

JULY 1971

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monthly

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Comments and Quotes

- Equipment on the move
- About showing
- Lines of warning

Inside Out

BY far the largest number of aquaria and biggest proportion of fishkeeping equipment are sold to users who, at least initially, are interested only in the decorative aspect of their purchase. This being so, it is inevitable that manufacturers should be designing with this market in mind. With the realisation that what this market requires is a 'living picture' and not a clutter of equipment in a glass box has come a continuing trend to make equipment as unobtrusive as possible and, most recent of all, to move even those items that had seemed to be inviolately 'interior fixtures', such as heater-thermostats, to the outside. In turn, of course, expelled apparatus such as external filters needs to be accommodated around the tank without making its surroundings another area of clutter. So that there can also be detected a growing emphasis on the cabinet aquarium or units with provision for the necessary accessories. In itself, of course, this latter development is something that may well attract yet more fishkeepers from the ranks of those for whom the conventionally made aquarium is an unacceptable living-room feature.

The combination of heater and thermostat to form a single unit, the slimming of such units to minimum size and, now, the development of the entirely exterior aquarium heater, are examples of the evolving regard for the look of the tank's interior. It is not perhaps without significance that the creation of the external heater (a British 'first') has been under the trade name of the firm who first introduced glass-cased aquarium heaters—Es-Es. The two events, some 40 years apart, are both landmarks in the history of aquarium equipment.

A further approach to the 'moving-out' of heater and thermostat has

been made this year with the appearance of an external motorised filter with the heater and control incorporated into it, which is a most interesting extension of the use of a water-circulatory system for the small aquarium. The inclusion of aeration systems as air-lift devices in filters has been with us for some time now but perhaps even here one sees the hand of the 'exterioriser' at work. Is the aquarium diffuser stone soon to be ousted? It certainly seems that the seventies are likely to be marked as the era of uncluttered tanks.

About Showing

THOUGHTS expressed on the subject of showing by a contributor to *PFM* in our May issue have certainly provoked some discussion in showing circles, and we print in this issue some of the letters received about the article. With few exceptions the criticisms of 'About Showing' have come from aquarists in the south of England. Our contributor lives in the north—we do not know whether his observations were made solely at shows in the north. If so, the absence of a reaction from the north comparable with that from the south could mean that there were more home-truths in the article for aquarists there. We don't know that this is so. We just wonder.

Danger Line

THE other week we saw a letter in *THE TIMES* from a well-meaning lady appealing to anglers to take more care with their nylon lines, which can ensnare wild birds. Our bet is that the fishes would like a few words with the angling fraternity on the subject, too!



PETFISH
MONTHLY

LETTERS

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

'About Showing'— Caustic Comments

I HAVE read Mr F. W. Coles' article entitled 'About Showing' not once, or twice but five times and the more I read it the more amazed I become. Firstly I compete in something like 25 open shows annually and yet Mr Coles' name does not jog my memory, but he sets himself up to make sweeping statements which unfortunately for him are incorrect. As I am an aquarist from the South of England the following statements I shall make concern only this area.

The third and fourth paragraphs first of all cast a slur upon the reputations of FBAS judges, inferring that they do not know their fishes or how to judge them. It should be pointed out here to everybody that the system of single fish judging is that each fish in each class is judged to 100 points, these being broken into five groups of 20 points: 20 points for size; 20 points for body; 20 points for colour; 20 points for fins; 20 points for condition and deportment.

So therefore you can see from this that size, which Mr Coles is making such a fuss about, is only one-fifth of the total points.

Another interesting factor arises in this argument of large versus small which is to most intelligent people common sense. Take two widely differing fishes in one class, for example, Class (J) *s.v.* Rasbora: the tiny *Rasbora maculata* and the large orange scissor tail; if the former has a missing scale and a slight split fin, it will not be so obvious as the same damage on the latter—draw your own conclusions! There are many more points on this particular statement, but these will suffice except to say that in the present FBAS class system (see pages 474 and 475 of PFM, March), classes have been divided to allow for an even balance between sizes of fishes (particularly note classes B & Ba, C Ca & Cb, D Da & Db, E Ea & Eb).

The fifth paragraph is almost worth Court action with its subtly worded hints, or is it jealousy? The sixth paragraph does not even make sense.

The seventh paragraph mentions the number of exhibitors. I should like to see Mr Coles' sets of statistics for making this rash assumption—I was under the misapprehension that the number of both exhibits and exhibitors was on the increase. The eighth, ninth and tenth paragraphs will no doubt be mentioned by some of my well-informed coldwater colleagues who are still suffering from the shock of not being mentioned in paragraph six as a specialist society but only as 'etc.'.

Mr Coles is no doubt unaware of the existence of the Goldfish Society of Great Britain. I will take up my point if it is aimed at tropical fish. Paragraph nine begins 'One has to consider that the real exhibitor breeds his own fish'. Would Mr Coles care to try his hand at breeding black sharks, piranhas, Siamese tigers, or even, come to that, harlequins or some sorts of the small *rain* characins?

Paragraph eleven starts off correctly. The standard livebearers, namely swords, platys and mollies has gone down considerably during the last ten years but after gaining this ground Mr Coles reverts back to his usual sweeping statements concerning all other varieties on the show bench today. With more importations the standards have risen in many classes as have the types and varieties available.

Paragraphs twelve and thirteen return to Mr Coles' phobia concerning big fishes. His statement about voicing opinions expressed by other exhibitors is always a dangerous one. Surely he should be writing his own opinions, not those given by people who may not understand the 'arts' of showing.

Paragraphs fourteen, fifteen and sixteen deal with containers and their standardisation; possibly Mr Coles is prepared to carry this message to the manufacturers for these are the people who produce the containers. The use of standard size containers in certain classes is of course physically impossible due to the difference in sizes of the exhibits and the work this would involve for the host clubs makes it impractical. Also his idea concerning the hiring of standard containers makes one shudder; what vast amount of diseases could be passed from exhibit to exhibit. No, Mr Coles, I am afraid the standard containers for classes, whether of plastic or glass, are just not possible. As an extra observation, please note that although standard 4 in. jars are acceptable for showing they are still probably the worst kind of container possible to display any fish to its best advantage. I prefer tanks even for small fishes.

The last paragraph definitely tops them all. The main guiding bodies in the British Isles, namely FBAS, FNAS, MAAS, FSAS, are at this very moment attempting to produce one guiding set of rules and

Continued on page 107

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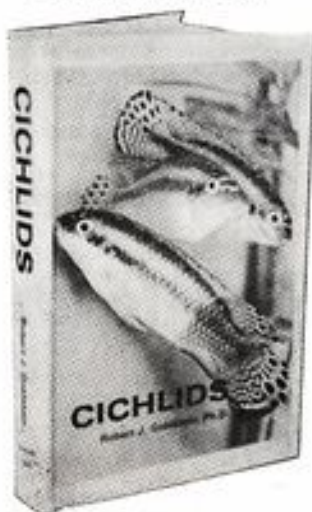
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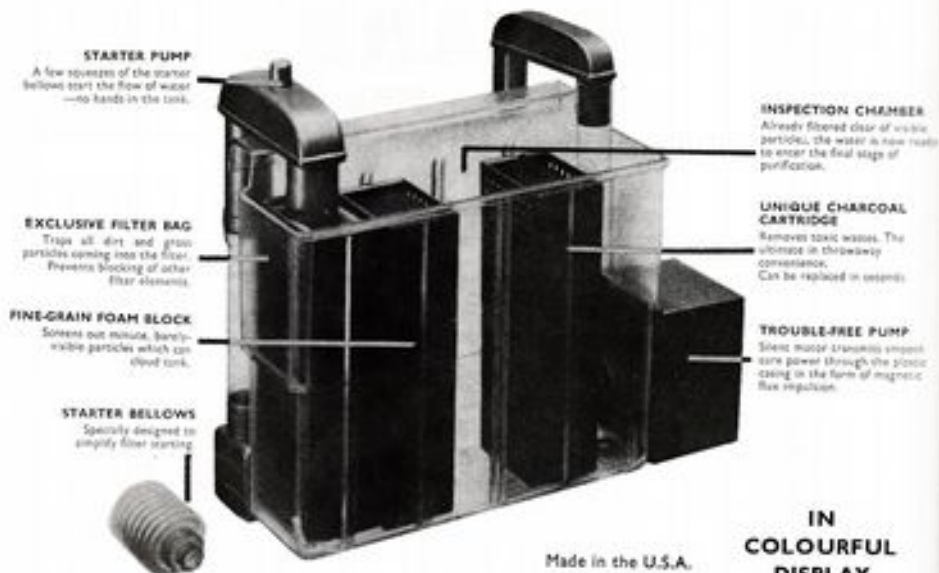
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LETTERS

continued from page 102

standards for use by all exhibitors to achieve uniformity. Plus all the many other duties these bodies tackle, poor Mr Coles seems to be lacking in his knowledge on all aspects of fish exhibiting. As an extra point of interest for Mr Coles and anyone else who may hold the same views, I have prepared a list of 'Best Fish in the Show Awards' from 1970 Shows (not all, but many) showing sizes.

E. Dulwich	Velifera mollie	4 in.
Catford	Congo salmon	3 in.
Thurrock	Red fin shark	4½ in.
Croydon	<i>Corydoras julii</i>	2½ in.
Uxbridge	Marigold platy	2 in.
Hendon	Cherry barb	1½ in.
Tottenham	Phutonio barb	1½ in.
Salisbury	<i>Nannacara anomala</i>	2½ in.
Gosport	Cherry barb	1½ in.
Basingstoke	<i>Corydoras julii</i>	2½ in.
Dagenham	Texas cichlid	7 in.
N. Kent	Texas cichlid	7 in.
Chingford	<i>Ctenopoma kingsleyae</i>	7 in.
Portsmouth	Half beak	3 in.
Harlow	<i>Ctenopoma kingsleyae</i>	7 in.
Bedworth	Velifera mollie	5 in.
Riverside	Singletail goldfish	4½ in.
Bethnal Green	Snakehead	18 in.
Mid-Herts	<i>Plecostomus rathoni</i>	8 in.
Hounslow	Phutonio barb	1½ in.
Brighton	<i>Ctenopoma acutirostre</i>	5 in.
Reigate and Redhill	<i>Corydoras julii</i>	2½ in.
Bracknell	<i>Lomia vittata</i>	2½ in.
Ealing	<i>Corydoras schwartzii</i>	1½ in.
Kingston	Sun bass	6 in.
The AQUARIUM SHOW	<i>Ctenopoma kingsleyae</i>	7 in.

I will grant that some of these are large fishes but this list does tend to show the popularity of small fishes! If Mr Coles wishes to challenge any of my statements I shall be quite happy to accommodate him.

Morden, Surrey

G. GREENHALF
Show Secretary,
The AQUARIUM SHOW

I WRITE in connection with Mr F. W. Coles article 'About Showing' (PFM, May). Mr Coles states 'not only does a good big 'un beat a good little 'un, but a mediocre big 'un beats a good little 'un too.' I am very happy to report, after thinking in the same vein for a long time, that at our annual show in March, the Best in Show, out of 435 entries, was a *Nothobranchius githleri*. This, I am sure, gave great encouragement to a lot of enthusiasts who either prefer the smaller fishes, or haven't the facilities for keeping the larger varieties.

Another point mentioned is the 'large varieties' of fish compared to the smaller versions these days. I have heard this opinion voiced by people who claim to

be very good aquarists. Why didn't they keep the better strains going? Or is it like the rod and line man—the ones that got away?

Keighley, Yorks.

J. MOSLEY
Secretary, Keighley A.S.

I WOULD like to reply to the article in the May issue of PFM by F. W. Coles entitled 'About Showing'. In the first place, as an FBAS Judge I resent the implication that judges are less than fair when judging large fishes against small ones.

He states: 'Many times, too, these winning large fishes are not the size they ought to be.' How does he know? Only a handful of people in this country have seen these big fishes in their natural habitat and books on the subject vary considerably. There are FBAS standards for some of them, but generally the judge has to use his experience, and 'point for size' on the size usually attained in the aquarium. Finally, on this point, I would like to say that it is much more difficult to show large fishes successfully than small ones. They require large tanks and heavy feeding to keep in condition, and the catching and transporting to the show requires a lot more care as they are easily damaged.

Now I come to the point on 'standard containers'. There is a standard container, the 4 in. by 4 in. show jar, but that's not much good for something like a severum. The rules state that the fish shall be in a container giving ample room to move about. This means that either the show organisers or the entrant provide the container to suit the fish. I will admit that some of them are pretty disreputable but that can't always be helped—we're not millionaires. Plastic tanks have been used in the past by some show organisers, but are not considered a very good proposition; they are not cheap in the first place, they scratch easily and get broken in storage, and, above all, they are not flat, and distort the fish.

To compare our shows to those in America on this point is ludicrous. I have judged several shows in the U.S.A. and Canada and have seen no standardisation. In fact there are often three or four fish in the same tank, each to be judged separately. Very convenient! I attend many open shows each year and run one for my own Society. On the whole I would say the 'Best in Show' is more usually a small species than not. This year so far I have been to two and the 'best fish' were an angel and a *Ctenopoma kingsleyae*, neither of which is a particularly large species, although I will admit, larger than some.

St Albans, Herts.

CHARLES A. WITHERS
Show secretary, Mid-Herts. A.S., FBAS Judge

I REGRET that you have lowered your standards so far as to print the article 'About Showing' in your May issue. It has taken me two weeks to come off the boil far enough to write coherently. I know that you do not accept responsibility for opinions expressed by contributors, but articles of this nature can only weaken the competitive side of our hobby.

I would like to know the grounds on which F. W. Coles bases his contention that 'there is such a preoccupation with large fish exhibits'. I would also like to know his qualifications for the assertion that 'a mediocre big 'un beats a good little 'un'. I have often queried apparently odd results by A class FBAS judges and have invariably

been told the grounds on which the judgement was made and increased my personal knowledge of fishes in general and the larger species in particular by doing so. That my admiration, and envy, of the select band who devote so much of their time and effort to encouraging the hobbyist in general—for they lecture as well as judge—and the showman in particular, has been increased by this contact goes without saying.

I accept that the bigger fishes are seldom maximum size, but the same, regrettably and more reprehensibly, is true of the smaller species. It particularly applies to the more commonly kept fishes. Unless the aquarist goes out of his way to obtain imported stock, or fish from a breeder who methodically crosses his strain with new stock, he doesn't have a chance of getting his fish near enough to proper size to win trophies. I submit that a $\frac{1}{2}$ in. short on a 2 in. fish is a much worse condition than $1\frac{1}{2}$ in. short on a 12 in. fish. As most big fishes show their faults more clearly (scale and fin damage in particular) they have to be superior to the smaller entries in their class before they can get the same points.

On the point that the real exhibitor breeds his own entries I cannot entirely agree with Mr Coles. There are breeders' classes for such experts, but let us give the one or two tank aquarist a chance. Four of my five awards at a recent show were with home-bred fish, and I am particularly proud of that, but if only home-bred entries were on show many classes would be sparse, to say the least, and the standard of the average entry would be much lower. I am quite sure that the number of exhibitors can best be increased by showing them what a good fish is, regardless of size, and, as far as possible, by adopting the class splits recommended by the FBAS, which helps to group fishes by type within class and therefore reduces the size range. This means additional trophies and smaller classes. It is very nice to collect first, but to my mind second in a class of 28 is better than first in a class of only six.

F. W. Coles' definition of a real old-timer might make interesting reading. I have been enjoying our hobby for about 20 years, and still consider myself an aquatic youngster, but even I remember some of the larger fishes on show as little as 12-15 years ago. Most breeders now (fortunately) concentrate more on symmetry than size but I do regret the shrinkage of zebras, platys and swordtails in particular. Selective breeding of any of these species and many of the others can bring rewards on the show bench. I have proved it with swordtails although I still consider that I have a long way to go. Even small varieties need space to grow and anyone with only one spare tank must be ruthless in his culling. Although the temptation will be great I beg anyone with a real interest in the hobby not to sell his unwanted fish. Selling less than good quality fish perpetuates the difficulty in getting good stock, gets a bad name for amateur aquarists in general as well as the individual concerned, and lowers the price we can get for top quality stock as well as reducing the demand. Patience is essential. Show success and saleability of spare stock are compatible, but do not come overnight.

