

are great jumpers and the tank must always be well covered. You obviously know that these barbs attain a large size — others who are tempted by small specimens for community tanks should be well aware of what can happen!

### Pond Flowers

*I would like to grow water hawthorn in my pond this year. I think it will be more suitable for my rather small pond than a water lily because the pond doesn't get much sun, but will this stop the water hawthorn flowering?*

A list of optimum growing conditions for water hawthorn (*A. distachyus*) would include a sunny position but it is a most accommodating pond plant. It will still flower in shade — in a variety of water depths from 9 inches to 3 ft — and delight with its sweet-smelling white flowers from April to October or even longer if the weather is very mild. It is a strong grower and seeds freely so it is recommended that the rhizomes should be confined to a small planting basket in a loam base. This will also ease the task of dividing the tubers as they grow and need replanting.

Still only a youngster the tin foil barb in the photograph has a great deal of growth to make. These fish may reach 18 in. in length in a large aquarium, with a corresponding depth of body, but with their orange and black fins and magnificent silvery scales they make a very handsome sight





### Lily Pests

Last year I found my water lilies infested with green, black and various other coloured flies. Now that I'm thinking of the garden pond again I wondered if there was any insecticide that could be used that would not harm the goldfish.

Do not be tempted to use any form of insecticide anywhere near the pond. This mild winter may well mean that garden pests will be in great abundance this year. A good hard winter does help to keep the pest population down. But the control of aphids on water-lily leaves is very simple and not very time-consuming — a jet of water from the garden hose will dislodge the flies into the pond to the pleasure of the fishes.

Arpee, in 1931 a few years back, passed on a hint gleaned from a radio gardening programme — though it will not help your problem this year. The gardening panel stated that such aphids hatched from thousands of eggs that have been laid on bushes and fruit trees before the winter set in and that in order to prevent the appearance of the flies in the summer, woody growths likely to harbour such eggs should be sprayed once in the November-February dormant period with a proprietary tar/oil wash.

### Malawi Diet

What is the best diet for *Pseudotropheus fuscus* and can I keep them in a planted tank?

These fish will take dried foods, daphnia, tubifex, scraped meat and so on, but their main diet must be vegetable. This does not mean, however, that they will destroy all the plants in your tank. They are, in their native habitat along the rocky shores of Lake Malawi, some of the great exponents of algal rock-scraping. Their several rows of teeth and rigid mouth are so arranged to enable them to approach a rock and either nibble or twist the algal mat and indigenous population from

its surface. Provided they are given plenty of green material in their diet, cooked cabbage, lettuce, spinach etc. they should not destroy the higher plants of your tank.

### Underwater 'Roses'

I have a chance to buy some 'underwater roses', or so I have been told they are called. They sound rather exotic and as they are dearer than run of the mill stuff like Vallis, I want to be sure I know how to grow them.

These 'underwater roses' are almost certain to be *Samolus floribundus*, a very pretty plant with light-green rosettes of leaves which cover the bottom of a tank and grow hardly 4 inches tall. Like many of our aquarium plants, its natural growing conditions are hardly duplicated in our tanks. This plant from North and South America and the West Indies grows in Nature in shallow water or on damp banks. But it will survive well enough to make an interesting aquarium addition. Ideally it requires soft, slightly acid water with some salt in it and requires plenty of illumination. And it will do much better in tanks that are kept at the lower end of the temperature scale, not above 72°F (22°C).

### Congo Tetras

I want to have a shoal of Congo tetras in my largest tank (5 ft. by 15 in. by 18 in.) and I am proposing to keep them in soft water filtered over peat. What tank companions would also enjoy these conditions?

*Abramites microcephalus*, the marbled headstander, likes a soft, slightly acid water and its colour pattern might give a nice contrast to the Congo tetras, or *Chilodus punctatus*, the spotted headstander, which is a very peaceful fish and doesn't have the tendency that older specimens of *A. microcephalus* have of quarrelling amongst themselves. The dwarf cichlids, *Aptisognathus opazzizi*, *A. roseirezi*, *A. ornatus*, *A. ornaticornis*, would also make suitable companions.



DETAILS of the **HORSFORTH & DAS** Open Show have now reached us. Trophy winners were: Frankie Vaughan trophy, Mr B. Perkins (Workop); Ladies trophy, Mrs. P. Laycock (Sheaf Valley); C. & J. Corns trophy, Mr P. Armstrong (Heywood); Helm Aquaria trophy, Mr J. Ridley (Heywood); Miss C. Wood trophy, Mr K. A. Feasey (Doncaster); M. Barker trophy, Mr G. A. Tyson (South Humberide); J. & D. trophy, Miss C. Wood (Horsforth). The top society was Doncaster; fishes awarded the Best in Show and Best Exhibited awards were both benched by Mr T. Reid of Workop. Remainder of results were:

Livebearers avc: 1. Mr B. Jackson (Doncaster); 2. Mr W. Blundell (Doncaster); 3. Mr & Mrs Richardson (Scarborough); Guppies: 1. Mr N. Blean (Bradford); 2 & 3. Stanell & Rawsey (Castleford); Mollies: 1. Mr & Mrs Norton (South Humberide); 2. Mr N. Blean; 3. Mr & Mrs Caldwell (Southorp); Swordtails: 1. Mr N. Blean; 2. D. & P. Giddals (Aldbrough); 3. Mr C. Eason (Sand grounders); Platys: 1. Mr Perkins (Workop); 2. Mr Parkin (Swillington); 3. Mr & Mrs Muckie (Sandgrounders); Large anabantids: 1. Mr & Mrs Mason (Southorp); 2. Mr K. Lancaster (Doncaster); 3. Mr M. R. Jarvis (Sandgrounders); Small anabantids: 1. Mr & Mrs Roberts (Doncaster); 2. Mr & Mrs Emerson (Castleford); 3. Mr & Mrs Norton (South Humberide); Fighters: 1. Miss C. Wood (Horsforth); 2. Mr & Mrs Cohen (Pontefract); 3. Mr T. E. Davies (Heywood); Corydoras: 1. Mr W. Blundell (Doncaster); 2. Mr G. Heston (Keighley); 3. P. & H. Batchelor (Levens); avc Catfish: 1. Mr A. Hardsdale (Horsforth); 2. Mr & Mrs Bond (Sandgrounders); 3. P. & H. Batchelor (Levens); Loach avc: 1. Mr P. Armstrong (Heywood); 2. Mr & Mrs Copley (Doncaster); 3. Mr J. Taylor (Marseside); Barbs (small): 1. Mr J. A. Whitley (Aldbrough); 2. Mr P. Armstrong; 3. Mr & Mrs Norton (South Humberide); Barbs (large): 1. Mr T. Nickelson (Sheaf); 2. Mr & Mrs Cohen (Pontefract); 3. Mr & Mrs Holmes (Castleford); Characins (small): 1. D. & H. Laycock; 2. Mr B. Jackson (Doncaster); 3. Mr & Mrs Richardson (Scarborough); Characins (large): 1. Mr Gledhill (Bradford); 2. Mr O. Sood (Swillington); 3. Mr J. Ridley (Heywood); Breeders egg-layers 1-10: 1. Mr & Mrs Toyn (Sheaf Valley); 2. Mr & Mrs Gilding (Redford); 3. Mr & Mrs Cohen (Pontefract); Breeders egg-layers 11-30: 1. Mr & Mrs Gilding (Redford); 2. Mr S. Hooton (Sand-

# FEDERATION



# NEWS

grounders): 3, Mr M. Garvey (Blakeborough). Breeders livebearers 1-10: 1, Mr & Mrs H. P. Holmes (Bradford); 2, D. & P. Laycock (Aireborough); 3, Mr & Mrs Kilvington (Doncaster). Breeders livebearers 11-20: 1, Mr & Mrs Feasey (Doncaster); 2 & 3, Mr & Mrs Kilvington (Doncaster). Cichlids, dwarf: 1, Mr & Mrs Tyson; 2, Mr & Mrs Holmes; 3, Mr & Mrs Clarke. Cichlids, large: 1, Mr J. Ridley; 2, P. & H. Batchelor; 3, Mr A. Axon (Aston). Malawi cichlids: 1, Mr S. Hooten (Sandgrounders); 2, Mr A. Axon; 3, Mr & Mrs Gilding (Redford). Angels: 1, Mr D. Wilson (ind.); 2 & 3, Mr A. Axon.

Pairs egg-layers: 1, Mr T. Reid (Blacktop); 2, D. & H. Laycock (Sheaf Valley); 3, Mr W. Blundell (Doncaster). Pairs livebearers: 1, Mr A. Waddington (Barnsley); 2, Mr & Mrs Daines (Doncaster); 3, Mr Short (Sheaf Valley). adv: 1 & 2, P. & H. Laycock; 3, Mr & Mrs Copley. Ladies av: 1, Miss P. Laycock; 2, Mrs V. Hough; 3, Mrs Daines. Sharks & long-fins: 1, Mr & Mrs Bond; 2 & 3, Mr D. Sudden. Rasboras & danios: 1, Mr & Mrs Searby; 2, C. P. & S. Norton (Sandgrounders); 3, Mr P. Snowden. Toothcarps: 1, Mr T. Reid; 2, Mr A. Jenkinson; 3, Mr Horsman. Lamp & minnows: 1, Mr & Mrs Roberts (Doncaster); 2, Mr J. Furness; 3, Master C. Hodge.

Coldwater av: 1, Mr Short; 2, Mr & Mrs Richardson; 3, Mr A. Frisby (ind.). Fancy goldfish: 1, Miss S. Clark; 2, Mrs B. Harvey; 3, Mr D. Harvey. Junior av: 1, Miss Feasey (Doncaster); 2, Master J. Emerson (Castleford); 3, Master & Miss Holmes (Castleford). Novice av: 1, Mr S. Newcome (Horsforth); 2, Mr P. Fish (Southrop); 3, Master L. King (Doncaster).

THE first meeting in the year of the **ILFORD & DISTRICT AQUARISTS' AND POND-KEEPERS' SOCIETY (FBAS AFFILIATED)** is traditionally a time to look back on last year's achievements. 33 members heard reports from the Tropical show secretary, Mr Dennis Seaman, and the Coldwater show secretary, Mr Harry Berger, and witnessed the presentation of the Society Cups and trophies for the year 1974. There was an impressive display of cups, cards and plaques won by Society members in open competition and the president made

CHANGES to some of the rules for Aquarium Society Tableaux at The Aquarium Show '75 were announced at last month's Assembly of the Federation. The main change enables entering societies to build their tableaux from a base at floor level, or on plinths at 2 ft. or 3 ft. from floor level according to choice. The method of judging will remain unchanged. Prizes of cash will not be given in future but all entering societies will receive a cash grant towards expenses of staging their tableaux. Trophies will be awarded to the winners.

The 1975 FBAS Show Committee is Mr C. A. T. Brown (chairman), Mr Derek Lambourne (show secretary), Mrs Sybil Hedges (assistant show secretary), Mrs P. Lambourne (secretary) and Mr Pete Cottle.

Allocation of 30 Championship Trophies and three perpetual trophies for 1975 has been made as shown on another page. The new Trophies secretary is Mr P. Cottle (2 Challenge Close, River View Park, Gravesend, Kent).

Before the end of this year it is hoped to stage a Federation Judges' Conference, probably in London on one of the Assembly dates.

Further gains in society affiliations to the Federation were announced; 12 new affiliations were made in the first two months of this year.

Three more titles are to be added to the list of FBAS tape-slide lectures this month. These are: no. 7 Practical Aquarium Maintenance by C. Harrison (a very useful guide on how to keep your aquarium equipment in tip-top condition and how to recognise the danger signals); no. 8 Northern Sights by R. D. Esson (an entertaining tour of past aquatic societies stands at the BAF at Belle Vue: plenty of ideas for your tableaux); no. 9 The Verdict is Yours by C. A. T. Brown (what everyone should know — what every judge is expecting to find about your fish! A detailed guide into the mysteries of finding the winning places.).