A measure of standardisation in containers is desirable, but impracticable for lesser bodies than the organisers of The AQUARIUM SHOW. I am sure that this is what F. W. Coles meant as he can't want to give the trophies to the big fishes by saying that all fish must be benched in a 36 in. by 15 in. by 12 in. tank, 90% of

show entries would be lost in a tank that size. The FBAS show rules define the minimum size of containers in relation to the exhibits. As most exhibitors provide their own, the smallest compatible with the size and type of fish is ideal. Cost alone precludes the use of larger tanks than necessary. Even if tanks could be hired the cost would rise, either as a direct hire charge or as an increase in entry fees, which have already doubled on average over the last 3 years. Hiring tanks would be another very good way of reducing the number of entries. My show trips already cost me more than I can justify.

'Sweet jars', Mr Coles. They've been banned for 33 years. When were you last at a show, Mr Coles? Have you never heard of a central body known as the Federation of British Aquatic Societies? Please, Mr Coles, try a few good small fish in the next show you can (con!), but make sure they're good as standards have gone up in the last 20 years. You may be pleasantly surprised by the result, or at least by the standard of opposition you meet. Perhaps you will then retract the harmful and baseless remarks in your article.

(This purely reflects my personal view although I am an official of a club affiliated to the FBAS.)

Tonbridge, Kent

IAIN T. MATHIESON

Several correspondents have pointed out that our description of the red oscar in the picture on page 16 as best fish in the show was in error; it was in fact best cichlid at The AQUARIUM SHOW 70.—EDITOR.

Lack of Support

WE have now held three open shows, all with disappointing numbers of entries. Would someone please tell us why our open shows are not supported?

D. JACKSON

Chairman, Dukeries A.S.

Answer to a Critic

ERIC Wilson's letter (1971, May; page 28) was of interest to me as Eric and I are not strangers, also we both know Les Dodge. I feel that Eric's letter was initiated by Les' article (December, 1970) and I have collected the backlash. Eric is indulging in that well-known pastime, belting hell out of an organisation, in this case the Federation. If I fall into the trap of taking up Eric's points, and of course this is most tempting, I open up the way for more useless letter-writing in which the original issues are soon lost. This is readily demonstrated in THE TIMES. Letters which start the week on one subject end up on another. So at the risk of being accused of evasion I will say only this.

The FBAS is an organisation of aquarist societies who try in a small way to bring some order into the hobby. Any British aquarist society can join, the fees are a bob a nob, maximum £4 minimum 50p. All societies are equal and exercise one vote. If Eric Wilson is unhappy with the way the Federation is moving then join in and allow the 'sheep' the benefit of your shepherding. I am not in any way denying Eric's right to criticise. If the Federation had said to his Society 'you cannot join', then this would be his only way of bringing the attention of the hobby to what he feels is wrong. In fact the FBAS has on several occasions invited Eric's Society to affiliate.

R. D. EBBON

Chairman, FBAS

Malayan Angels

MY reply to Mr D. C. Maskell's letter, which was published in May's edition of *RFM*, concerning Malayan angels (*Monoactylus argenteus*). I too purchased a pair of these fish about 6 months ago and I had them to be very good hardy fish. I have never had any trouble concerning feeding. They feed just the same as the rest of my fishes in the community tank—that is to say they take any kind of food that is offered. It is true they are a brackish and saltwater fish but they are just as happy in freshwater. The only thing wrong that I can think concerning Mr Maskell's friend was that he purchased a pair of monos that were not acclimatised to freshwater. If that was the case then I should think the dealer where he purchased his fish was very much in the wrong.

Lang Ashton, Somerset

G. L. ELVENS

I BECAME interested in keeping Malayan angels in January of this year and was quite prepared to convert my 60 in. by 15 in. by 12 in. show tank over to brackish water in order to keep them as well as tiger snails. Before doing so I read up all the books I could lay hands on from my own collection and from the local library with regard to the angels and snails. It seems that at certain times of the year both of these species move into fresh-water streams and feed on sewage wastes from local villages and, judging by the amount of plants that my specimens have devoured, probably on the local vegetable flora. (I had the most magnificent growth of giant *Elodea* which has now been reduced to a stem with a couple of small leaves at the top of it and just the ribs of the large leaves have been left.)

I decided to introduce one small Malayan angel to see how it fared in a community tank and was so pleased when it survived and continued to feed that I went back to the dealer and obtained a further four specimens. On putting these in the tank I was amazed to see how much the first one had grown. Within a couple of days

two of the new introductions had developed a form of fin rot, which, after treatment with permanganate of potash, I am glad to say are now cured. One of the newer fish has a small swelling on the rear edge of the caudal fin but this also is gradually fading. Unfortunately the fin rot spread to the swords and guppies in the tank and they are taking longer to cure than did the angels.

I believe that the water in my tank is very alkaline (guppies are suffering badly with split tails) but I also have neons, white clouds, hatchets and other species which seem to be faring well. If Mr Maskell and his friend would like to see how well my angels are doing they are quite welcome to call at my home and they can even take a sample of water from the tank if this will help. One other thing I have found is that the angels get very mopey in still water and I keep my outside filter running at full speed, which keeps them fit and feeding continuously.

Hoddeston, Herts.

K. G. RUSSELL

WITH reference to Mr Maskell's letter regarding Malayan angels (*RFM*, May), I have kept *Monoactylus argenteus* for some time now in good health in fresh water in the same tank as barb, dwarf cichlids, characins etc. I would refer him to W. T. Innes in his 19th edition of *EXOTIC AQUARIUM FISHES*, in which he states that 'Salt water is unnecessary'. Also Hervey and Hems' *FRESHWATER TROPICAL AQUARIUM FISHES* in which they say 'Salt water is not vital' and 'They have the power to adapt themselves to freshwater'.

Herbert Axelrod in his *HANDBOOK OF TROPICAL AQUARIUM FISHES* makes what I think is the most important point when he says 'Never subject it to unseasoned freshwater. It requires water which preferably has had fishes living in it for weeks, months, or years, before it is introduced.' As Mr Maskell says his friend 'has recently taken up fishkeeping', was he using unseasoned water?

London, N.W.1

B. V. LIPSCOMB

Meetings and Changes of Officers

ABERDEEN A.S. New secretary: Mr A. Hunter (89 Sunnyvale Road, Aberdeen). Meetings: third Tuesday of month (except May and August), the Y.M.C.A., Union Street, Aberdeen.

ASHWELL & D.A.S. Officers: chairman, Mr R. Hill; secretary, Mr A. M. Drakin (12 Broad Road, Worksop, Notts.); phone (night) treasurer, Mr J. D. Fletcher.

BIRMINGHAM A.S. Officers: secretary, Mr L. S. Doreck (11 Notson Road, South Birmingham, S.E. 15; phone 41-694 0984); club secretary, Mr D. R. Pope. Meetings: Wednesday Social Club, Emmsay Road, Edgbaston, second and fourth Tuesday in month.

BIRMINGHAM & D.A.S. New members and visitors welcome at meetings on first and third Friday of month, at the Esso Research Centre, on the A14, near Alvingdon.

BURTON A.S. New Society. Officers: chairman, Mr S. Andrews; secretary, Mr R. G. Woods (19 Fritenden Road, Wainwright, Rochester, Kent). Meetings: alternate Wednesdays at the firm's Sports Club

premises, Featherby Road, Gillingham, Kent.

E.G.A. EDMONTON SECTION. New venue. The Four Hills Hall, Brigadier Hill, Lancaster Road, Enfield. Anyone interested should contact the Section secretary, Mr D. Pullimore (103 Wilbury Way, Edmonton, London N18 1HX; phone 01-803 3012).

E.G.A. MANCHESTER SECTION. Chairman, Mr R. Young; secretary, Mr F. Campbell (12 Cardigan Drive, Bury, Lancs.); treasurer, Dr A. Charlton (P.R.O., Mr T. Hallett); show secretary, Mr J. Hordeth; assistant, Mr D. Fairhurst. Meetings: first Sunday of month, 8.30 p.m., Drill Hall, Strefford Road, Manchester (Cambridge Street entrance).

LOUGHBOROUGH & D.A.S. Change of venue to the Herbert Morris Sports and Social Club, Market Street, Loughborough, the second and fourth Thursday of month.

MID-KENT A.S. New Society. Officers: chairman, Mr L. Gately; treasurer, Mr G. Rogin; secretary, Mr H. Simpson (59

Quarry Road, Maidstone, Kent; phone 61806); show secretary, Mr R. Davis. Meetings: first and third Wednesday of month, 7-8 p.m., at the Armstrong Hall, Armstrong Road, Maidstone.

NOTTINGHAM & D.A.S. New secretary: Mr P. E. Carlisle (9 Winchester Terrace, Winchester Street, Sherwood, Nottingham).

PORTHCAWL A.S. New Address. Secretary: Mr N. J. Roberts, 135 Newton Notage Road, Porthcawl, Glam.

SCARBOROUGH & D.A.S. Chairman, Mr R. L. Ingarolla; treasurer, Mr T. Wade; secretary, Mrs S. Ingarolla (New Cottage, North Street, Flinton, nr Scarborough); show secretary, Mr W. Messer (14 St Helena Square, Scarborough). Meetings: first and third Wednesday of month, Talbot Hotel, Queen Street, Scarborough, 8 p.m.

TONBRIDGE & D.A.S. Officers: chairman, Mr F. Miller; vice-chairman, Mr J. E. Bellingham; treasurer, Mr R. J. Baker; secretary, Mr E. T. Mathison (11 Norton Way, Five Oak Green, Tonbridge, Kent); show secretary, Mr R. Taylor.

TROWBRIDGE & D.A. & P.S. Change of officers. Joint show secretaries, Mr and Mrs W. Burton (17 Polsham Road, Trowbridge, Wiltshire; phone Trowbridge 3704).

FANCY GOLDFISH VARIETIES

Brambleheads—Hardy and Friendly

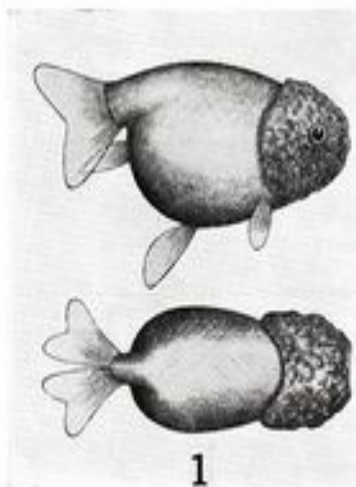
By D. SMALLEY

Photographs by the author

THE bramblehead is a goldfish which has become very popular over the last few years, especially with the serious fancy goldfish-keepers and breeders. The body shape is rather like that of an egg but the most noticeable features about this fish are that no dorsal fin is present and in mature specimens a bramble-like growth develops covering the head and gill plates.

At one time specimens of any quality were very difficult to obtain but I think we should be grateful that the availability of imported stock has changed the position. As you can usually count on one hand the number of specimens from a spawning that approach show standards, it is not surprising that many fish brought into the country leave a lot to be desired. Most of the good specimens call for prices only keen enthusiasts are prepared to pay and it is these aquarists that are breeding and producing hardy British stock.

As the bramblehead is a highly developed variety, faults will be apparent in virtually all fish offered for sale. The fish should possess a double caudal fin, divided to the caudal peduncle, and have paired anal fins. No dorsal fin is present and no spikes should protrude through the back of the fish. The dorsal contour should be smooth without lumps and bumps and this is very difficult to obtain. In adult fish a 'hood' forms rather like a



Desired form of the bramblehead variety (reproduced from the last-published Standards book of the GSGB by kind permission)

bramble, over the gills and head, which should be of even development. In some fish when the hood develops it fails to form on the gills, thus giving the fish the appearance of wearing a hat.



A batch of 3-month-old bramblehead youngsters from a strain now established by the writer. Eight of these fish formed two teams that were awarded first and second in their class at the GSGB Convention 1970

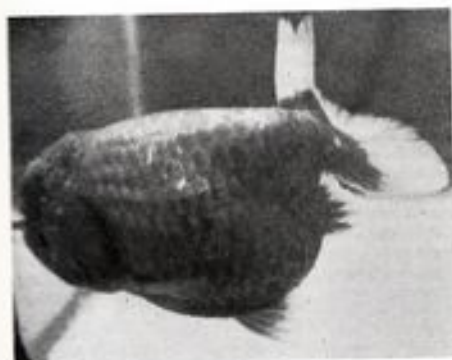
For those fishkeepers looking for a friendly fish, I can thoroughly recommend the bramblehead. This fish can be easily trained to take worms and the like from the hand and becomes very tame. Any indoor aquarium will make a good home for young or adult fish and I would suggest the purchase of, say, inch-long stock to start with. Do not overcrowd and allow plenty of space for growing.

The fish will almost certainly be metallic, and if they were bred in this country will more than likely be uncoloured or only partly coloured, and if this is the case you will have some interesting points to watch for in the coming months. First the fish will begin the colouring process (some experts now class this action as discoloration), and after apparent darkening of the olive body, colour will begin to change from the pelvic region upwards to the orange/yellow colour that we expect the bramblehead to be.

Secondly, usually from one year onwards, the hood development will begin; from this point it may be a further 2 or 3 years before the hood is properly formed.

Many readers who are considering keeping brambleheads in pools must have noticed the comments on this fish in the glossary in last month's issue of PFM. When so many writers state that this fish is not hardy, not suitable for pools, and only a fish for the experienced aquarist, doubts as to whether the bramblehead is easily kept outside in a pool often deter would-be keepers from having the fish of their choice.

I can only say that, as an aquarist who has specifically bred this fish for several years, I cannot



Note the bramble-like growth over the gill-covers—not just on the head of this adult. The dorsal contour is without bumps or protrusions, making this fish a sought-after specimen



Close-up view of head of adult with well-developed 'bramble'. Pictured in winter, the cavities of the bramble show the mucous film that forms under poor conditions. Four white tubercles (right of eye) show that the fish is a male

agree with such opinions. With the course of time, I have come to realise just how hardy brambleheads can be, and in the summer months pools make a very suitable home. Fish under 1½ inches should be brought under cover in about October, and I usually bring hooded specimens indoors when the Christmas holidays arrive. I have found that unhooded fish over the size mentioned above winter outside in the southern part of this country with little difficulty; pools used for this purpose should, of course, be 18 inches deep in the deepest part.

When hooded fish are being kept in a pool, a watch should be maintained to ensure that the hood remains free from 'bloom' (a film of mucus). In winter time fish are more prone to this condition, which indicates an unsuitable environment. If left unchecked, fungus will almost certainly get a hold, with fatal results. Most fancy goldfish have some weak point and with the longer finned varieties it is usually the caudal fin which is subject to fin rot. In such circumstances the aquarist has a certain amount of time to arrest any progressive disease, for the most important area, vital for life, is the gill and head region. The keeper of brambleheads must attend to any infection of the hood area without delay as the gills can soon become infected.

Some mention should be made of the treatment for fish which have become the victims of poor environment, bad winter conditions etc., possibly with fungus just beginning to get a hold. I must emphasise that my personal experience of treating

disease is limited, as I take the view that prevention is better than cure. Most of any losses I have suffered have been through the skill of a local angling cat rather than through disease! Treatment often becomes necessary when hooded fish are brought indoors over the Christmas holiday. My method is to fill an all-Perspex 10 in. by 8 in. by 8 in. aquarium to within an inch or so of the top with water and place fish totalling, say, 6 inches in the tank, together with two tablespoons of block salt. Depending on the severity of their condition the fish are left in this saline solution for a period of 20 minutes to an hour. Don't leave the fish unattended and bear in mind that the lower the temperature, the longer the duration of bath the fish will take.

After the treatment the fish should be placed in

clean conditions such as an aquarium with light aeration. Don't forget to check the temperature of the water every time before moving the fish as temperature changes will definitely not help ailing fish. The salt solution dip can be repeated as necessary, but if the fish is kept in really clean conditions a bath every other day should put matters right.

Owing to a printing error in the list of fancy varieties given under 'Goldfish Glossary' on page 67 of last month's issue the G.S.G.B. 'comet' was omitted and the remarks concerning this variety ('stock difficult to obtain. No known specialist breeders') were inadvertently added to those for the broadtail moor.

Guppy Types No. 12: The Speartail

THIS variety has been around a long time. From the beginning, in fact, because, along with the three swordtails and the roundtail, it formed the 'Founder Member's Club' of British guppy affairs. In June, 1938, the Guppy Breeders Society joined the British Aquarists' Association and celebrated the events by issuing a Year Book containing the world's first attempt at practicable guppy standards. This momentous document cost a mere threepence!

At a show held in London during July the same year, the very first silver pin awarded was won by a breeder named Ernie S. Roach. His fish had come first in a class of 14 speartail guppies.

It seemed to be the year of this type of guppy because that same month saw them the centre of attraction in Lancashire. From 4th to 23rd July, Belle Vue Aquarium and Vivarium Society, Manchester, held the north of England's first public fish show at the city's Central Library. One of the attractive exhibits the 44,000 visitors saw was a fine tank of speartails.

In 1951, William H. Hilderzmann, from Los Angeles, wrote an article on British guppies in which he stated that the types referred to as cofer, pin and speartail were probably varying manifestations of the same character and had developed one from the other. If one examines the publication of Standards for

those three fish it can be seen that this wasn't so; quite the reverse in fact, because they were issued respectively as the spear (1938), the pintail (1940) and the cofer (1947). In a reply to this suggestion, published in WATER LIFE, one English aquarist stated that in a decade of breeding cofers he had never noticed the other varieties appearing in his broods.



SPEARTAIL

Some confused the issue further by referring to the tail of the spear as being diphycecal, where the vertebral column extends to the tip of the body and the tail fin develops symmetrically above and below it. (Today's lungfishes have tails of this type but not the guppy.)

The caudal fin of the first spears was broad-based, tapering to a point through a gradual curving sweep to form a symmetrical pear shape. The dorsal fin had the point slightly upturned, similar in shape and length to the swordtail top fin.

It was whilst working with these guppies that one scientist noticed a fundamental fact that put the guppy

apart from other species of fish kept in captivity—the male *Poecilia* will happily tolerate the presence of other males in the aquarium.

Bill Myers, expert on these guppies, replying to the claim that the smallness of body size in spears was genetical, said that inbreeding was the cause. In an article in 'The Guppy' many years ago, Bill's experiences with this variety showed the 'spear' factor to be located on the X chromosome, carried by both sexes but visible only in the male, who inherits the trait from his mother. To breed his magnificent spears Bill Myers crossed lower swords displaying 'spear' dorsal fins with females having flattened sides to their caudals.

Present-day Standards require the tail fin to have a width equal to 14 mm. (9/16 in.) and a length of 22 mm. (7/8 in.).

Is it a sign of the times that at the 1950 F.G.A. International, the speartail class had the lowest number of entries—a mere 10? Compared with the figure of 89 entries for the short dorsal veil, this prompts the question is the speartail to become yet another 'vanishing animal'? I doubt it, because the owner of that winning fish, Mr Phil J. Duffy from Nottingham, scored 73 points, and he told me he was determined to improve the strain.

J.K.



Personal COMMENT by ARPEE

MR R. Ward's letter in *PFM* under the heading 'Spreading the Light' does indeed stimulate thought on the subject of aquarium lighting, and I absolutely agree with him that we seem, far too often, to over-illuminate our tanks. It is a frustrating thing that aquarium lighting factors are so infinitely variable. Although it is broadly true that a tank of any given size probably needs x lumens for general purposes, the difficult thing to decide is precisely what 'general purposes' really means. If the tank is full of *Vallisneria* and it is in a dark corner of the room it will need a lot more artificial light than one full of *Cryptocoryne* in a position of full sun. The latter may in fact need shading.

I, too, have found that 'nursery' and other similar low consumption bulbs will give adequate illumination to several of my tanks, quite apart from the fact that they seem to have put an end to the growth of unwanted algal deposits. The interesting thing is that although the lighting level has dropped considerably the tanks have not significantly lost any of their appeal. This is completely at variance with the school of maximum illumination, who would claim that nothing less than two 40 watt lamps in a 24 in. tank is good enough. Certainly 10 years ago a couple of 25 watt lamps in such a situation would have been scoffed at and I wonder whether what seems to be a change of attitude has been encouraged by the appearance of the Gro-Lux fluorescent tube? This can hardly be said to be very bright, although it provides such adequate and interesting illumination, and it thus seems possible that we are now being influenced more by quality than quantity. I do not mean by this that Gro-Lux is necessarily better than any other form, but its tonal characteristics are distinctly pleasing to most, which suggests that subtlety is creeping into our assessments. The interplay of light and shade is scarcely possible when the aquarium interior, literally, is floodlit; further, one can only wonder what effect this can have on the fish.

I have touched upon shading above. With many aquarists this is an unknown thing and not worthy of consideration. I remember how at school we had a large all-glass tank on the assembly hall

windowsill and how it caught the morning sun. It contained the school sticklebacks which were great favourites. It was the duty of the aquarium monitor every morning to ensure that a large brown paper cover was fitted to the tank to protect its contents from the rays of the sun until it had shifted to a more favourable position. I don't know whether they still do that at Canterbury Road School, Leyton (I wonder if the school still exists, even?), but that was over 35 years ago and they certainly had the right ideas about how to treat wild things: it is encouraging that Mr Ward is thinking along similar lines. Of course, the precise way in which a tank may need shading varies with its contents and situation, but I often wonder whether it would be beneficial to plant life to exclude as much side light as possible and to illuminate solely from above, excepting for times when we were viewing the contents. Perhaps we should have roller shutters or blinds on our tanks. The possibilities are pregnant.

As opposed to this view I have seen some wonderfully effective underwater lighting displays in larger tanks, said by their owners to be permanent installations and without detrimental effect to the plant life. I have no doubt that this is acceptable enough provided that its use is occasional rather than continuous, in which case it seems possible that unduly high algae levels might develop. The effect is certainly most fetching, though care has to be taken that one is not carried away by fantasy and led into the perils of using coloured lights. Such is reminiscent of fairy grottoes and plastic elves and rides on the ghost train. Not for us.

One other possibility when playing about with lighting displays is the masking of overhead lights so that light and dark spots are created within the tank. This is comparable with the conditions in a pond partially covered with large lily pads, where some parts are brilliantly lit and others afford almost complete shade. There is no possible doubt that the fish relish such circumstances, and it seems possible that other plant life may find them to their liking. So far as aquaria are concerned we can get somewhere near to this state of affairs by placing glass between the lights and the water and putting masks of the desired shapes and sizes on top of the glass. Sheets of coloured plastic can be useful here, and one can experiment until a suitable combination of colour and shade is reached. This, somehow, does not have the artificiality of the coloured single light source and is much more controllable. It is possible that certain colour combinations may harm plant development, and that some may accelerate it. Not much is proven as regards underwater plants and experimentation in this field would seem to hold some fascination for those with an enquiring mind and plenty of patience.

Personal Comment

continued from the preceding page

Even the most dedicated of us get a bit jaded at times with the apparent sameness of our collections. The modest collector finds no further space indoors and develops a taste for the fish house, and it is a short step from here to the public aquarium. We all like

change, and it is as well for all in the hobby that this is so. I therefore make it a habit rarely to buy more than a couple (or even a pair!) of fish at a time. So long as I have some vacancies in my tanks, or a spare tank or so, I am still in the market for something new. If I filled all the holes up there would be little incentive left. The hobby is held together by these bits of demand all over the country, so take my advice and always have some by you, and you will continue to get a lot of enjoyment, interest and even profit from this investment in future variety.

Book Review

TROPICAL FISH—a complete guide to the home aquarium by Ron H. Warring. 128 pp., 46 line drawings in text. Arthur Barker, London. £1.50.

BASICALLY a guide for beginners is the way in which the jacket flap describes this first edition, and as such it must be judged. It contains all the usual tips for beginners without displaying any originality of thought or presentation. The detailed opening lines in which a tank is defined raises one's hopes that the rather more stimulating mysteries of fishkeeping will receive similar treatment later on, but regrettably this does not happen. Every book of this sort requires an index as well as a list of chapters, so that one can look up fundamentals like 'quarantine' and 'fina, definition of'. I cannot remember any reference in the text to the former, and although the words 'pectoral', 'ventral' and 'dorsal' are freely used there is no key to their whereabouts. Yet the author devotes space to a number of tables whose value must most seriously be questioned. In particular, Tables 4-8 which suddenly spring from the text are labelled: Some types of Catfish; Gourami; Rasboras; Mollies; Platies (*Xiphophorus* [sic] *maculatus*). Why these should be singled out for such analysis is not clear.

There are many errors in spelling. On page 70 the angel is described as a soft water lover and is then head of the list of hard water species on page 95. The glowlight tetra and the mountain minnow both possess 'phosphorescence'. Disease is said to break out most commonly in autumn. One is advised to supply tanks with an excess of live food before going on holiday. One is advised to correct pH and DH monthly by the addition of

chemicals. Statements like these, like a laddered stocking, are revealing, and although the author keeps in touch for much of the time one senses superficial treatment all too often.

A. Fraser-Brunner in a recent review in *PFM* fired a mighty and timely broadside at the standard of illustrations in another publication and I strongly suspect that those of the fish in Mr Warring's book emerged from the same source. They are inept caricatures in some cases: in others they are unrecognisable. One is simply labelled 'tetra' and this aptly summarises the real level of fishkeeping craft which has gone into this book. The author is more at home with his electrics and technical specifications for tanks, but unfortunately he does not describe how the tank is put together, which rather reduces the value of the data he gives us. I cannot commend this book to the beginner.

ROY PINKS

FISH AND INVERTEBRATE CULTURE. Water Management in Closed Systems. By Stephen H. Spotte. 145 pages, 29 figures. Wiley-Interscience. £4.25.

'THE size of a culture system has little bearing on the isolation and solution of water management problems. These are essentially the same in a 10-gallon aquarium or a 10-million-gallon hatchery.' This is quoted from the Preface to Stephen H. Spotte's book, which is subtitled 'Water Management in Closed Systems'. The quotation explains why serious amateur and professional fishkeepers should make a point of seeing this book, which, to the best of my knowledge, is the first published work in which an author has dealt collectively with all the numerous technical aspects of aquarium-keeping. Mr Spotte, who is Director of the Aquarium of Niagara Falls,

New York, is to be congratulated on his compilation because the need for it is beginning to be experienced. So much aquarium research has yielded results that are stacked away in scientific journals of several nationalities and often accessible only in University libraries. As a Director of a public aquarium Mr Spotte has obviously concerned and interested himself with the practical applications of scientific findings and has tested their relevance in day-to-day aquarium management.

The kind of material the book is dealing with inevitably, of course, makes a pretty meaty text. Readers used to non-technical books will undoubtedly quail a little at the tables of figures and mathematical formulae dispersed throughout its pages. Keen aquarists should not let these inhibit them from reading the book, however. Mr Spotte writes concisely and with clarity; he also takes the trouble to define his terminology, which will be most helpful to readers with a non-scientific background.

The chapters of the book are collected into two parts. In the first, the subject of aquarium filtration, biological, mechanical and chemical, is extremely comprehensively discussed in three chapters together with a chapter on 'The Carbon Dioxide System'. In Part 2, respiratory aspects of the aquatic environment, dissolved minerals, animal waste products, disease prevention by environment control and laboratory water tests form the subject matter.

If you are the sort of fishkeeper who wants to know the reasons behind the rules of successful fresh and sea-water aquarium maintenance, this book should certainly satisfy you and its bibliography will introduce a whole new field of literature.

A.E.

THE INTERTIDAL AQUARIUM—2

Sea Anemones in Tanks

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

Photographs by H. J. VOSPER

CONSISTING of a soft, hollow tube-like body closed by a basal disc which serves as a holdfast and an upper disc where the mouth is usually situated, the sea anemones belong to a group of organisms which includes some of the most beautiful as well as some of the most common animals of the sea. The danger mainly arises from the tentacles which surround the mouth, these have stinging cells by which they capture and hold their prey. Some sea anemones on the British coast are harmless to adults unless accidentally brought near to the face, but very young children or people with extremely soft tender skins might suffer from a 'sting rash' after direct contact with the tips of tentacles.

Several British species are highly colourful, though colours may vary from individual to individual in a species. Similarly with regard to shape, for at various times they may elongated, squat or even very flattened; in the latter case the body may feel hard and rubbery instead of soft and jelly-like. The points regarding identification of species according to a 'normal' condition. The foods taken by sea anemones consist of living and dead animal

matter: fish, crustaceans, molluscs (particularly crab meat and mussel flesh). When living prey or carrion touches a tentacle, nematocysts are discharged and their projections both enter and hold the food; the tentacles then bend over and pass the food into the mouth. It is from here, too, that waste products are ejected, and this waste must be watched for in an aquarium and removed or it will quickly foul the water.

These animals may remain closed for several days, with tentacles withdrawn and hidden, but if they cannot be persuaded to open by having a piece of mussel rubbed gently on the body and on the mouth area then the health of the specimen can be suspected and it should be removed from the tank. Sometimes these animals may release their hold on a rock and fall to the bottom—an indication that all is not well with the tank conditions or with the anemone itself. The

trouble might be the water, amount of light or food etc., and the action is due to the fact that in natural conditions if the animal is in an unsuitable situation it can let go its hold and wait until the tidal flow drifts it to another spot.

Young anemones may be produced at almost any season of the year, many having passed the early stages of development within the parent, though the age at which they issue from the parental mouth varies with individuals. The young are tiny replicas of the adult except that the tentacles may be few or absent entirely. Such young can be brought to full adulthood. In some species reproduction may generally be by some form of budding, even by growth from a fragment left behind when the anemone changes its position on a rock, for they can move from point to point by a gliding action (infinitely slowly, usually).

Anemones recognise foodstuffs by a combination of chemical and mech-



This view from above shows the upper disc surface of *Sagartia troglodytes* (Price) with the peripheral zone of tentacles, the flat area or peristome and the central mouth slit. The largest tentacles are the 'primaries'—new ones are added outside these

anical stimulation, i.e. the food must touch them and it must be of some form they recognise as flesh. The latter point is clear; the former shows that aquarium sea anemones must be fed since they will not find food for themselves—their movements are too slow for them to be hunters.

The following species are readily found around our shores and do well in aquaria.

Beadlet anemone

Actinia equina L.

Widespread and usually abundant, found on rock faces, under overhangs and in pools of the middle to lower shore. Column smooth, up to 50 mm. high and 60 mm. diameter; colours variable but usually brown, red or green. An attractive variety is crimson or strawberry, speckled with green or greeny-gold spots (the strawberry anemone). A specific characteristic of this sea anemone consists of a ring of generally bright blue marginal tubercles round the edge of the upper disc, these being armed with stinging cells.

Almost invariably retracts the tentacles when touched and when out of water.

Dahlia anemone

Toadalia felina L.

Extremely variable in size, generally around 70 mm. diameter but may be nearly twice this; the height varies in an individual from a flat rubbery plate to a full-blown 130 mm. An individual of this species can resemble a piece of hard plastic one moment and a short time afterwards might be fully expanded.

Column warty, and these protuberances most often collect pieces of gravel and broken shell which serve as camouflage.

The rings of rather short, blunt and stout tentacles may differ in colour from that of the body or they may be banded so that the open anemone shows concentric rings of colour when seen from above. This species tends to be secretive, shunning the light, so it may be sought under rock overhangs, in crevices, hidden by seaweed in rock pools and similar inaccessible places of the lower shore and sublittoral zone (below average low tide level). It grips rock surfaces very securely and damage may result

Foods and Feeding for Marines

ONLY foods for carnivores are mentioned in these general notes; any special comments needed will be included in articles in the series. In general terms, only pieces of raw fish and lean meat (i.e. beef), the flesh of molluscs (particularly of mussels) and of crustaceans should be fed to the tank inmates. NEVER OVERFEED, NEVER LEAVE WASTE FOOD IN THE TANK, not even for 10 minutes if it can be avoided, and certainly for no longer than 2 hours. Remove any dead organisms immediately they are noticed, though some will prove useful as items of food.