At Poland's International Exhibition at Chorzow last year U.K. aquarists were represented by fish and plants entered from Mid-Sussex AS, who accepted the invitation given by Mr Henryk Kilka, PZA President, to the FBAS. A medal betokening the participation was sent from Poland and at the March FBAS Assembly Mr Tom Glass (right), European Relations Secretary to the FBAS, presented the medal on behalf of the PZA to Mid-Sussex AS treasurer, Mr C. Corbin. Fishes entered included *Pimeiodella*, *Leptobarbus* and *Leporinus*, and with the plants these were sent by air via Amsterdam and were donated to the Exhibition at its close.

special mention of the successes of Brenda and Derek Oakley.

The programme included the annual Furnished Show Jar competition and the fine array of entries this year included an "imprisoned" convict cichlid, some "possy" Corydoras in a well, some "chess-playing" checker barbs and a rosy barb in a bed of roses, to say nothing of the more conventionally furnished jar entries. The event was again won by Mr Dennis Seaman. The evening was rounded off with a collection of aquatic colour slides produced during the past year by the secretary.

In February the Society wel-

comed Mr John Hancock from the British Sub-Aqua Club and 38 members listened spellbound to his adventures and yarns. Mr Hancock is a keen marine biologist and manages to combine both his interests by collecting and keeping a wonderful variety of marine life. An excellent display of marine specimens, both living and preserved, was viewed with interest by members. Together with other items of his equipment, Mr Hancock produced his underwater camera and lights and the Society looks forward to a visit from him in the autumn when he will be showing his colour slides.

A hand lens for checking eggs and fry was raffled and the bring and buy table did a brisk trade.

The Society meets once per month, usually the second Monday, at the Fulwell Cross Library, Barkingside, Ilford, Essex. For details please write to secretary Mr Michael Shadrack, 61 St Barnabas Road, Woodford Green, Essex.

ON St Valentine's night **MID-SUSSEX AS** held an open discussion, whilst Mr J. Stillwell (FBAS) judged the table show for guppies and axo egglayers and livebearers. Members were informed of a family outing planned for later in the year, and were asked if they would support more open shows this year if organised trips were planned in advance. The vice-chairman, Mr D. Soper, asked members for their support in a sponsored swim to raise money for the Society. It is planned to use the facilities of the newly opened Burgess Hill indoor pool. Mr D. Stone was commended for his first edition of the 'Chanda Ranga' (the Society's newsletter).

Table show results were: Guppy, pair: 1, Mr C. Bottoms (69); 2, Mr L. Comley (64); 3, Mr D. Soper (63). Guppies, male: 1, Mr D. Bottoms (78); 2, Mr B. Marchant (75); 3, E. & T. Tester (73). Guppies, female: 1 & 2, Mr C. Bottoms (64 & 63); 3, Mr A. Coffey (62). Axo: 1, J. & B. Burtles (Labeo variegatus, 74); 2, E. & T. Tester (rodial shark, 68); 3, Mr A. Solla (65).

**THE ASSOCIATION OF MIDLAND GOLDFISH KEEPERS**, at their first meeting of the new season at the Poleshill Community Centre, Coventry, attended by members from a wide area of the region, agreed to stage the coldwater section of the forthcoming Coventry P & AS Open Show. Two short 'mini talks' were given on 'The Conditioning of Goldfish prior to Spawning', by Mr Frank Orme (secretary), followed by Mr Tony Roberts (chairman). Both stressed that the conditioning was merely the result of correct maintenance and feeding — the real problems arising after the fish had spawned. As was to be expected, the methods adopted, in the

#### Forthcoming Championship Class Shows\*

Mar. 30	Mid-Kent	C	axo Catfish
Mar. 31	Southampton	Db	Dwarf cichlids
Apr. 5	Riverside	Cz	Characins
Apr. 6	Medway	Mz	axo Egglayers
Apr. 19	Corringham	XB-M	Brooders egglayers
Apr. 19	Redhill & Reigate	L	Loaches
Apr. 26	Catfish Association	Ha	Brochis
Apr. 27	North Kent	NO-T	Pairs livebearers
Apr. 27	Ilfracombe	Yb	Native marines
May 10	Southend, Leigh	T	axo Livebearers
May 10	Port Talbot	V	Twintail goldfish
May 18	Bedcar	Eb	Labyrinths
May 25	Corby	Dz	Cichlids
June 1	Havant	Hc	Corydoras
June 8	Sudbury	Ca	Characins
June 14	Dunmow	K	Danios/White Clouds
June 15	Gosport	Ma	Labeos
June 15	Salisbury	Ya	Tropical marines
July 5	Cardiff	Q	Swordtails
Aug. 3	Tonbridge	Bz	Barbs
Aug. 17	Newcastle Guppy	R	Platys
Sept. 7	Bethnal Green	J	Rasboras
Sept. 14	Three Counties	F	Egg-laying toothcarps
Sept. 14	Torbay	P	Female Guppy
Sept.	Hastings & St. Leonards	O	Male Guppy
Sept. 28	Newbury	Dc	Rift Valley cichlids
Oct. 5	Ealing	Da	Angels
Oct. 20	Hounslow	Ba	Barbs
Nov. 10	Walthamstow	Z	Plants

#### Perpetual Trophies

July 1	Chard	C	Southend Characin Cup
July 12	Romford	H	The Major Trophy
Sept. 7	Wellingborough	F	The Tom Glass

Killie Trophy

\* Winners of Federation Championship Trophies in classes for single fish automatically become eligible for the Supreme Championship Trophy Competition (to be staged at The AQUARIUM SHOW '75 at the Royal Horticultural Society's Old Hall, London, SW1, 24th-26th October). Six awards are made at this Competition, and each entrant will receive a Championship 'Certificate'.

**BASINGSTOKE AS** are to compare their 1975 Annual Open Show with those of other members of the Three Counties Group. They will join Brockwell AS, Didcot AS, High Wycombe AS and Reading AS in the Group's 21st Annual Open Show to be held at Reading University on Sunday 14th September. Basingstoke AS will put on an Aquatic Display to interest the public in the hobby at their usual Open Show venue during Carnival week.

management, care and feeding of their fish, by these two well-known breeders of fancy goldfish were very much alike. A short question-and-answer period raised the question of the merits of hand-stripping fish, to which both speakers replied that, although they had no objections to the method, they preferred natural spawnings which provided more than enough fry for them to cope with.

**DORCHESTER & DAS** started their year with a film evening. Films shown were 'Czech Carp' and 'Stories from the Sea', which were thoroughly enjoyed by all of the members. Results of the month's table show (now for three classes) were: Danios minnows, section 1: 1, Mr R. Christopher. Section 2: 1 & 2, Mr S. Payne; 3, Mr P. Carter. Judais: 1 & 2, Master R. Cook; 3, Master P. Legg. Mollies, section 1: 1, Mr R. Christopher. Section 2: 1, Mr G. Belt; 2, Mr T. Light. Home aquaria have been judged for the annual competition, and results and slides of the tanks will be in the April meeting programme.

The newly-formed **BRIDPORT AS** were guests of Dorchester at a recent meeting and took part in a quiz. At the evening's table show for platys and aov livebearers, Mr R. Christopher won in the aov livebearers, section 1, class, Mr R. W. Taylor in that for platys, section 1, Mr T. Light won in platys, section 2, and Mr S. Payne took all three

places in the aov livebearers, section 2, class. Roy Christopher and Roger Derrick won in the respective junior sections.

**HIGH WYCOMBE AS** have had many discussions on whether or not to hold an Open Show this year until the decision was finally reached to join with the other members of the **THREE COUNTIES GROUP** and hold a joint show at Reading University on 14th September. The club has enjoyed a quiz conducted by Mr A. Hall, and a mini-furnished aquarium competition held among its own members resulted in Mr R. Cox winning the award (2, Mr D. Schramm; 3, Mr J. Bushby). Entries were judged by a member of the public. The Society has also played host to fellow members of the Three Counties Group.

The club meets on alternate Thursdays at the White Horse Inn, West Wycombe Road (corner of Oakridge Road), High Wycombe. Visitors from other clubs and non-club members are welcomed at meetings. The schedule for the next few months is: 2nd April, meeting; 17th April, closed show for table trophy; 1st May, talk; 13th May, meeting; 29th May, eight-a-side competition against Aylesbury; 12th June, club discussion. Further details from the secretary, Mr Jack Bushby, 3 Hawthorne Walk, Hazlemere, High Wycombe, Bucks.: Penn 3823.

**REORGANISATION** of the journal of the **BRITISH CICHLID ASSOCIATION** has resulted in the appointment of Mr Ian C. Sellick, 289 Northridge Way, Hemel Hempstead, Herts, HP1 2AU, as the new editor, the moving off from the old 'Cichlid Clarion' of the news section into a separate monthly Newsletter, and the adoption of the name 'Cichlidae' for the new journal, which will concentrate on the dispersal of information about cichlids and related subjects.

General secretary of the BCA is Mr T. Green, 12 Greenwood Meadow, Chinnor, Oxford, and

area representatives are as follows: N.E. London, Mr C. Olley, 157 Wanstead Park Road, Crambrook, Ilford, Essex; Nottingham, Mr P. N. Berry, 131 Sherbrook Road, Daybrook, Notts.; North East, Mr C. Enright, 27 Longacre, Houghton-Le-Spring, Tyne & Wear, DH4 5PY; Birmingham, Mr J. Reeves, 36 Peter Street, Hilltop, West Bromwich, Staffs.; Leeds, Mr J. Abbott, 208 Broadway, Horsforth, nr. Leeds; Stockton & Teeside, Mr R. Roper, 58 Brandon Crescent, Billingham, Cleveland; Hertfordshire, Mr A. Buckel, 9 Leahoe Gardens, Hertford, Herts.; Scotland, Mr J. Queen, 50 Douglasdale, East Kilbride, Glasgow; Ireland, Mr T. Sherlock, 2 Carolsteun Gardens, Helens Bay, County Down, Northern Ireland.

THE 14th February was notable this year not just for being St Valentine's Day but because it was also the occasion of the celebration of the 21st Anniversary of the foundation of **BASINGSTOKE & DAS**. The Society had invited a great number of guests to join with them in celebrating the event and taking part with officers and members of Basingstoke itself in this very well-arranged and pleasant social occasion were friends from many societies. These included the chairman of the FBAS, Mr Frank Tomkins,

*THE Newsletter of the BRITISH ICHTHYOLOGICAL SOCIETY* lists a number of residential courses being held by the Field Studies Council in 1975. These include: *Freshwater Biology*; *Exploring a River*; *The Story of a River*; *Exploring Ponds and Streams*; *The Animals of Aquatic Habitats*; *Exploring the River Severn*; *Elements of Scuba Diving and Marine Ecology*. The courses last for one week and are held between May and October at various centres throughout the country. For further information please contact the Information Office, Field Studies Council, Preston Montford, Montford Bridge, Shrewsbury SW4 1HW.

and its officers, and a very welcome group of guests from Basingstoke's twin society, South Shields AS; representative Mr Bill Scott presented a commemorative shield to Basingstoke from the twin northern Society. Many congratulations were offered to the Society on achieving '21 years of uninterrupted activity' and on their special anniversary issue of the Society's bulletin 'Fish Forum'.

Mr Mervyn Strange entertainingly recounted events and stories of Basingstoke's past. During the existence of Basingstoke AS the names of over 270 members have been listed in the records. Guests were particularly pleased to be presented by the Society's chairman, Mr Adrian Blake, with a souvenir of the occasion in the form of a decorative card recording their presence at the event.