Each animal must be fed individually, employing a pair of wooden tweezers (these can be home-made, of course), or with knobs of flesh impaled on a sharpened stick such as a piece of dowel-rod. By a 'knob of flesh' is meant a 5 mm. (½ in.) cube of lean meat. While large crabs and fishes (i.e. up to 100 mm. body length) will normally take two or three knobs at a meal, smaller organisms will take smaller portions. In any case they should not be fed more than once every other day. They must all be kept in a permanent state of real hunger, making them active in the constant search for food. This is the best means of keeping them in good condition. It is important to feed the most active animals first, thereby ensuring that they are too occupied in eating to interfere with the food being given to more sedentary or slow creatures. For example, if sea anemones are the first to receive food then such active animals as fishes, shrimps and crabs will endeavour to steal it—the thieves have been known to suffer death (taken by a sea anemone) or injury (caused by crabs). When an animal has eaten its piece of food it can be given another fragment, but not if it has appeared to 'play' with its food or left it for a moment or two.

Some green shore crabs tend to shred up any food remaining after they are more or less replete, so these remains must be removed from the tank. The same goes for the waste voided by sea anemones, a rather gruesome and jelly-like ball—though this is not to be mistaken for the bag-like group of young anemones which might appear some time or other. Several years ago, when a large number of marine organisms were being maintained by a group of South London naturalists, we issued an information sheet giving 'meals per 14 days'—for crustaceans, molluscs and sea anemones only one full meal in this period was recommended; fishes received two or three full meals. Only for a supply of 'sandhoppers' was this regimen amended, since it was difficult to keep this conglomerate group of crustaceans for too long a time. In any case the fishes, molluscs and (especially) the crustaceans were always provided with a very high proportion of shrimp, prawn or other flesh well loaded with calcium. For the same reason as this, only a comparatively small proportion of freshwater fish or mammalian flesh was supplied to the inhabitants of marine aquaria.

when it is removed. It is quite voracious compared with other species, eating crabs, fishes etc. but has also been known to eat other anemones.

Snakelocks anemone

Anemonia sulcata Pennant

Widespread and locally abundant, these animals are generally rather smaller than the beadlet anemone but possess longer, thinner and more mobile tentacles. These are rarely withdrawn, yet when they are so hidden this species could be confused with a brownish beadlet anemone. Two colour varieties are commonly found, one entirely brown and the other paler in the body

(which may be quite greenish) but with emerald green tentacles showing mauve or lilac tips. Far less frequently found, because it is very localised in its distribution, is a pale grey variety which appears to be restricted to certain areas in the extreme south-west of England.

The snakelocks (also known as the opelet and the cactus anemone) is a lover of bright situations and can be expected to move into a suitable situation in a tank, but they are inclined to be less robust than the preceding species. Ill-health can be readily detected because the tentacles droop lifelessly as well as tending to lose their colour, though the animal may recover if fed with ample supplies of mussel flesh.



Claret or snakelocks anemone (*Aneonia sulcata*): the long smooth tentacles can number up to 200 and be 100 mm long in an adult



Side view of the anemone pictured on page 115. Above the irregular base numerous grey suckers (with shell fragments attached) are seen and several long stinging threads are marked with arrows

The stinging cells seem to be more numerous and slightly more powerful than in other British anemones, so it clings quite securely to the fingers when touched.

Daisy anemone

Coronula pedunculata (Pennant)

Widely distributed along the south and west coast, though not as abundant as other species, *C. pedunculata* is somewhat smaller than *bellina* yet can resemble a trumpet some 200 mm. tall. Characteristically the upper disc has a clearly wavy edge or rim; the body colours may vary from a darkish grey to brown, pink or cream. They are generally secretive and often found in deep crevices or largely covered with mud, where the tentacled disc only is to be seen. When secure in a crevice it may be that considerable damage is done to the body as it is retracted, but the anemone will usually recover in time. The column is warty.

The common name is not universally accepted, sometimes being applied to other small species (such as *Sagartia*, below).

Burrowing anemones

Sagartia spp.

Several species of *Sagartia* are present around our shores and in most cases they are extremely colourful, even though quite tiny. Yet they may expand as trumpets some 60 mm. tall. They are generally well protected, living attached to a rock buried below sand level, showing only their bright orange or other coloured and possibly patterned disc level with the surface. They are sensitive to vibration in most instances, quickly withdrawing out of sight when incautiously approached.

The several species are very difficult to separate one from another. *S. elegans* and its varieties are undoubtedly the most highly coloured; *S. troglodytes* is the most sombre.

In our experience all members of the genus *Sagartia* readily project white stinging threads from the column and disc when they are disturbed.

Plumose anemone

Metridium senile L.

Occasionally found on the lower

shore but more often in the sublittoral, this species is widely distributed and may be abundant in some areas. It is fairly secretive in that it seems to prefer rock overhangs or under boulders yet it can be found in more open situations, even on small pebbles on sandy shores.

It is well named because the very numerous, short and slender tentacles present a feathery appearance that is enhanced by the character of the upper disc, which is wide and deeply lobed or frilled. This species could be also likened to a powder puff in shape. The colours are comparatively light—creams, pinkish, orange, light brown and buff, or white.

Plumose anemones are sometimes difficult to feed because they much prefer small pieces of food and could well be termed filter-feeders. If such an anemone can be persuaded to become attached to a moveable rock it might be best to remove it from the show tank for feeding purposes, since the little fragments of flesh that it requires will readily disperse and foul the water.

Individuals may not expand com-

pletely in bright light, so may look their best in subdued conditions. They can expand to over 100 mm. tall, with highly variable shapes which range from thin trumpets to wide and stout trunks.

Sea anemones are relatively easy to maintain in aquaria. They are colourful and thus highly decorative but can wander about the tank of their own volition. Individuals should be fed separately, once or twice each week at the most, on small

cubes of meat: fish, crab, mollusc. Waste products, which are voided as small jelly-like bags, should be removed from the tank without delay, as should the sloughed skin that irregularly appears. Anemones will capture and eat small invertebrates (prawns, crabs) and fishes but a number of animals of the shore are comparatively immune to the stings of sea anemones or capable of keeping clear. Yet hungry crabs and fishes will attempt to steal

food from the tentacles and thus come to a bad end.

British sea anemones are not dangerous to mankind. Close relatives such as the lion's mane jellyfish and the Portuguese man-of-war (a colonial organism) are deeper water swimmers that are occasionally found inshore and are highly dangerous, sometimes with virtually invisible tentacles several feet long.

A Spawning of Lake Malawi Cichlids

AMONG the many aquarists who have fallen under the spell of the Lake Malawi cichlids is Mr Raymond Price of Croydon, Surrey. These attractive fishes are still new enough to us in the U.K. for reports from breeders of them to be worthy of special note, and I was very pleased to be offered the chance to visit Mr Price and his wife Brenda and hear about their successes with the golden Malawi (*Pseudotropheus auratus*).

First purchased about 8 months ago, the pair of *auratus* were installed in a 24 in. by 12 in. by 12 in. tank in Mr Price's new fish house. They spent the first 2 months separated by a glass division and fought with one another on the two occasions when the divider was temporarily removed. However, towards the end of this period Mr Price decided to leave them together because each fish was actively digging gravel on its own side of the glass.

Some weeks later, towards the end of March this year, the female's underjaw skin was noticed to be bulging in a downwards direction (there was no increase in jaw size from side to side) and although no egg-laying had been observed it was assumed that she was mouth-brooding. The male fish was chasing the female and causing her to stay at one end of the tank. About 2 weeks after the mouth-brooding was first suspected the male was removed.

Some 3 days later, on 13th April, 19 young fish, each about 1 centimetre in length, were seen to swim out from beneath a rock. After 2 days



Mr Raymond Price in his fish house at his home in Croydon, Surrey, where he has bred *Pseudotropheus auratus*.

Mr Price moved the youngsters to a 12-inch-long tank as the mother was taking no notice at all of her progeny and had commenced digging in the gravel again (shifting a full 2½ in. layer to expose the tank bottom over a sizeable area). The female in particular was a very active digger and all through the brooding phase she had shown no trace of shyness.

The parent fish had been given a predominantly live food diet (tubifex, daphnia) but they also readily took all dried foods offered to them; the young *auratus* were fed with powdered dried food, brine shrimp and

daphnia. The fry tank was unfurnished but aeration was supplied with an airstone.

Mr and Mrs Price, who are members of Clapham A.S., have put their 9 ft by 6 ft. fish house to good use in the 8 months they have had it. Honey and dwarf gouramis and severum cichlids are other species they have bred, and their collection includes a pair of marbled angels that spawn regularly every 14 days but which refuse to rear the fry.

With this experience in fish rearing, Mr Price was quick to realise that something was wrong when, after moving the *auratus* fry to larger quarters, still in shallow water and unplanted surroundings, although they continued to feed well they began to keep their fins folded and made shimmering body movements. This did not stop when they were moved again into a newly set-up 24 in. tank, fully furnished with gravel, rocks and plants, but the youngsters rapidly returned to normal after a final transfer to a long-set-up tank in which there was a mixed collection of fishes and in which the plants etc. sported a growth of algae.

Despite the set-back to growth, apparently caused by a lack of the right kind of plant food, Mr Price's young *auratus* are now looking very fit and developing well (about 4 cm long overall at 7 weeks). It is, of course, the owner's hope that among them are parents-to-be of many more fish in this new aquarium-bred strain.

ANTHONY EVANS

The Garden Pool in High Summer

By BRIAN FURNER

All garden pools need a certain amount of care in summer but the smaller the pool the greater the necessity to keep a watchful eye on things which need attention now and then.

Take-over bids for the whole pool can be made by certain aquatic plants which must be stopped. Although if given its head hornwort can make a vast amount of new growth this oxygenator is unlikely to choke the pool and make life difficult for the fish. *Lagarosiphon major* syn. *Elodea* *crassa*, often confused with Canadian pond weed, *Anacharis canadensis*, can, and to ensure that I see my fish and that they have several square feet of weed-free swimming area I remove several bowls full of *Lagarosiphon* in summer. Any largish patches of blanket weed are also cleared from the pond at the same time.

The rather expensive blue and white irises are, with me at any rate, slow growers, but *Iris pseudacorus*, our native yellow flag, can be a real nuisance unless its growth is drastically controlled. Planting in plastic containers helps keep this wanderer in check but the thousands of seeds will, if you let them fall, germinate everywhere and colonise the entire shallow. Cutting off the seed heads after flowering is the preventive measure.

After removing plant pieces I wash them in a tank of water to remove any fry, which are transferred to a breeding pool.

If one has kiddies there is the temptation to allow them to put the wild stickleback or minnow caught on a fishing expedition in the country into the garden pool. This should not be permitted because of the danger of introducing one of the many fishy diseases from wild fish to one's domestic fishes.

If the children wish to keep their catches then by all means encourage

Rampant growth of submerged aquatics in summer conditions of good light and raised water temperatures can mean that the excess has to be removed from the small garden pond (photograph by the author)



them but let them have a pool of their own. It is all the pool need cost you if you make it with a single sheet of blue or black 500 gauge polythene. The pool will have a longer life if you use two sheets for double thickness of liner. Make sure that all sharpish stones are removed after you have excavated the hole and lay the liner on a pad of several thicknesses of old newspapers, magazines, polythene sacks or similar materials. A pad of this kind is of enormous importance when using plastic liners. Without a good pad there is the probability of holes at any time and a leaking polythene-lined pool cannot be repaired.

Five hundred gauge polythene sheeting is first class, too, for temporary pools for breeding, housing fry and for quarantine purposes. Shop-bought fishes should always be quarantined for 2 weeks at least before being released in the main pool.

It is not generally known among pondkeepers that aquatic plants on offer at local shops sometimes

originate from itinerant collectors who take plants from rivers, lakes and from the filthiest of wayside ditches. The pests and diseases introduced into garden pools along with these wild plants must surely result in the death of many choice pond fish. Disinfecting locally bought pond plants is most advisable. I prefer to buy mine from an established specialist nurseryman.

I find many misunderstandings on the part of pool owners over what are pests and what are welcome adjuncts to the fish-keeping hobby. A survey carried out last year by the Nature Conservancy showed that our native frog and toad population is diminishing. But with the present trend for a pool in almost every garden the pool owner, often unwittingly, is providing breeding habitats for both of these amphibians, which do so much to clear the

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Readers' Queries Answered



Siamese Fire Eel

Please give me some help with a Siamese fire eel. Mine is about 12 in. long and though I am feeding it on garden worms it seems to get them in its mouth and spit them out again. I have only just bought the fish and do want to feed it correctly.

The Siamese fire eel (*Mastacembelus erythrotaenia*) is a member of the spiny eel family and some *Mastacembelus* do seem to have difficulty in 'sucking' in earthworms. Fire eels in particular seem to have this difficulty and it has been reported that they often find it necessary to eject worms of the wrong size several times before managing to get them 'arranged' suitably for swallowing. Try feeding with smaller earthworms, well-cleaned tubifex, white worms or freeze-dried foods. It is also a good idea to check that the eels are getting their full share of food. Their eyesight is poor and often other fishes will snap up the food before the eels get round to locating it since they seem to be interested only in food that they contact with their nose. They can survive quite long periods without food but they will keep in better condition if they are eating regularly.

Water Clover

Can you tell me please if water clover is just a decorative plant that does not really thrive in the aquarium. I bought two small pieces and now, 6 months later, they are still just two small pieces though the stems are immensely long and look rather ridiculous.

Plants of the Marsileaceae, of which there are several aquatic species, are quite sturdy growers but most of them do have a tendency to grow up to the water surface to produce floating leaves. It is not

easy to regulate their growth and success will depend largely upon having the correct amount of light, which can only be achieved by experimenting. They are not plants that require intense illumination but they should not be placed beneath the shade of taller aquarium plants, as this seems to encourage them to produce floating leaves. What light they receive should be direct and in our experience the water clover has made pleasing although slow growth when placed where it received additional light striking through the front glass from a window. Once they start to grow well the rhizomes can be pruned to keep the leaves within a compact area. Cut the rhizomes after the formation of two or three leaves.

Parasites of the Gut

What is 'Eimeria species sporozoa' and how does it come about in fish?

Sporozoa are microscopic unicellular organisms that reproduce by forming spores and there are many species of *Eimeria* that can parasitise fish. They live in the intestine and liver. A healthy fish becomes infested with the parasites after ingesting the spores that have arisen from another fish—when eating from the bottom for example.

Rate of Growth

I have had four 2-inch fantails now for about 3 months but they do not seem to grow any bigger. I keep them in a 30 in. by 12 in. by 15 in. tank and feed them on plenty of live food. Is there any way to make them grow any bigger?

Coldwater fishes have surprisingly large appetites and it may be that yours are being underfed now that their water has become warmer. It is excellent practice to give them live foods, but dried foods should play a part in goldfish feeding and

small quantities of a protein-rich dried food twice a day, and live food (to include chopped earthworm) once a day, should ensure that their maximum food requirements are being satisfied. The replacement of a third of the tank water once a week should ensure that the aquarium conditions are suitable for maximum growth.

Red White Worm Culture

I have quite a flourishing colony of white worm in a box about 18 in. long, 10 in. wide and 8 in. deep. It is just over half-filled with peat and sifted garden soil, free from fertilizers. I have tried all foods but have found white bread dampened with water and renewed once weekly the best. However, lately this bread has turned a revolting red colour. Can you please tell me the cause and cure? There are a lot of mites but they don't do much harm, do they?

The red coloration of the bread in the white worm culture comes from the presence of a micro-organism best known as *Bacillus prodigiosus*. This bug is quite harmless to humans and to fish (it has been held to be responsible for the phenomenon of the 'bleeding host'). It is likely to disappear as suddenly as it came but obviously at the moment conditions in the culture suit it well. It would be possible to keep down the evidence of the *prodigiosus* by providing slightly smaller quantities of bread several times a week so that the worms clear up the bread faster than the bacteria can reproduce. The mites, certainly, do no harm.

Microscope Measurements

To increase my knowledge of the tiny organisms etc. that inhabit my aquaria I have just purchased a microscope. Reading up on the subject I keep coming across the term 'micron'. Could you explain it please?

The micron is the unit of measurement most commonly used in light microscopy. It is indicated by the Greek letter μ (mu) and is one-thousandth of a millimetre (0.001 mm).

The Background to

Aquascaping

By JIM KELLY

WITH the recent announcement from the FBAS of standards for aquascape exhibits, and the inclusion of a class for them in the *Tableaux* at The AQUARIUM SHOW this year, my mind wandered back to the start of this 'breakaway' from the traditional furnished aquarium 20 years ago.

At that time, what fish shows lacked in varieties of fishes (neons were still up to 70s each), they made up for in enthusiasm. My wife, Constance, and I found that our particular water (apart from guppies, certainly!) was the furnished aquarium, though with good plants still in short supply many of the exhibits had a severity of line normally reserved for describing better-class fishwives. Our enthusiasm was cooled by some good friends, Harry Loder and his wife from Burnley, and the monotonous regularity in which we vied for the first two places in this class was enough to frighten almost of the competition!

The Loders had just licked us on some ground, and when the Burnley Society Annual Show came around we were anxious to 'beard the lion in his den'. Imagine our disappointment, however, on arrival at this north Lancs. venue to find that we had left half of our plants back in Manchester!

A search of the town brought just a few indoor and bog specimens—a was Saturday night and we were lucky to get these. Not to be outdone, we only half-filled the tank with water and made the best of the materials we had. Our so-called 'furnished' entry caused much head-scratching (I think we came tenth), the well-meaning official informed us that our tank was leaking! Thus our first attempt at 'aquascaping' was the result of an accident, but for us it was one with far-reaching effects.

Despite the outcry, we persevered with this type of exhibit, and lost count of the disqualifications. Officialdom thought us slightly mad!

In March, 1948, George F. Hervey and Jack Hems wrote an article headed 'Aquascaping': 'Am-

A shift in use and meaning of the word aquascape (a Greek-Dutch hybrid) has taken place in the last 20 years or so. As originally used the term seems to have been applied when additional scenic effects were incorporated either inside or outside a furnished aquarium, particularly where these effects formed a miniature representation of some natural vista. Through the years aquascape has become identified with the aqua-terrarium or paludarium (an aquarium or other type of container in which both above-water and below-water natural furnishings are present), the distinguishing name 'novelty aquascape' being applied to a similar basic arrangement into which small-scale models, figures etc. rather than natural furnishings are incorporated.

erican aquarists have coined the word "aquascape", they wrote, 'to describe a decorative under-water scene in miniature'. They suggested that the reason for the scarcity of aquascapes in the U.K. was that most aquarium literature advised the beginner to avoid anything artificial. The general idea at that time was for the fishkeeper to aim at a section of a 'natural' stretch of water: if carried to extremes this would result, said Hervey and Hems, in a set-up that contained 'two or three inches of slime at the bottom, an old boot or two and some rusty tins.' This thought later promoted one entry by an ambitious Belle Vue A.S. aquascaper!

Mr Alec Fraser-Brunner, although he has disapproved of the etymological impurity of the word aquascape, did say that 'the aim of the aquarist should be to create something that Nature would herself like to create'. To we enthusiasts this was great encouragement.

At the AQUARIUM SHOW 71 societies entering Tableaux are asked to enter 'at least one' furnished aquarium or aquascape among these competitive classes: Club Furnished Aquaria (Aa, Ab), Individual Furnished Aquaria (Ad, Ae, Af), Miniature Aquaria (Ak) and Club Aquascape (Al).

Six years later, the Federation of Northern Aquarium Societies brought the novelty to fruition when their annual show saw some 15 member societies staging such exhibits. With such official backing we were now 'legit', and it was but a short step to the birth of the companion of the 'natural scene' aquascape—the 'novelty aquascape' in which almost anything goes (and often does!).

At the 1957 National Exhibition of Cage Birds and Aquaria, in London, an aquascape took second place in the Furnished Aquaria Class. That the idea caught on in the south was evidenced when, at the 1958 event A. F. Baldoock carried off the Red Card and Trophy. This success prompted the Editor of *FISHKEEPING* to write—"When such an entry, unorthodox by normal aquarium standards, gains a first it is bound to excite comment".

No doubt many of our fishkeepers in the Capital were inspired by the splendid natural tank aquascape set up by the late Bill Bowler and his son Eric at the South Bank London Aquarium in the fifties. A photograph of this appeared in the American book *ENCYCLOPEDIA OF TROPICAL FISHES* (H. Axelrod and W. Voederwinkler).

Meanwhile, in the north of England the class flourished, encouraged by increased entries in the

B.A.F. The judge here was Mr C. Graham, then the FNAS treasurer, and I will always remember his constructive criticism and advice when we toured the entries after the adjudication. Here was a fellow enthusiast and under his tuition our 'scapes blossomed. I was very proud and flattered to be invited to take over as judge of B.A.F. Classes 3 and 3a on his retirement.

Mr Graham's system of pointing was simple but effective: design, 20; colour and harmony, 20; balance, 20; originality, 15; construction, 25. It is usually in the last-named that so many aquascapers lose the odd points that make the difference between success and failure. Why do so many take great pains and expend much thought and effort, to say nothing of ingenuity, and then detract from the overall picture by scribbling the title on any old piece of card. It is like that proverb about the ship, tar and a defunct coin.

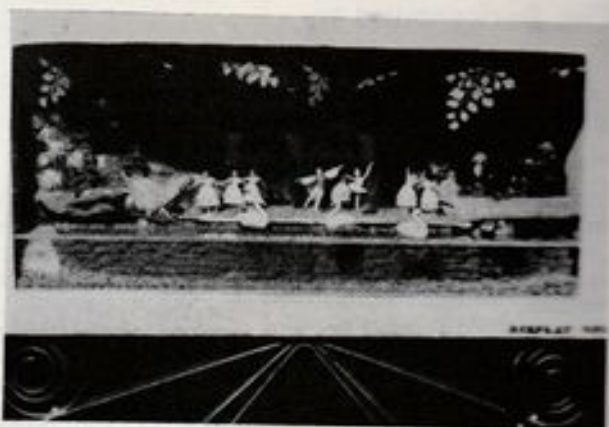
Over the years the various types of ingenious ideas that have graced the novelty aquascape class have been many—including a working model circus, the witches' scene from Macbeth, Swan Lake and the conquest of space. One winner, entitled 'Hernando's Hideaway', made good use of blue lighting, blind cave fish and wax stalactites and stalagmites. Yet another, 'Treasure Island', was complete down to Long John's parrot. Talking of

birds, the 1970 B.A.F. saw the Society from my birth place, Edinburgh A.S., taking the Aquascape Trophy back to Auld Reekie, for a very enterprising scene that contained living specimens of the class Aves. Full marks to the constructors, who even included live worms!

At The AQUARIUM SHOW in London in the past 3 years we have seen aquascapes in the decorative club Tableaux and very fine they have been. It is pointless to pretend that this exhibit does not require a certain effort of adjustment from aquarists reared in the traditions of furnished aquaria and a back-drop

no larger than 24 in. by 12 in. Yet, as visitors to the Show will testify, the enthusiasm of the participating clubs has been boundless.

It has given me great personal satisfaction because I remember only too well my early critics, who said this type of display was kid's stuff, fit only for the birds. Having witnessed the joy and pleasure aquascaping has brought to countless children all over the world I can only say that this reason alone has made it all worthwhile. May it long be promoted and staged by aquarists and clubs who aren't afraid to be still 'young at heart'.



'Swan Lake'—a novelty aquascape designed and exhibited by the author at several northern shows

The Garden Pond in High Summer

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garden of slugs, snails and woodlice. If tadpoles and frogs abound in and around the pool there is the chance of a visit from a harmless grass snake. I have one which puts in an appearance each August.

In early spring it is pleasing to see a male newt stalking a female in the pool shallows and so fascinating to watch several large dragonflies skimming over the pool in summer. Newts may possibly take very small fry. That I don't know, but larvae of the dragon fly, the damselfly and of the great diving beetle most certainly do. Pond skaters are quite harmless and I doubt whether water stick insects and water scorpions manage to

catch quick-moving fry. In any case the natural job of these creatures is to thin out excessive fry. Only were I to specialise in fish breeding would I net any of these water insects from my pools. Many leeches are, of course, a menace and not easy to eradicate so try to avoid introducing them to your pond.

There are no rules as to fish feeding. My fish always appear to be hungry in summer and follow me around the pool until I satisfy their appetite with gentles, earthworms, cabbage caterpillars, wood lice, crushed slugs, brown bread or flaked fish food. A neighbour just throws a piece of bread into his garden pool now and then and his

fish thrive in spite of this casual treatment.

Keeping the oxygen content of the pool water high in hot weather is, I think, of greater importance than any special feeding plan. The smaller the pool the warmer the water becomes and although liberally planted with oxygenators the oxygen content of the water declines. Spraying water from a hose into the pool in hot weather is helpful; having a fountain or a waterfall in operation for a few hours daily is a far better way of raising the oxygen content. Various pet fishes react differently to a slight oxygen deficiency. The common goldfish and its variants may not be unduly inconvenienced—nor for that matter is the tench. Golden carp and nishiki-koi appear to tolerate a slight oxygen deficiency, too, which, however, spells death to orfe and rudd.

Furnished Marine Tanks

By STAN NELSON

In last month's article in FFM on furnishing aquaria I listed the points allocated for marine furnished aquaria. Although provision for such aquaria is made in scoring systems, in aquarium shows generally this class has been almost non-existent. How, I am asked, can you compare a marine aquarium with a planted freshwater aquarium? If a marine enthusiast (like myself) were to be most likely find he is the only entrant. Few clubs, if any, set up a separate marine furnished tank class, and I am also asked if such

provided at the show will be for freshwater fish only, sealed most likely with putty, and to use this tank would mean pollution in his water, since sea water will break down ordinary putty. So the marine competitor is off to a bad start on the 'permanency' basis. Two choices are open to him: (1) to bring his own tank, knowing beforehand what size it must be; (2) to inform

size he can come prepared with this glass or Perspex cover, and with a ledge sealed to it to prevent any sea water dripping down the front glass, drying out and leaving a salt stain.

Let's view the marine tank from the judge's angle. The same qualities apply to marine fishes as to freshwater fishes, and the pointing here presents no problem. The judge may have no knowledge of the fish exhibited but he could point the fish for matching size, if say, six blue damselfish or similar were shown: colour, body, shape, finnage, deport-

'Other animals' in a furnished marine aquarium entered for competition can be allotted the points that would otherwise be used for assessing plants. In this competition tank 'other animals' to be seen on the natural barnacle-encrusted stone include sea anemones, starfish, tubeworms, whelks.
Photo: Barry Pengilly



ment and general condition can be judged by any capable judge of fish.

It would like to see some marine furnished tanks in a show. Set up properly, they could be really stunning, and I cannot see why marine aquaria and freshwater aquaria cannot be competitive with each other, both being set 100 points as the maximum target.

Let's have a look now at the basic difference. In place of 20 points for plants 20 points for 'other animals' has been substituted. But here 'other animals' are not essential, and the 20 points can be distributed between design and technique, if that is what the exhibitor wants.

A number of minor problems face the marine aquarist. First the tank

the show secretary a few months beforehand to prepare a tank for him.

I think it would benefit the show organisers to prepare their tanks against any contingency. If the inside seams are well scraped and a thin fillet of silicone rubber sealant is applied, the putty will be isolated from the water. Next the frames should be painted with good sea water resistant polyurethane paint. These tanks will then be usable as freshwater or marine tanks. Aeration is a must for marine animals and so a glass cover should be used to prevent spray reaching up to the underside of the hood and to the light fittings.

If the competitor knows the tank

ment and general condition can be judged by any capable judge of fish.

The problem arising for the exhibitor is that not all marine fishes are compatible with each other, and some are right rascals! Many are territory-minded and find hiding places for themselves in a new tank and defend them until they are all settled, by which time the show would be over!

To set up the tank on a permanent basis would involve the use of an undergravel filter, and this means that trigger fish are out and so also the very beautiful wrasse. The trigger has a habit of blowing jets of water at the coral compost, searching for worms and crabs, and this

uncovers the filter and spoils the set-up. He will also move the coral pieces about if he can, and even a small trigger fish can tilt them over. Wrasse put into strange surroundings will, nine time out of ten, dive straight under the coral and not be seen for a couple of days.

File fish or trunkfish, cowfish, porcupine fish and puffer fish wouldn't hide but would normally outgrow the tank. Small specimens are therefore best to use. Here the judge could make allowances, as with normally large freshwater fishes like tinfoil barb or even goldfish.

Butterfly and angel fish would seem to be ideal for colour, deportment and general showiness but beware of putting two angels in, for they fight. Even with butterfly fish, two of the same species, unless you luckily have a true pair, will be at each other. Again specimens from 2 to 4 inches are all that is required.

The damsel fish represent a large variety of beautiful and yet small

fishes. Unfortunately they are aggressive and territorial, so if damsels are to be shown put them in with fishes that will stand no nonsense from them, such as the surgeon species or small triggers. Half a dozen electric blue damsels are a staggering sight and would really draw the crowds. The neon damsel is another beauty and possibly the least aggressive. Most of the other damsels (arowana, domino, cloudy, sergeant major etc.—there are such a lot of them) would need a tank all to themselves but it would nevertheless make an interesting set-up.

The surgeons are beautiful showing fish, my favourite being the *thunus*—of such a beautiful blue as to be hardly believed, the powder blue, the yellow tang, *A. bleheri* and the green-lined *A. lineatus*. These fishes are gorgeous, active, not prone to hide (except perhaps young *thunus*) and not usually bullied, having a defensive spine to ward off would-be aggressors; a

surgeon would be a must in my furnished aquarium.

Clowns, those painted beauties, lend themselves to furnished aquaria, being less aggressive than the damsels, more tolerant of each other, relatively small, and with colour varieties. Possibly they are the most well-known of the marines.

The wrasses are staggeringly beautiful and I never cease to wonder at the colour varieties. Unfortunately they hide at night and in strange surroundings. If the compost is left out they sometimes lie on their side on the bottom and appear sick. Actually they are only trying to hide in the coral that isn't there. So for a one day show it is not worth including these beauties.

Scorpion fish could be included as a novelty, but care must be taken

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Growing Fry Need Rich Feeding

FOR young goldfish being reared in tanks heavy feeding should be the rule during the growing period. In case this sound like a complete reversal of the advice given to beginners, let me explain that the food is not given all at once, but in little amounts and very often. It is surprising what goldfish will eat and the amount they can consume if fed a small quantity three or four times daily. Grade the foods according to the size of fish and offer them in variety.

The following foods will all be eaten and many can be obtained with reasonable ease: hard-boiled egg, horse meat, liver, heart, shrimps, prawns, cockles, fish roe, cheese, Bemax, porridge oats, rice biscuits, crushed houndmeal, chopped spinach and lettuce, bread (especially wholemeal), earthworm, white worm, bloodworm, gentles, maggots, daphnia, small frog tadpoles, mosquito larvae, water 'louise' (*Aedon*), water shrimp *Gammarus*, crushed water snails and, of course, the various

COLDWATER SCENE



By FRANK W. ORME

packet foods.

A food that I find produces strong sturdy fish and which I prefer to use in the form of a mash is prepared as follows. Place a small basin in a saucepan of water and heat it; into the basin pour a little water and shred a lump of cheese into this, plus a similar amount of scraped liver and a teaspoon of honey. Steam the mixture in the basin until the cheese melts and then blend the components together. Add a few drops of cod-liver oil,

break in a raw egg and whip the whole together thoroughly. Sprinkle a little calcium carbonate in and thicken to the consistency of thick whipped cream by mixing in Bemax.

If this mixture is placed in a plastic dish fitted with a lid, such as some margarine are packed in, it can be put in the refrigerator where it will keep for some time. This pudding can be given in small quantities and once the fish have got used to it they will make quite rapid growth.