Uno trophy and Best Novice prize. FNAS judges Mr D. Glenn, Mr I. Wood, Mr B. Booker and Mr M. Jones will officiate plus two 'B' class judges, Mr P. Whelan and Mr R. Johnson. Further details from show secretary, Mr T. Hampton, 7 Madelaine Street, Liverpool: 051-709 5509.

## In Brief...

... **SUDBURY AS** are holding their Open Show this year on 8th June at St Andrews Church, Church Gardens, Sudbury. They wish to thank all the clubs who, by their support, made last year's show the biggest club open show in London for 1974, and hope to see them again this year on 8th June.

... **NEWLY-formed MARLOW AQUARIST CLUB** welcomes new members and anyone interested should contact secretary Mr D. Henderson, 71 Berwick Road, Marlow, Bucks: phone Marlow 6606.

... **LOWESTOFT** is about to have its own local aquarists' Society. Since there are at least 200 fish tank owners in the locality, it is felt that the Society is much needed and that membership should be high. The new Society will give full coverage to the hobby as it is proposed to include marine and coldwater fishkeepers too. A first meeting took place in March and anyone interested is asked to contact Mr T. Lee of the Lowestoft Pet Stores, 103 London Road South, Lowestoft, Suffolk (phone Lowestoft 3232) to obtain full details of meeting place and times of meetings.

... 30 members of **GLOUCESTER AS** enjoyed a lecture given by Mr. L. Nightingale on

livebearing fish at a recent meeting. The business discussed included suggestions on future social activities, and the method for judging members' fish for the forthcoming six-a-side show was agreed upon. Results of the monthly table show: Livebearers: 1 & 3, Mr G. Dixon; 2, Mr F. Timmins.

... **SEVERAL** new members were greeted at February's meeting of **WEYMOUTH AS** where a slide show on barbs was presented. Results of the table show were: Furnished aquaria: 1, Mr D. Mullen. Sharks: 1, Mr J. Fancy; 2, Mr J. Hodder; 3, Mrs J. Grundell. Meetings are held on the second Tuesday of each month at Ratcliffe Hall, Queens Road, Weymouth and new members are very welcome.

... **THE EAST LONDON AQUATIC & PONDKEEPERS ASSOCIATION's** meetings have been varied and interesting with table shows on the first Friday of each month. Talks are given by well-known speakers from outside the club as well as from club members themselves.

... **DUNLOP AQUARIUM KEEPERS SOCIETY** are holding their Open Show on Sunday, 29th June, at the Works Canteen, Dunlop Limited, Speke Hall Road, Speke, Liverpool 24. There will be 39 classes with plaques for all class winners and new trophies for most section winners, prizes and cards for 1st, 2nd and 3rd in all classes plus Best in Show trophy and prize, Best Showman trophy,

... **NAILSEA & DAS** hold meetings on the fourth Tuesday of each month, 7.45 p.m., the Church Hall, Nailsea. New members and visitors always welcome; details may be obtained from the secretary, Mr M. J. Ellick, 3 Burrington Close, Nailsea, Bristol: phone Nailsea 4158. The Society will hold its annual Open Show on Saturday June 28th to co-incide with the final day of the Nailsea Festival Week. Further details and schedules may be obtained from show secretary, Mr D. Kenwood, 90 Slade Road, Portishead, Bristol: phone Portishead 848947.

... A **QUIZ** organised by member Mr D. Harding was the main item of the well-attended February meeting of **NEW FOREST AS (FBAS)**. A raffle and auction was also held. The table show was judged by Mr Gerry Edwards of Pisces AS and Mr D. Harding won both the danio/minnow class and also that for aot tropical.

... **SUFFOLK A & PA** (affiliated to the FBAS) very much enjoyed the lecture by Mr B. Pye on photographing fish in the aquarium with illustrations of all the good and bad points involved.

... **AT** a recent meeting of **BOURNEMOUTH AS** the main item was a talk by the club's most requested speaker, Mr R. Matley, on Suitable Community Fishes. His talk was a great help to the newcomers in the Society as well as to the more experienced members. Table show results: av Guppy: 1, Master S. Haskins; 2 & 3, Mr K. Gibbs, av Danio, rasboras, minnows: 1, Mrs Bell; 2 & 3, Mr Middleton, av Labyrinth: 1, Mr

Middletown; 2, Mr K. Gibbs; 3, Mr Devlin, ob Pairs (livebearers); 1, Mr Turner; 2, Mr Gibbs; 3, Mrs Bebb.

**THE GOLDFISH SOCIETY OF GREAT BRITAIN** are to hold their Open Show at Sutton Adult School, Benhill Avenue, Sutton, Surrey, on 27th September 1975.

**BRISTOL AS** held their AGM recently and after the election of officers, Mr J. Phillips gave a short talk on the puffer fish *Tetraodon lineatus*.

**THE BETHNAL GREEN AS** annual Fish of the Year club show was a great success, all four placings being awarded silver stars. Results were: 1, Mrs S. Hedges (*Ophicephalus obscurus*); 2, Mrs F. Rogers (*Corydoras neotro*); 3, Mr J. Connolly (*Brachydanio keeri*); 4, Mr T. Macdonald (*Borbus agri/scotus*). 1975 club activities started with a talk on water chemistry by Mr R. Mills of Ealing AS and a lengthy and detailed talk on the nomenclature of fishes by Mr F. Tomkins, chairman of the FBAS.

**WESSEX AS** was formed by 13 aquarists in November, 1974 and by January of this year the number had increased to 35. The Society meets on the second or third Wednesday in the month at The Ship Inn, Winchester, and new members are most welcome. For further details contact secretary Mr K. Barnes, 36 Bramshaw Close, Harestock, Hants; phone Winchester 881557.

**MEETINGS of LLANBUDNO & DAS** are held at the Llanbudno Youth Centre on the first Thursday of each month at 8.00 p.m. Visitors will be welcomed and further details of the Society can be obtained from secretary Mr. R. J. Morgan, 22 Ormeside, Penrhynside, Llanbudno, N. Wales; phone Llanbudno 40275.

**AT the COVENTRY A & PA** AGM the secretary was able to report that the year has been

one of consolidation with average attendance at meetings amounting to 55. The Society finished second in the M.A.L. competition. Now members look forward to the Open Show on 20th April at the new venue, Templars Junior School, Tile Hill Lane, Coventry. The coldwater classes are being organised by the Association of Midland Goldfish Keepers who are proposing to hold eight or nine classes instead of the usual two or three.

**MR R. CALLAGHAN of EAST DULWICH AS** writes: 'Having acquired ourselves a scribe, we are now able to inform members that the club is not dead but very much alive and full of activity even though membership may be small (new members — senior and junior — heartily welcomed). Recent table show results are: av Catfish: 1, Master D. Winger; 2, Mr R. Callaghan; 3, Mr B. Light. Barbs: 1, Mr P. Cresswell; 2 & 3, Mr R. Callaghan. Damios/minnows: 1, Mrs D. Winger; 2 & 3, Master D. Winger. av Egg-layers: 1 & 2, Mrs D. Winger; 3, Mr B. Light. av Cichlids: 1, Master D. Winger; 2, Mr R. Callaghan; 3, Mr D. Swale. If any readers have trophies be-

longing to the club, will they please contact show secretary, Mrs D. Winger, telephone 01-699 3122. Meetings held 2nd and 4th Monday in month at Dulwich Baths Reception Hall, Crystal Palace Road, London, SE22.

**AT the last meeting of SLOUGH & DAS** the annual auction was held. This was well attended with a large number of visitors. The April meeting will be held on Wednesday, 16th, the Friends Meeting House, Ragstone Road, Slough when Mr Dick Mills (editor, FBAS Bulletin) will talk on filtration. Enquiries to secretary Mrs E. Knight, 32 Aldin Avenue South, Slough.

**PRESIDENT of BRISTOL AS** Mr S. Lloyd, aided by Mr G. Stone, presented a slide show on varieties of coldwater and tropical fishes. The slides of the coldwater varieties raised a number of discussion points on how to get a good red colour into goldfish varieties, the ability or otherwise of the shubunkin to hold its tail and the apparent loss of the round body by the twintail varieties. Size and ease of breeding were the most popular queries on the tropicalls.

## Dates for Your Diary

8th April, **RIVERSIDE AS** Open Show, St Saviour's Church Hall, Cobbold Road, London, W12. Details: Mr D. Lambourne, 7 Wheeler Court, Plough Road, London, SW11: 01-223 2630.

15th April, **WARRINGTON AS** Open Show, Pair Hall, Palmara Bouers, Warrington, FAAS Rules. Schedules: Mr J. Higham, 42 Hood Lane, Sackley, Warrington, Lancs WA5 1EJ; phone 34939.

12th April, **NELSON AS** Open Show, Nelson Civic Centre, Stanley Street, Nelson, Lancs. Details: Mr R. McKenna, 52 Bath Street, Nelson, BB9 0NP.

19th April, **CORRINGHAM & DAS** Open Show. Details: Mr D. C. North, 198 Southend Road, Stanford-le-Hope, Essex.

19th April, **YATE & DAS** Open Show, King Edmunds School, Yate, Nr. Bristol (New Venue). Schedules: Mr C. Stockland, 20 Burslett Close, Chipping Sodbury, Bristol BS17 6DZ.

19th April, **BRIGATE & REDHILL AS** Open Show, Market Hall, Redhill, Surrey. Details: Mr M. Sandford, 8

Victoria Road, Earlswood, Redhill, Surrey. Redhill 69339.

20th April, **COVENTRY POOL AS** Open Show, Templars Junior School, Tilehill Lane, Coventry. Scheduling: 11.50 a.m. - 1.00 p.m. Schedules (large sea): Mr S. Woodridge, 23 Lime Tree Avenue, Tilehill, Coventry.

20th April, **MERSEYSIDE AS** Open Show, Rainhill Village Hall, Exchange Place, Rainhill, Lancs. Details: Mr E. Wilson, 3 Thorpe, Salsomdale, WMS 80Q, Lancs.

20th April, **STOCKTON-ON-TEES AS** Open Show, St Peter and Paul School, Durham Road, Stockton (adjacent to the Mile House Hotel). Details: Mr C. W. Suck, 22 Dandy Grove, Thornaby, Cleveland, TS17 8BX.

26th April (note change of date), **CATFISH ASSOCIATION OF GREAT BRITAIN** 2nd Open Show (catfish only), St Saviour's Church Hall, Cobbold Road, London, W12. Details: Mr D. Lambourne, 7 Wheeler Court, Plough Road, London, SW11 2AX; phone 01-223 2630.

26th April, **BRISTOL TFC** Open Show.

27th April, **BLAKEBOROUGH AS** Open Show, The Carriem, J. Blakeborough & Sons Ltd, River Street, Off Birds Road Lane, Brighouse, West Yorks. Schedules: Mr M. E. Garvey, 27 St. James Street, Brighouse, W. Yorks, HD6 4BE.

27th April, **NORTH KENT AS** Open Show. Details: Mr K. Sazby, 5 Rowan Close, Maccpham, Kent: Maccpham BT242B.

10th May, **PORY TALBOT AS** Open Show, YMCA Buildings, Port Talbot, Glam. Schedules: Mr A. E. R. Fournier, 3 Cross Street, Valindre, Port Talbot, Glam. SA13 1AZ.

10th May, **SOUTHEND, LEIGH & DAS** Open Show, St Clements Hall, Leigh-on-Sea, Essex. Club and individual furnished aquaria, aquascapes, marine and junior classes. Details: Mr G. Durrant: 1572 Trinity Road, Southend-on-Sea: phone 6105761.