With heavy feeding you will find that the aquarium water requires frequent changes. The method I use is to siphon out mud and uneaten food every other day; this will also remove the lower strata of stale water. When siphoning make sure that you do not suck any of the young fish up the tube. Provided that 'topping up' is done gently, water can be used straight from the cold-water supply. These frequent water changes are beneficial to the fish and will promote steady growth.

The Little Iridescent Danio



Brachydanio albolineatus

By **RUDOLPH ZUKAL**

Photographs by the author

LITTLE iridescent danio' in German, 'rainbow danio' to the Czechs, 'pearl danio' in the U.K.—the variety of its names indicates how well known this fish has become to aquarists since its first importation into Europe in 1911 from its native waters in India, the Malay peninsula, Sumatra and Thailand. Elongate, slim, its body slightly compressed at the sides, it has a fine rainbow colouring—a delicate yellow, bluish, violet. From the middle of the body to the tail fin runs a wide horizontal red stripe, and there is a blood-red patch in the middle of the tail. Dorsal and tail fins are green with a reddish bloom, the edge of the anal is red to orange, belly and breast fins are reddish. The mouth, which is turned slightly upwards, is furnished with two short and two long barbels. But the coloration, which stands out so beautifully when the light falls upon the fish, is delicate and in the wrong conditions this fish might not look particularly attractive. This must be the reason why these danio are not met with as often as one might expect in the tanks of tropical fish lovers. After all, they reach a size of only about 2 in., they are peace-loving, undemanding as to water conditions, fast and lively swimmers, not choosy in their food and happy in a water temperature around 72°F (22°C). Often, I think, this fish is bought only if no other variety is on hand at the dealers, and this is a great shame. With a little care in providing the right conditions it is possible to enjoy their full charm.

Translated by **F. MARSH**



These danios spawn in all positions and depths, quite often immediately below the water surface. Here the pair are seen with bodies pressed close together at the start of the spawning (left) and with the tail fin of the male thrown around the female just before the eggs are released and fertilization occurs (right)

One must try to produce contrast in the tank, just as we do in our own home-decorating. These fish should have a richly planted tank, with a base of dark sand or gravel, and particular care should be taken with the lighting, which so greatly affects the fishes' appearance. Since danios are skilful swimmers, the tank should not be too small, but rather longer than deep and, ideally, placed where the sun can shine through it. The water temperature should not be allowed to fall below 72°F (22°C) though pearl danios will not come to harm at

rather lower temperatures. In a shoal with its own kind and other danios and brachydanios, the pearl danio will brighten up any community tank.

The propagation of these fish is very easy and they can be recommended for this reason to aquarists with little experience, and to young hobbyists. To breed them we choose a longish tank, with or without compost. If the choice is for sand then fine-leaved plants should be added. If without, then cover the bottom with small round stones or marbles. Normal tap water can be used



The pair separate as soon as the eggs are released (the eggs can be seen in this picture: they are relatively large eggs and fall on to plants or on to the aquarium base as the fish swirl apart)

after it has been allowed to stand for a few days, and the temperature is raised to 79–80°F (26–28°C). Sex differences are easy to recognise in the adult fish as the male is the slimmer and is more intensely coloured. The female is also fuller in the belly and generally larger.

First I put the male in the tank and on the next day I add the female. If spawning does not take place within 48 hours, where the female is obviously 'full' enough, then we put another male in. Spawning usually happens in the early hours and the parents must be removed immediately because they are egg-eaters.

The eggs are comparatively large. The fry hatch after 36 hours, and they are free-swimming on the sixth or seventh day and will take fine food. The spawning can be repeated at 3-weekly intervals at least from spring to late summer. If she does not spawn at the right time the female will 'harden' and so it is advisable to choose for breeding only young 6-month-old females, although the males can be older.

The spawning behaviour of the pearl danio is illustrated in the pictures and described in the captions to these.

Furnished Marine Tanks

continued from page 124

not to touch the spines, which contain poison.

Sea horses and pipe fish are both unusual to look at and perfect for showing. They are best kept on their own, because of the difficulty of feeding, but for a show tank a couple of sea horses would command attention and they can look after themselves, being very unappetising to other fishes.

Gobies and blennies are real comics to watch and would occupy the bottom of the tank. Cardinal fish, being nocturnal by nature, tend to hide and are not therefore promising for a one day show.

Scats and mosos make a nice show (use small specimens only, and watch that the scats do not become aggressive).

From the above quick selection of the more readily available marine fishes a very beautiful selection could be made. I would plumb for colour variety: blue, black, red, yellow, orange and brown all in the same tank. What a sight! and what an attraction for a club show!

Now we come to 'other animals', in the mistaken idea that there are no plants in the marine tank. Without plants there would be no permeability and the fishes would surely die from their own excretions fouling the water. Judges who like to see coral bleached white are very wrong; removing the algae from coral also removes Nature's

method of preventing nitrates building up in the water. Admittedly corals in the sea are alive but in a furnished tank corals covered with algae would provide plant life. Some tropical species of seaweed live in aquaria, but temperate zone seaweed never lasts long. It can look pretty for a week or two but it begins to die and might foul the water. Surgeons and scats, however, eat it with relish.

So to please the judge you want to show 'other animals'. Crabs come first to my mind. Small crabs in a furnished tank live well and are very comical; unfortunately they do hide a lot and may not show themselves when the judge is around. Anemones can be used and there are some very beautiful anemones that can be collected. Starfish, winkles and limpets can be put in, but on a permanent basis are a dead loss.

If 'other animals' are left out the judge can divide the allowed 20 points between design and technique. Twenty points are awarded for rockwork. This does not have to be coral and it is up to the individual what choice is used, but the compost if used should match the rockwork. For coral fishes, coral is ideal with coral sand as a base. I personally would put in an undergravel filter with the outlet in one corner at the back. Even for a one day show the well-being of expensive fishes cannot be left to chance. This would help the water to clarify and aerate it at the same time. Also at the back the outlet could easily be hidden. A combined subsensible heater-stat would be more easily hidden than separate units. The coral sand should be swept back, as with the compost in the freshwater tank. It won't stay even for long, anyway, for the fishes move it about. The back of the tank

should be covered to prevent see-through. Here a mirror cut to size would add depth and artificially increase the number of fishes entered! If no mirror, a green or blue paper fixed behind the tank looks very attractive.

For the background, if the height of the tank is known in advance, coral of the right size can be bought; open staghorn coral looks well and prevents too many hiding places. There are a large variety of corals available but, of course, you use the pieces from your home tank, well established and algae-covered. A few very pretty shells would complete the picture.

For design 20 to 30 points will be given. Remember it must look good, without too many hiding places, and good open swimming space for the fishes must be provided. For technique another 20 to 30 points: the water must be crystal clear, the front glass clean. The tank should look well established and able to go on undisturbed for months. Try to avoid coral sand showing above the angle iron, if the fish will let you, and top the water up until the surface cannot be seen. Allow about half the number of fishes that you would put in a freshwater set-up.

One of the snags for the marine competitor is that he has to transport all the water. Water newly made up from marine packs is deadly to the fishes. I hope that some marine furnished aquaria will be shown this year. It would give this section of the hobby a boost. I know many aquarists who are waiting to try their hand, but are afraid to lose a single fish. They want every angle ironed out for them before they try. Perhaps a few furnished tanks would settle their doubts.

What's New?

All-Glass Tanks

TWO new all-glass tanks with special stands introduced by **Trophy Products** (Laurence Drive, Stover Trading Estate, nr Bristol) should help to solve many a domestic space problem when yet another new tank is being considered. The first is a triangular shape and fits exactly into the corner of a room; it is designed to give a front viewing panel 24 in. long and a side depth of 8 in. The second tank is designed as a room divider, 49 in. long by 15 in. by 15 in. Each 49 in. viewing length is edged with the plant or decorative trough that this company has made its speciality. The aquarium cover has a double slope to give a symmetrical appearance when viewed from either side.

Flake Food

A NEW flake fish food is **Multi-flakes**, produced by the Danish Company, Hykro, and distributed in this country by Peterama Limited (The Elms Estate, Church Road, Harold Wood, Romford, Essex). Hykro lay claim to the distinction of being the company that introduced flaked fish foods to the hobby 20 years ago and state that their multi-flakes, which have a high protein content and are guaranteed not to cloud the water, contain all that tropical fish require in the way of nourishment.

Outside Heater

SCHEDULED for production in the autumn is the **Panel Aquarium**

Heater manufactured by Singleton Bros. (Electronics) Ltd., Penryn, Cornwall (the working prototype was on view at the recently held British Pet Trade Fair in Harrogate). The heater, which is attached to the outside of a tank, consists of a flat insulating case, 12 in. by 6 in. by 1/2 in., that houses a completely new type of wire-less heating element. The case is attached to the outside of the tank's back or side glass by 12 small spots of special cement. Both the element and the insulating case are electrically insulated and unaffected by water spilling from the tank. The heater is easily removable by means of a razor blade.

Compact Tank Units

TANK units, actually designed for showroom and shop-display, would reconcile any enthusiasts' family to the every-multiplying tank problem. **King British** (Cannon Mills, Union Road, Bradford 7, Yorks) have designed units housing six 24 in.

by 12 in. by 12 in. aquaria set into a simulated wood fixture that covers all unsightly equipment and wiring. John Hutchinson (Pets) Ltd (50/45 Wicker, Sheffield S3 8HS) have available a free-standing self-contained **Tropical Fish Sale Unit**, wired for heating and lighting from one mains panel, with blue aqualite servicing hatches.

Undergravel Filter

THE exact filter area coverage of the new **Proops Undergravel Aquarium Filter** is 20 in. by 9 in. but the efficiency of its design, the manufacturers claim, make it suitable also for use in larger tanks, and it can be easily cut to fit smaller ones. Construction is based on a radiating-tube design with five perforated filter element tubes of unequal length diverging from five separate housings in a plastic corner distribute base. Each tube ends in a plastic bung. Recommended retail price is 75p.

Guppy World

attractive, dark-eyed, grass-skinned Hula dancers, I'm not surprised the hobby there is doing well. Paul used to say their gyrations were always part of any guppy show.

• • •

In answer to the question: "Where have all the red guppies gone?", the answer seems to be 'to Hawaii'. Those 4000 square miles of islands situated in the Pacific Ocean have boasted keen guppy breeders from way back.

Under the Stars and Stripes they have enjoyed the patronage of American hobbyists, and the late Paul Hahnel was a most enthusiastic supporter of their efforts. His visits to the islands were always celebrated with a gathering of keen guppy breeders from amongst Hawaii's 68,000 population.

Information comes from Larry Eko that the entries in the 'red delta' classes in their shows outnumber the other colours. The main drawback to breeding this colour seems to be their propensity to split fins. Though not resolving the problem completely, the Hawaiian breeders claim that the use of rock salt and tanks full of algae have kept 'splitting' to a minimum.

After seeing pictures of those

To the uninitiated, the fanaticism displayed by the followers of *Poecilia reticulata* must appear like the unusual enthusiasm displayed by the followers of the god Fannu, from where the word originates.

In answer to their persistent question: "Why guppies?" I can do no better than quote a little verse I picked up somewhere, no doubt slightly changed for the telling . . .

"They do not sweat and whine about their condition. They do not lie awake in the dark and weep for their sins. They do not make me sick discussing their politics or their duty to some god. Not one is dissatisfied, not one is demented with the mania of owning things. Not one of these creatures kneels to another nor to any of his kind that existed a thousand years ago. Not one is respectable or unhappy over the whole earth. That in a nutshell is a guppy."

After that, my interrogators rarely repeat their question.



THE KINGS HALL Open Show attracted 440 entries and of these the best fish in the show was judged to be the *Ctenopoma kingstoni* entered by Mr S. G. Cowell (gold pin and Bethnal Green A.S. award). Other awards were: Chingford A.S. award for angels, Mr L. Roberts; Enfield A.S. award for cichlids, Mr R. Bowers; Harlow A.S. award for characins, Mrs J. Twine; Tottenham A.S. award for egg-laying toothcarps, Mr R. Longstaff; Walthamstow A.S. award for best coldwater fish, Mr H. Berger. Class winners were:

Club furnished aquaria, tropical: Tottenham A.S. Club; coldwater: Walthamstow. Furnished aquaria: Mr J. Gossell (74 points). Barbs: Mr S. Cowell (81). Characins: Mrs J. Twine (81). *Hypoclinemus*, *Rhinogobius* and *Chlorodon*: Mr R. Bowers (77). Cichlids: Mr R. Bowers (85). *Aptinogomus*, *Daniconius* and *Nemacara*: Mr R. Bowers (79). *Labyrinth*: Mr S. Cowell (88). Eglayers: Mr R. Bowers (78). Egg-laying toothcarp: Mr R. Longstaff (81). Tropical cichlids: Mr G. Greenhalf (90). *Corydoras* and *Brachy*: Mr E. Ballock (86). Rasboras: Mr R. Bowers (78). Danios and minnows: Mr R. Bowers (79). Loaches: Mr J. Mackay (80). A.O.V. egg-layer: Mr P. Brindley (86). Tropical pairs: Mr P. Brindley (84). Male guppy: Mrs M. Quennell (77). Female guppy: Mr L. Goff (77). Swordtails: Mr A. Collins (81). Platys: Mr D. Kelly (86). Mollies: Mrs Hodges (79). A.O.V. livebearer: Mr J. Pollard (79). Tropical breeders livebearers: Mr R. Bowers (78). Breeders, coldwater: Mrs Longstaff (66). Common goldfish: Mr M. Carter (74). Characins: Mr H. Berger (74). *Conostictus*: Mr G. Longstaff (65). *Tetraodon*: Mrs Longstaff (72). A.O.V. coldwater: Mrs Hodges (78). Plants: Mr K. Nutt (78).

THE EDMONTON SECTION OF THE FANCY GUPPY ASSOCIATION, which draws its members from all over north London and the surrounding area, held their Spring Open Show at their new meeting place, The Four Hills Hall, Brigadier Hill, Lancaster Road, Enfield. The event drew entries from all over southern England, some coming from the leading guppy breeders in the world. Over 100 visitors watched the following awards being made: best fish in show, Mr K. Lee (Essex); best female, best opposite sex, Mr A. Fowles and Mr H. Small (short dorsal veiltail male); best breeders award, Mr and Mrs D. Mathieson (advanced master breeders award)—this entry also took the award for the best overall entry in the show, a magnificent pair of oil paintings of guppies to standard

YORK & D.A.S. Open Show, attracted over 500 entries from many societies. The best in show award went to the Siamese fighter entered by Mr and Mrs Cohen of Castleford (85 points) who also received the Best Exhibitor award. Class winners were:

Guppies: Mr R. Hildop (Swillington, 78 points). Swordtails: Mr and Mrs Cohen (Castleford, 74). Mollies: Mr K. Ellis (Independent, 76). Platys: D. & B. Keir (Castleford, 76). A.O.V. livebearer: Mr J. Thickbroom (Castleford, 68). Small barbs: Mr J. A. Whitley (Aireborough, 71). Large barbs: Mrs Davis (Pirbright, 76). Small characins: Mrs B. Mangham (Weymouth, 76). Medium characins: Mr I. Heptinstall (Castleford, 69). Large characins: Mr J. A. Whitley (Aireborough, 84). Carps and minnows: Mr I. Stephenson (York, 70). Rasboras and danios: Mr I. Heptinstall (Castleford, 72). Sharks and flying fishes: Mr J. Scarr (Selby, 74). Siamese fighters: Mr and Mrs Cohen (Castleford, 85). Small cichlids: Mr I. Stephenson (York, 74). Large cichlids: Mr and Mrs Cohen (72). Dwarf cichlids: Mr Martin (Alfredton, 74).

OFFICERS OF THE FEDERATION OF NORTHERN AQUARIUM SOCIETIES for this year are: president, Dr J. F. Wilkinson; vice-president, Mr G. W. Cooke; secretary, Mr W. T. Kelly (11 Siddley Street, Liverpool L17 8X); treasurer, Mr S. J. Nicholls; show secretary, Mr G. W. Cooke; programme aids, Mr G. Howard; B.A.P. show manager, Mr C. Walker; assistant, Mr C. Britton.