11th May, **BOURNEMOUTH AS** Open Show, Kinson Community Centre, Milkams Lane, Kinson, Bournemouth. Details: Mr J. Jeffery, 30 Breamer Avenue, Southbourne, Bournemouth BH6 4JF.

11th May, **YEovil & DAS** Open Show. Details: Mr P. C. New, 8 Mayfield Road, Yeovil.

11th May, **GLOUCESTER AS** Open Show. The Chewers, Endage Canon, Painswick Road, Gloucester. Schedules: Mr G. Perkins, 243 Bodiam Avenue, Guedgley Court Estate, Tuffrey, Gloucester.

11th May, **SOUTH PARK AQUATIC (STUDY) SOCIETY** 5th Annual Infiltration Coldwater Show, The Wimbledon Community Centre, St Georges Road, London, SW19. Details: Mr D. Herman, 83 Cannon Grove, Feltham, Surrey.

17th May, **TROWBRIDGE & DA & PS** Open Show, The Rowing Club, Bradford-on-Avon, Wilt. FNAS Standards. Schedules now available from show secretary, 49 Marsh Road, Hillpertan, Trowbridge, Wilt.

18th May, **REOCAR AS** Open Show, Coatham Bowl, Redcar, Cleveland. Benchings 11.30 a.m. Judging 14.00 hours. Details: Mr T. Lawrence, 68 Ings Road, Redcar.

24th May, **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

25th May, **BRIDGINGTON & DAS** Open Show, Hilderthorpe Junior School, Shaftesbury Road, Bridlington. Schedules: Mr M. Jordan, 88 Mabson Road, Bridlington, North Humberside.

25th May, **CORBY & DAS** Open Show, Corby Civic Centre, FNAS Rules. Schedules: Mr A. Slow, 178 King Street, Kettering, Northants. (Mid-March).

25th May, **PORTSMOUTH AS** Inter-club Show, Portsmouth Community Centre, Malton Road, Portsmouth. Details: Mr W. Ryder, 302 Kirby Road, Portsmouth, PO2 0GB.

25-26th May, **MID-SUSSEX AS** Fish Exhibition, Park Centre, Park Road, Burgess Hill, Sussex.

1st June, **NORTHWICH & DAS** Open Show, Hartford Secondary Boys School, Chester Road, Hartford, Northwich, FNAS Standards. Details: Mr N. R. Thompson, 54 Granmere Road, Frodsham, via Wellington, Lancs. WA5 7LQ: phone Frodsham 32745.

1st June, **COTSWOLD AS** 1st Open Show, Roxborough House, Youth Centre, Nelson Street, Stroud, Gloucester. Schedules: Mr K. Hodges, 31 Herne Road, Stroud, Gloucester.

1st June, **LOUGHBOROUGH & DAS** Open Show, Bureigh Community Centre, Thorpe Hill, Loughborough, Leics. Schedules: Mr I. Parry, 10 Cleveland Road, Loughborough, Leics. LE11 2SP: phone 61115.

1st June, **NEWCASTLE TROPICAL FISH SOCIETY** Open Show, St Johns Church Hall, Westgate Road and Greyinger Street junction, Newcastle-upon-Tyne. Schedules shortly: Mr L. R. Lawson, 84 Grenvador Road, Jesmond, Newcastle-upon-Tyne 2.

1st June, **HAVANT & DAS** Open Show, The Merchant Hall, Nondean, Havant. Schedules: Mr K. Taylor, 3 Hollybank Close, Cowplain, Havant: phone Roman Way 4140.

8th June, **SHERWOOD AS** Open Show, The Thoresby Miners Welfare Hall, Edwinstowe, Olton, nr Mansfield, Notts. Schedules: Mr J. Igoe, 23 Marple Avenue, Mansfield, Woodhouse, Notts: phone Mansfield 32249.

14th June, **DUNMOW & DAS** Open Show. Details: Mr A. V. Galt, 26 River View, Scantree, Essex, CM7 7HX.

14th June, **LLANTWIT MAJOR AS** (CNAF/FBAS) Open Show, The Town Hall, Llanwit Major. Quality plaques all classes. Schedules (March): Mr J. J. Edwards, Glanrafon, Mill Park, Llanbethlan, Cowbridge, Glam, CF7 7BG.

14th June, **KINGSTON & DAS** Open Show, Sutton Adult School, Benhill Avenue, Sutton, Surrey. Details: Mr O. J. Mackay, 12 Victoria Road, Telfordham, Middles: phone 01572 0032 Baytime till 6.0 p.m.

15th June, **SWILLINGTON AS** Open Show, John Smeaton School, Sarwick Road (off York Road), Leeds 15. Details: Mr B. Mrs R. Hildog, 1 Fu Tree Gardens, Moortown, Leeds, LS17 7LD.

15th June, **GOSPORT & DAS** Open Show. Details: Mr J. Clarke, 37, Rowner Close, Rowner, Gosport: phone Fareham 80108.

22nd June, **ALFRETON & DAS** Open Show, Adult Education Centre, Alfreton, Alfreton. Details: Mr B. Hickling, Parkview 13, Colopce Drive, Eastwood, M216 3FW: phone 07737 5104.

22nd June, **SOUTH SHIELDS AS** Open Show, Robinsons Hall, Details: Mr P. Wight, 11 Boston Crescent, Toon End Farm, Sunderland, Tyne/Wear.

23th June, **NAILSEA & DAS** Open Show. Schedules: Mr D. Kenwood, 90 Slade Road, Porthhead, Bristol: phone Porthhead 848641.

**RUNNYMEDE AS** Open Show, St. Anne's Middle School, Clare Road, Stanwell, Staines, Middx. Details: Mr D. Riley, 129 Kingsmill Avenue, Norwell, Middlesex, UB8 5N1: phone 01-845 4169.

29th June, **DUNLOP AKS** Open Show, Works Canteen, Dunlop Limited, Spoke Hall Road, Spoke, Liverpool 24. 39 classes (FNAS). Schedules: Mr T. Hampton, 9 Madeline Street, Liverpool: 051-709 8509.