Large cichlids: Mr E. Hall (Independent, 71). Angels: Mrs S. Hoyle (Independent, 71). *Corydoras*: Mr R. M. Booth (Leeds, 77). Loach and botia: Mr I. Heptinstall (82). A.O.V. catfish: Mr P. Skingley (Selby, 86). Egg-laying toothcarps: Mr I. Stephenson (77). Breeders livebearers: Mr and Mrs Cohen (77). Breeders egg-layers: Mrs Gear (Keighley, 78). Matched pairs livebearers: Master M. Hildop (Swillington, 78). Matched pairs egg-layers: Mr Andrews (Hall, 86). Common goldfish: Mr J. S. Hall (Aireborough, 73). Fancy goldfish: Mr J. S. Hall (78). A.O.V. coldwater: J. Thickbroom (Castleford, 78). Junior: J. Thickbroom (78). A.V. female: J. Thickbroom (81). A.O.V. tropical: Mr Martin (Alfredton, 66). Furnished show jars: Mr R. Magon (Aireboro, 71). Plants: Master A. Barrett (Castleford, 71).

'A great success' is a fair description of the **MEDWAY A.S. Open Show**. It attracted 444 entries, and whilst judging took place entertainment was provided by Bingo, films for the children, a raffle, refreshments throughout the day and a Club shop. Class winners were:

Barbs: Mrs D. Cruickshank (Kingston, 82). Large barbs: Mr J. Ballingham (Tonbridge, 81). Characins: Mr T. R. Hise (Tonbridge, 79). *Hypoclinemus*, *Rhinogobius* and *Chlorodon*: Mr A. I. H. South (Croydon, 81). Cichlids: Mr Kinsey (Independent, 84). Angels: Mr D. M. Duce (Walthamstow, 86). Dwarf cichlids: Mr R. Bowers (Independent, 82). *Labyrinth*: Mrs M. Tucker (85). *Betta splendens*:

Mr C. Elliott (Medway, 77). Egg-laying toothcarps: Mr C. Withers (Sible-Hera, 77). A.O.V. catfish: Mrs M. Netherell (Riverside, 81). *Corydoras* and *Brachy*: Mr C. Withers (Sible-Hera, 84). Rasboras: Mrs D. Mathieson (Tonbridge, 79). Danios and minnows: Mr Kinsey (Independent, 86). Loach: Mr D. Simpson (Medway, 86). A.O.V. tropical egg-layer: Mrs S. Hodges. Breeders tropical pairs: 1, Mr E. Woods (Elliott A.S., 76). Male guppy: Mr R. Bowers (Independent, 77). Female guppy: Mr R. Bowers (77). Swordtails: Mr T. A. Cruickshank (Kingston, 79). Platys: Mr Quennell (E. Dulwich, 81). Molly: Mr J. D. Wilson (Canford, 81). A.O.V. livebearer: Mr I. Mathieson (Tonbridge, 81). Singletail goldfish: Mrs S. Hodges (68). A.O.V. coldwater: Mr W. F. Woodward (74). Breeders egg-layers: Mr A. Clark (Medway, 81). Breeders livebearers: Mrs O. Leslie (High Wycombe, 78). Plants: Mr C. Elliott (Medway, 79).

The trophy for the best fish in show was presented to Mr D. M. Duce of Walthamstow for his marbled angel (86 points), while Mr Kinsey (Independent) won the Medway Trophy for the highest award-winning points in show. Other special awards were as follows: FBAS Championship trophy for rasboras, Mrs D. Mathieson (Tonbridge); Ray Mayne trophy for barbs, Mrs D. Cruickshank (Kingston); the Fighter trophy and Plant shield, Mr C. Elliott (Medway); Marylynn Simpson Memorial trophy for male guppy, Mr R. Bowers (Independent); the Swordtail plaque, Mr T. A. Cruickshank (Kingston); Swale trophy for breeders egg-layers, Mr A. Clark (Medway); and Karl Marsh trophy for breeders livebearers, Mrs Leslie (High Wycombe).

INDEPENDENT A.S.'s first Open Show proved a most successful venture, with 409 fishes being benched. Winning exhibitors were:

Barbs: Mr T. Butler (Anson). Characins: Mr G. Greenhalf (Kingston). A.O.V. cichlid: Mr T. Kinsey (Independent). Angels: Mr R. Bowers (Independent). *Aptinogomus*: Mr R. Bowers. A.O.V. labyrinth: Mr F. Caffell. Fishers: Mr R. Bowers. Egg-laying toothcarps: Mr R. Longstaff (Kingston). *Corydoras* and *Brachy*: Mr J. Pollard (Kingston). Rasboras: Mr Mackay (Kingston). Danios and minnows: Mr T. Kinsey (Independent). Loach: Mr P. Arnold (Bethnal Green). A.O.V. tropical egg-layer: Mr R. Kerridge (Harlow). Guppy, male: Mr R. Bowers. Guppy, female: Mr R. Bowers. Swordtails: Mr G. Greenhalf. Platys: Mr D. Kelly (Anson). Molly: Mr T. Tomkins (Independent). A.O.V. livebearer: Mr J. Pollard (Kingston). Singletail goldfish: Mr D. Goodbody (Walthamstow). A.O.V. coldwater: Mr A. Wood (Anson). Breeders tropical egg-layer: Mr M. Strange (Basingstoke). Breeders tropical livebearer: Mr E. Barlett (Chingford).

Best fish in the show award was won by Mr R. Kerridge of Harlow with a Siamese tiger fish (84 points).

M.A.A.S. held their second inter-society show in May, at Drayton Manor Park. The show, organised by the Society of Aquarists of South Staffordshire, attracted entries from 24 affiliated societies. Class winners

Mr H. FODEN, who is in retail aquatic business, makes an interesting comment in the BRADFORD & D. A.S. news magazine. 'I find that the whole aspect of fishkeeping has changed. Nine out of ten customers buy fish on immediate visual impact, so that many species that are eventually very nice, are passed by. At one time most visitors knew all the varieties and how they would eventually finish up, and would buy accordingly.'

were:

A.O.V. livebearer: Mr and Mrs Malcolm (Bodworth, red play). A.V. barb: Mr A. Newby (Widnesbury, *Burbo errent*). Gold Star award: A.V. cichlid: Mr T. Gosney (Haden A.S., pike cichlid). Guppy: Mr Russell (Tube Products). Characina: Messrs Atwood and Williams (Rubery Select, *Piranha brandi*, Gold Star award). A.V. labyrinth: Mr B. Pryor (Loughborough). A.V. catfish, or loach: Mr T. Gosney (Haden, *Betta modesta*). A.V. rainbow: Mr R. Norbury (Wombourne & B. A.S., yellow tailed rainbow). A.V. hillfish: Mr Russell (Tube Products, *P. pleurota*). A.O.V.: Messrs Whitfield & Massey (Rubery)

The best fish in show award went to Mr Atwood and Mr Williams for a *Piranha brandi*, and the award for the society gaining the most points was won by Rubery Select.

THERE were 670 entries at the eleventh Open Show held by SHEFFIELD & D.A.S. Judges (FNAS) were: Mr A. Aboy, Mr B. Inman, Mr G. Sibson, and Mr P. Moorhouse. The trophies were presented by Alderman Bill Owen and Mrs Owen, deputy chairman of the local Education Authority. Details of class winners were:

Guppies: Mr Whiteman (Independent, 87 points, section winner). Plaity: Mr N. Platt (Stockton-on-Tees, 78). Swordtails: Mr and Mrs Cohen (Castleford, 85, section winner). Mollies: Mrs Steeders (Castleford, 82). A.O.V. livebearer: Mr J. S. Hill (Aireborough, 71). Characina under 3 in.: Master D. Brook (Huddersfield, 79). Characina over 3 in.: Mr Kennedy (Bradford, 80, section winner). Dwarf cichlid: Mr I. Heptinstall (Castleford, 82, section winner). Large cichlid: Mr Hubert (Derby, 83). Angels: Mr D. Sewell (Sharwood, 81). Barbs under 3 in.: Mr J. Dennis (Dukeries, 80). Barbs over 3 in.: Mr Hubert (Derby, 81, section winner).

Appllying toothcarps: Mr I. Stevenson (York, 74, section winner). Carps and minnows: Mr Kennedy (Bradford, 79, section winner). Labros, sharks and loach: Mr C. Thickson (Castleford, 78). Fighters: Mr and Mrs Cohen (Castleford, 81, section winner). Labyrinth: Mr K. Thomas (Eaton, 80, section winner). Danios and rainbows: Mr S. Hill (Alfreton, 75, section winner). Pairs livebearers: Mr J. Dennis (Dukeries, 78). Pairs egg-layers: Mr and Mrs Cohen (Castleford, 80, section winner). Breeder livebearers: Mr and Mrs Cohen (79). Breeders egg-layers: Mr and Mrs Cohen (82, section winner).

Catfish and loach under 3 in.: Mr E. Smith (Sheffield, 74). Catfish and loach over 3 in.: Mrs D. Davis (Privates, 78, section winner). Corydoras: Mr D. Sewell (Shef-

wood, 75). A.O.V. tropical: Mr A. Kennedy (Bradford, 83, section winner). Coldwater: Goldfish (fancy): Mr F. Fearnough (Chapel Town, 79, section winner). Coldwater goldfish: Mr J. S. Hill (Aireborough, 71). A.O.V. coldwater: Mr C. Hill (Nottingham, 70). Shubunkins: Mr K. Coulson (Sheffield, 70). Juniors: A.O.V. egg-layers: Master A. Bull (Derby, 80, section winner). A.O.V. livebearers: Master Hadop (Swillington, 74). Rooted plants: Mr S. Hill (Alfreton, 74, section winner).

The best fish in show award was won by Mr A. Kennedy of Bradford (A.O.V. tropical, 88 points).

HERE are the results of class winners at the HENDON & D.A.S. Open Show held in May:

Club furnished aquaria: 1. Harlow A.S. Barbs: Mr T. F. Butler. Characina: Mr S. G. Cowell. Cichlids: Mr A. Kinsey. Dwarf cichlid: Mr R. Bowers. Angels: Mr D. M. Duro. Labyrinth: Mr S. G. Cowell. Siamese fighters: Mr P. Watson. Appllying toothcarps: Mr S. G. Tarrant. A.V. catfish: Mr R. Bullock. Corydoras: Mr D. E. Schramm. Rainbows: Mr J. Bannan. Danios and minnows: Mr G. J. Butts. Loaches: Mr R. Leslie. A.O.V. egg-layers: Mr A. Kinsey. Pairs: Mr P. A. Grosvenor. Male guppy: Mr R. Bowers. Female guppy: Mr R. Bowers. Swordtails: Master D. Stroud. Plaity: Mr A. Kinsey. Mollies: Mr J. Howe. A.O.V. livebearers: Mr R. Bowers.

Breeders egg-layers: Mr and Mrs S. Fagin. Breeder livebearers: Mr H. Wain.

The best in show award was won by Mr S. G. Cowell with a *Crenopoma kinglyae*, and Mr P. A. Grosvenor won the FRAS Championship pairs trophy for a pair of stoliczka barbs.

555 entries of very high standard fish were exhibited at the TROWBRIDGE & D.A.S. Open Show. Credit for a very smooth running and well organised day goes to show secretary Mr Chris Penny and Mr Mike Butcher, show manager, and their band of helpers, too numerous to mention. Class winners were:

Furnished jars: Mr R. Bishop. A.O.V. barbs: Mr T. Hayward. Small barbs: Mr D. Warren. A.O.V. characina: Mr C. Phillips. *Hyporhamphus*, *Hemigrammus* and *Chorodon*: Mr M. Patrick. A.O.V. cichlid: Mr M. Strang. Angels: Mr J. Bull. *Apistogramma*, *Nannacara*: Mr G. Furber. A.O.V. labyrinth: Mr M. Cocker. Siamese fighters: Mr S. Daniels. Killies: Mr G. Churchill. Catfish: Mr S. Daniels. Corydoras and *Bracon*: Mr S. Daniels. Rainbow: Mr R. Bishop. Danios and minnows: Mr A. Buckley. Betta, loaches, eels: Mr G. Furber. A.O.V. tropical: Mr D. Hodges. Pairs: Mr F. Williams. Male guppy: Mr J. Wheeler. Female guppy: Mr J. Wheeler. Swordtails: Mr A. Pamford. Plaity: Mrs W. Short. Mollies: Mr D. Sullivan. Shubunkins: Mr D. Langdon. Common goldfish: Mr M. Butcher. A.O.V. coldwater: Mr T. Fitzgerald. Fancy goldfish: Mr S. Daniels. Breeders livebearers: Mr J. Wheeler. Breeders egg-layers: Mr E. Newman.

Best fish in the show was a *Betta modesta* entered by Mr G. Furber.

AT the OSRAM A.S. Open Show in May, Mr K. Parkes of Merseyside won the best fish in show award,

receiving 83 points, and Belle Vue A.S., with 31 points, was the highest pointed society. The show was judged by Mr B. Pengilly, Mr G. Holmes and Mr R. Baxter, and results were as follows:

Anabantids: Mr and Mrs Cobb (Belle Vue, 79). Fighters: Master D. Brook (Huddersfield, 80). Small barbs: Mr F. Gosney (Oldham, 82). Large barbs: Mr N. R. Gibson (Huddersfield, 78). Labros and sharks: Mr and Mrs Ashton (Middleton, 80). Small characina: Mr F. Gosney (Oldham, 79). Medium characina: Mr M. Tongue (Oldham, 78). Large characina: Mr R. Parkes (Merseyside, 81). Dwarf cichlid: Mr and Mrs Jessop (Huddersfield, 78). Angels: Mr and Mrs Grimshaw (Suttoncliffe, 79). A.O.V. cichlid: Mr and Mrs Norris (Levens, 80). Toothcarps: Mr M. Tongue (Oldham, 78). Rainbows: Mr Locke (Salford, 76). Danios: Mr and Mrs Ross (B.V., 77). Guppies: Mr Post (Loyne, 80). Mollies: Mr and Mrs Grimshaw (Suttoncliffe, 79). Swordtails: Mr N. R. Gibson (Huddersfield, 79). Plaity: Mr and Mrs Cobb (B.V., 78). A.O.V. livebearer: Mr and Mrs Rieley (Ashton, 71). Loaches: Mr Thomas (Merseyside, 80). Catfish: Mr R. Davies (B.V., 81).

Goldfish: Mr and Mrs Cobb (B.V., 79). Shubunkins: Mr and Mrs Cobb (B.V., 78). Veiltails: Mr C. Whitney (Accrington, 78). Orandas and bombas: Mr H. Pughall (Oxton, 81). A.O.V. coldwater: Mr C. Whitney (Accrington, 80). Fantails: Mr H. Pughall (Oxton, 82).

Breeders egg-layers: Mr R. Higgins (Oldham, 79). Breeder livebearers: Mr N. Gibson (Huddersfield, 78). Breeders guppies: Mr S. Dawson (Oxton, 79). A.O.V.: Mr and Mrs Norris (Loyne, 80). Pairs egg-layers: Mr and Mrs Ashton (Middleton, 79). Pairs livebearers: Mr N. R. Gibson (Huddersfield, 78). Oursen juniors: 1 and 2. D. Dawson (75, 74); 3. K. Wood (73).

HILLINGDON Carnival Queen Miss Pamela Stenning presented the prizes at UXBRIDGE & D.A.S. Open Show in May. 440 fishes were benched in 24 classes, and show judges (FRAS) were: Mr F. Tompkins, Mr C. Brown, Mr D. Cannon, Mr D. Hancock, and Mr H. Towell. Prize winners were as follows:

Individual furnished aquaria: Mr M. Goss (Riverdale, 79). Barbs: Mr P. Grosvenor (Kingston, 81). P. Ginger Bath trophy. Characina: Mr S. Cowell (Bethnal Green, 84). Cichlids: Mr J. Healey (Galins, 83). Ken Ferry trophy. *Apistogramma*, *Nannacara*, *Pelmatochromis*: Mr M. Strang (Basingstoke, 83). Labyrinth: Mr S. Cowell (Bethnal Green, 85, gold pin and lost in show award).