29th June, **LINCOLN & DAS** Open Show, The Drill Hall, Broadgate, Lincoln. Details: Mr G. S. Hill, c/o 28 Richmond Road, Lincoln LN1 1LQ.

5th July, **CARDIFF AS** Open Show, St. Margaret's Church Hall, Roath, Cardiff. Details: Mr S. Gury, 30 Letterson Road, Rumney, Cardiff.

6th July, **LYTHAM AS** Open Show, Ansell Institute, Woodlands Road, Ansell, Lytham-St-Annes, Lancs. Schedules: Mr Peter Ham, 1 Wyndere Grove, Freckleton, Preston, Lancs: phone Freckleton 633182.

6th July, **THORNE AS** Open Show, Grammar School, St. Nicholas Road, Thorne, nr. Doncaster, Yorks. Details: Mr C. Jewison, 34 Hawthorne Road, Thorne: phone Thorne 813041.

12-13th July, **ROMFORD & BEACONTREE AS** Open Show (Dagenham Town Show), Central Park, Dagenham, Engraves: Mr F. Jacobs, 264 Southend Arterial Road, Hornchurch, Essex, RM11 2SU.

20th July, **SANDGROUNDERS AS** Open Show, Meale Cop School, Meale Cop Road, Southport. Details: Mr G. A. Waterhouse, 23 Moss Lane, Southport, Merseyside, PR9 7GR.

20th July, **AMBROURGH & DAS** Open Show, Menston Community Centre, Main Street, Menston, Schedules: Mr J. S. Hall, 34 Selisbury Street, Calverley, Pudsey, LS28 5PN: phone Pudsey 74609.

20th July, **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

3rd August, **TONBRIDGE & DAS** Open Show. Details: Mr S. Feast, 19 Eandley Road, Sevenoaks, Kent, TN13 1XX: phone Sevenoaks 54998.

4th-9th August, **PORTSMOUTH AS** Open Show and Exhibition, Beaching, 2nd August: judging, 3rd August: open to public, 4-9th August: prize-giving, 9th August. Schedules: Mr J. Gillwell, 34 Selcombe Avenue, Concord, Portsmouth, Hants, PO3 8LD.

10th August, **GRIMSBY & CLETHORPES AS** Open Show, Memorial Hall, Cleethorpe. Schedules: Mr T. P. Walker, 51 Cheshire Walk, Grimaby, 5th Humberside: phone Healing 7618.

17th August, **NEWCASTLE GUPPY & LIVE BEARER SOCIETY** Open Show (the only all-livebearer Open Show). Details to follow.

17th August, **OLDHAM & DAS** Open Show, Werneth Park, Oldham, Schedules: Mr A. E. Chadwick, 341 Broadway, Chadderton, Oldham, Lancs OL9 8RN.

7th September, **BETHNAL GREEN AS** Open Show, Bethnal Green Institute, 223 Bethnal Green Road, London, E2. Schedules: Mrs S. Hodges, Xal Corner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL: phone 01-590 3239.

7th September, **KILLINGWORTH AA** Open Show, Communicators, Killingworth Township, Schedules: Mr D. B. Hickman, 14 Crumstone Court, Londmadows, Killingworth, Newcastle, NE12 0S2.

14th September, **TORBAY AS** Open Show, Torquay Town Hall. Details: Mr J. R. Davis, 43 Haddon Road, Torquay, Devon.

21st September, **HUCKNALL & BULLWELL AS** Open Show. Details: Mr J. R. Westcott, 9 Royce Avenue, Westville, Hucknall, Notts.

21th September, **GOLDFISH SOCIETY OF GREAT BRITAIN** Open Show, Sutton Adult School, Benhill Avenue, Sutton, Surrey. Schedules: Mrs M. Dudley, 163 South Park Road, Wimbledon, London, SW19 8RY.

4th October, **EAST LONDON AQUATIC & PONDKEEPERS** Open Show. Details to follow.

5th October, **FALING & DAS** Open Show. Details to follow.

5th October, **SCUNTHORPE & DAS** Open Show. Details: Mr L. Burr, 6 Saxeby Road, Scunthorpe, S. Humberside.

24th-26th October, **THE AQUARIUM SHOW '78** at the Royal Horticultural Society's Old Hall, Vincent Square, London SW1. Presented by the Federation of British Aquatic Societies. Aquarium society fishkeeping exhibits invited. Details from the organiser, FFM 54, Garratt Lane, London SW11 0NY: phone 01-947 2805.

2nd November, **BLACKBURN AQUARIST WATERLIFE SOCIETY** Open Show, Windsor Hall, Blackburn. Details: Mr T. Burton, 21 Henry Street, Rishworth, nr. Blackburn, BB1 4JJ.

22nd Nov, **GOLDFISH SOCIETY OF GREAT BRITAIN** Meeting, Conway Hall, Red Lion Square, Holborn, London, WC1, 2.00 p.m.

22nd November, **FUR, FEATHER & AQUARIA SHOW**, King's Hall, 39 Lower Clapton Road, London, E5. Schedules: Mrs S. Hodges, Xal Corner, 150 Ashburton Avenue, Seven Kings, Ilford, Essex, IG3 9EL: phone 01-590 3239.

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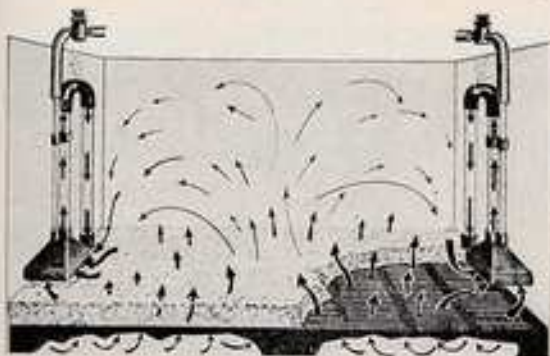
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