Appllying toothcarps: Mr P. Broadley (E. Dulwich, 75). Tropical catfish: Mr J. Barr (Lilling, 80). Corydoras and *Bracon*: Mr D. Reilly (Anson, 80). Rainbows: Mr D. Reilly (Anson, 77). Danios and minnows: Mr A. Kinsey (Independent, 75). Loaches: Mr R. Leslie (High Wycombe, 78). A.O.V. tropical egg-layer: Mr J. Barr (Lilling, 80).

Two pairs A.V. tropical fish: Mr P. Grosvenor (Kingston, 72, Annual Cam-

IT is tentatively proposed, subject to sufficient response, to form a Guppy Breeders Club in the West Wiltshire area. Will all interested persons please contact either Mr J. Whalley (59 Downs View, Bradford-on-Avon, Wilt.: phone 2828) or Mr W. Barton (17 Polebarn Road, Trowbridge, Wilt.: phone 3704).

and animal life in mid-Africa, and Mr Joe Salachta returned to give the second part of his talk on water. The club was also entertained by Ealing A.S. to a twelve fish inter-club show (which Ealing won by 908 to 898 points) and club members won the Society exhibit award at the Reading A.S. open show, largely due to the efforts of Mr R. Smith.

... AT its first meeting of the year **BRITISH AQUARIST STUDY SOCIETY** members enjoyed lectures by Mr J. Soames, B.Sc. on water conditions and the aquarist and by Mr B. Pengilly on cichlids and labyrinths, illustrated with his own slides.

... **YEOVIL & D.A.S.** annual tropical pairs competition for the Steiner/Enticoet trophy was won by Mrs M. Ricketts with a pair of thick-lip gouramis—the first lady to win this award. At this meeting the quiz organised by Mr A. Pound was won by Mr M. Hulbert, who had all 26 answers correct.

... **MEMBERS of DIDCOT & D.A.S.** were very pleased to welcome friends from Reading A.S. for a friendly six-a-side, won by Reading by 479 points to 465. Individual results were: 1 and 3, Mr P. Merritt (Reading, 86 and 84); 2, Mr B. Turner (Didcot, 85).

... **MR Chris Penny**, after 3 years of very active duty as show secretary to **TROWBRIDGE & D.A. & P.S.**, has had to relinquish the position. Show manager Mr M. Butcher has also stood down. Their places have been taken by joint show secretaries Janice and Bill Burton (17 Polebarn Road, Trowbridge, Wilts. phone 5704), who will be pleased to hear from other societies wishing to exchange show information and forthcoming schedules.

... **MR Alec Firth** of Bradford gave an interesting talk on breeding livebearers to members of **KEIGHLEY A.S.** 34 fish were benched in the table show and winners were: F.o.m.—anabantids: Mr J. Mosley; a.o.v.: Mr D. Taylor; novice a.o.v.: Mr Hart; junior a.v.: Master D. Mosley.

... **THE G.S.G.B.** committee have announced the award of Society honours to the following: to Miss D. Morris a diploma for her experimental work on mock metallic and pseudo matts. Fellowships for work on behalf of the Society to: Mrs P. Whittington, as show secretary and for committee work; Mr A. Thamma for work in America; Mr R. D. Esson, as lecturer, judge and for

committee work; Mr F. Glynn, for external shows and committee work. Retiring President and founder member Captain L. C. Betts, M.B.E. was given life membership. Captain Betts' move to the west country means an end to his active participation in Society events but members greatly hope he will keep in close touch. Mrs M. Dudley has received the 21st Anniversary Rose Bowl, presented for the most attractive fish by popular acclaim (in this case, a singletail).

... **WHEN LEIGH A.S.** held their Open Killifish Show the 150 members and friends present were first entertained by a slide show on killies. Thirty-one killifish were benched, and there were 47 fish on the club stand. The trophy for the best killifish was won by Mr D. Sooton of the B.K.A. (about 20 of those present were B.K.A. members). The club is now in a very strong position, with about 100 members attending the twice monthly meetings at the Liberal Club, in Church Street, Leigh.

... **TOTTENHAM & D.A.S.** have now completed arrangements for the club's Golden open show, and it was agreed to start filming the actual setting-up of a show, which may eventually prove useful to other clubs. Many club members took part in the Kings Hall Open Show, and were pleased to obtain a good share of the first four places. The Society would still welcome new members, and anyone interested should contact the secretary, Mr K. Massey (72 Westward Road, Chingford, London, E.4: phone 01-527 7851).

... **WEYMOUTH & D.A.S.** members have recently been busy with their A.G.M., a slide show and tape lecture, quizzes, and well-supported table shows. Winners of the table show were: Mr T. Hatton, Mr Medway and Mr Carter.

... **MRS M. Dudley**, secretary of **SOUTH PARK AQUATIC (STUDY) SOCIETY**, reports on the first of the special quarterly meetings held by the Society. These meetings are being held to promote wider interest in other clubs in the cold-water side of the hobby. Kingston & D.A.S. were invited to join us, and we also had guests from Dulwich, Orpington and Rochampton. Mr R. Dudley gave an illustrated talk on varieties of goldfish, and many visitors expressed surprise at the beauty of exotic goldfish not often seen on the show bench. The table show for a.v. coldwater fish was split into three classes, as there were 38 entries, including bitterling, sunfish and

goldfish. The plaque for the best fish was awarded to Mr Long of S.P.A.S.S.

... **WHEN LLANTWIT MAJOR A.S.** held their inter-club competition against Port Talbot A.S., the home team were the winners, and the best fish was a golden ramini, owned by Mr Nelson of Llantwit Major. Results were: A.o.v. egg-layer (L.M.): 1, Mr Nelson; 2, Mr Ibberton; 3, Master R. Gordon. A.o.v. egg-layer (P.T.): 1, Mr Fouracre; 2, Mr Crofts; 3, Mr Jenkins. A.o.v. livebearer (L.M.): 1 and 3, Mr Wigg; 2, Mr Ibberton. A.o.v. livebearer (P.T.): 1, Mr Nichols; 2, Mr Walters; 3, Mrs Walters.

... **WHEN THURROCK A.S.** resumed its meetings after the winter recess Mr R. Nicholls conducted a sale-and-exchange, and also gave a talk on the basics of setting up aquaria, whilst Mr J. Hatton entertained club members with a slide show. In the table show for plays Mr H. Juson won first and second places, with Mr P. Hunkly third. Other table show results were: Barbs: 1 and 3, Mr P. Croot; 2, Mr E. Nicol. Egg-laying toothcarp: 1 and 3, Mr K. Appleyard; 2, Mr E. Nichol.

... **AT THE A.G.M. of INDEPENDENT A.S.** the chairman expressed the belief that the club's efforts in inter-club competitions, even if not always successful, were vital in keeping the Society's name to the fore. President Mr F. Tomkins, commenting on the recent vast improvement shown in the quality of the fish on the bench, was confident that this would enable the club to make great strides in the coming year, with high hopes of regaining the Six Club Trophy. He also commended the committee and all those involved for their courage in staging the Society's first Open Show. Annual trophies were presented as follows: Deaborough Trophy, Mr T. Kinsey; best breeder's team, Mr M. Harth; best egg-layers, jointly held by Mr T. Kinsey and Mr E. Islip; best livebearers, Mr B. Mason; best coldwater, Mr J. Kettle; best angel, best fighter, and the John Kettle Trophy, Mr R. Bowes.

... **CASTLEFORD & D.A.S.** recently enjoyed a film show given by Mr R. Hampson of Honsforth. Junior member Ian Heptinstall won the best in the show award at Rotherham Open Show with his weather loach (this is Ian's third best in show in seven months). Members Mr and Mrs D. Cohen also won best in the show at the Top Ten Open Show in Huddersfield with a blue Siamese

lighter. The Society now has 30 members, including people from outlying districts and all newcomers are welcome.

... **MEETINGS at EALING & D. A.S.** have been brightened by the number of new members attending. Each meeting so far this year has attracted at least two new faces. Mr C. Rainbow, the Society's secretary, recently gave a talk on cichlids, providing excellent illustrations with the use of both slide projector and microscope, often simultaneously! Various fish houses are springing up in members' gardens, and it is hoped to feature a slide show of these quite soon. At the last meeting, show secretary Mr R. Sellers arranged a lesson-testing quiz and Mr R. Mills chairman, showed off his home-made power filter, describing its construction and attractively low cost.

... **TONBRIDGE & D. A.S.** members were given a talk by Mr A. Wilkins on aquarium plants, in which some interesting facts on lighting conditions most suitable for various plants were discussed. Table show results were: A.O.S. egg-layer; 1, Mr R. Taylor; 2, Mr J. Bellingham; 3, Mr T. Hine. A.O.S. cold-water; 1, 2, and 3, Mrs S. W. Soles. Bred pairs livebearers: 1, Mr R. Baker; 2, Mrs A. Calver; 3, Mr I. Mathison. The Society has got off to a good start to their fourth year. Over 150 members and friends, particularly from East London A.P.A. and North Kent A.S. attended the annual dance. Tonbridge were the runners-up at the inter-club competition held by Medway A.S. and at the Medway A.S. Open Show the club came second out of 15 competing societies.

... **NEW FOREST A.S.** member Mr D. Harding has been putting in sterling work for the club recently. At one meeting members were entertained with a quiz which he had prepared, and then he gave an informative talk on Show Rules. Table show results have been: A.V. cichlids: 1 and 2, Mr D. Lane; 3, Mr B. Higginson; a.v. danio: 1, 2, and 3, Mr B. Higginson; a.o.v. tropical: 1 and 3, Mr Moseley; 2, Mr A. Williamson; w.c.m. minnows and rasbora: 1, Mr B. Higginson; 2, Mr D. Lane; 3, Mr A. Williamson.

... **LEAMINGTON & D. A.S.** now have 63 paid-up members, and club meetings have been very well attended. Mr R. Fox entertained members with a talk on how to set up a tank, with slides of various set-ups; Mr Upton of Northampton gave an informative talk on keeping

and setting up marines. Recent table shows attracted entries numbering 30 and 52, with the following results: Pairs egg-layers: 1 and 3, Mr F. Underwood (73 and 70 points); 2, Mr B. Chintenden (72). Pairs livebearers: 1, Mrs S. Bird (74 points and best in show); 2, Mr P. Bird (71); 3, Mrs S. Underwood (70). Catfish and loaches: 1, Mr D. Beard (76); 2, Mr F. Underwood (75); 3, Mr M. Gunthorpe (74). A.V. (ladies only): 1, Mrs B. Bird (81 points and best in show); 2 and 3, Mrs S. Underwood (71, 71).

... **MEMBERS of BRADFORD & D. A.S.** enjoyed hearing Mr H. Foden answering their questions at the main meeting. Mr Foden's knowledge has been acquired over many years and he is always a great help to his listeners. Another very knowledgeable lecture, on livebearers, was given by Mr C. R. Wilson.

... **ALTHOUGH** the 27 entries benched by members of **MERSEYSIDE A.S.** won 8 cards (with Mr K. Parkes' myxolossoma taking best in the show) at the annual A.M.D.A.S. show held at the Werneth Park Study Centre, Oldham, the League Championship Cup, held by the Society for the last three years, was won by Belle Vue A.S.

... **OVER** 100 members watched the 'Grand Easter Draw' organised by **BEDWORTH A. & P.S.** The first prize of £30 went to Miss D. Simons, a member of Loughborough A.S. The table show for the evening was the M.A.L. eliminator, 69 fish being benched. Results were: a.v. livebearer: 1, Mr and Mrs Balcombe; 2, Mr and Mrs Hardy; 3, Mr and Mrs Simpson. Catfish and loaches: 1, Mr and Mrs Balcombe; 2 and 3, Mr R. Tedds. Pairs egg-layers: 1 and 2, Messrs Edkins and Pagett; 3, Master Colin Pratt.

... **A BUSY** start to the season is reported by **HIGH WYCOMBE A.S.** Some excellent talks include a very interesting slide lecture on coldwater fish, given by F.B.A.S. chairman Mr R. Esson; Mr R. Skipper gave a talk on all the aspects of breeding and keeping discus; and Mr F. Tompkins discussed water conditions and fish breeding. Recent contact with other societies includes a 12-a-side match with Uxbridge A.S., resulting in a narrow win for High Wycombe, a visit to the Runnymede A.S. first Open Show, when members won 16 awards, and a visit to Basingstoke A.S., to meet friends in the other Three Counties Clubs for the first six-a-side league of the year, the home team narrowly

beating High Wycombe into second place.

... **ONCE** again social secretary of **HOUNSLOW & D. A.S.**, Mr Bob Nelham, has earned the praise of club members for his hard work. The club's annual Spring Dance was a great success, attended by 140 members and guests. Table shows are also well supported, with 45 entries benched at the last meeting. Results for *Corydoras* and *Brochis* were: 1, Mr S. Parrish; 2 and 3, Mr W. Dew. A.O.S. 1, Mr C. Walker; 2 and 3, Mr L. Matthews.

... **WITH** the resignation of the show secretary of **CARSHALTON D. & A.S.** secretary Mr C. Lamb is filling the post temporarily. Any communications for the show secretary should now be addressed to Mr Lamb at 8 Reading Road, Sutton, Surrey

.. **MEMBERS of STONE A.S.** receiving annual awards were: The Brindley Cup, Mr A. Smith; 2 and 3 (plaques), Mr I. Brough, Mr J. Leese. Champion of champions, Mr J. Tucker; breeders shield, Mr G. Bould. Novices trophy, Mr K. Evans. Livebearers trophy, Mr A. Smith.

Dates for Your Diary

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

5th July, **GOSPORT & D. A.S.** 65th Open Show. Change of venue! Crofton Community Centre, Stubbington, Hants. Schedules: Mr K. Clough, 16 Newport Road, Gosport, Hants.

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

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

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

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

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

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

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

26th August, **BLACKPOOL & FYLDE** A.S. Open Show, Balix Parade Annex (Old Grammar School), Church St., Blackpool. Sovereign programmes, Mr G. Hayward, 25 Stamford Avenue, Blackpool (phone 42576) from mid-June.

27th August, **IRISH FEDERATION OF AQUARIST SOCIETIES**, Open Show 'Aqua 71', The Wellington Hall, Belfast. Show manager, Mr W. McAuley, 43 Beeview Avenue, Belfast 14.

27th August, **WALTHAMSTOW & D.** A.S. Open Show, Lloyd Park Pavilion, Forest Road, London, E.17. Schedules: Mr R. Basham, 132 Walter Sattile Tower, London, E.17 8LL.

28th August, **STROUD & D. A.S.** Open Show, Mid-Gloucestershire Technical College, Stratford Road, Stroud, Glos. Show secretary, Mr M. S. Jones, 46 Hillcrest Road, Casha Green, Stroud, Glos.

29th-14th August, **PORTSMOUTH A.S.** Open Show. Schedules: Mr K. Johnson, 7A Hilley Road, Pooks Grove Portsmouth, Hants.

14th August, **HARLOW A.S.** Open Show, Moot Hall, The Stow, Harlow, Essex. Bending: Friday, 13th August. Schedules: Mr P. Murdoch, 21 Brooklands Field, Harlow, Essex.

15th August, **OLDHAM & D. A.S.** Open Show, Werneth Park, Oldham. Schedules: Mr E. Blackwood, 20 Inverness Avenue, Blackley, Manchester 9.

19th August, **NORTH STAFFS. A.S.** 3rd Open Show, Meir Community Centre, M.A.S. Hales. Schedules: Mr K. Birch, 78 Courtyard Drive, Stoke-on-Trent, ST1 6DU.

15th August, **FALKIRK & D. A.S.** Open Show, Falkirk Ice Rink. Schedules: Mr W. Reid, 41 Herhill Road, Rosebank, Kirkcaldy, Glasgow.

18th-22nd August, **MIDLAND OPEN SHOW (M.A.P.S.)**, Ringier Hall, Broad Street, Birmingham 1. Schedules: Mr J. Fellows, 18 Wordsworth Avenue, Headless Cross, Redditch.

21st August, **RIVERSIDE A.S.** Open Show, St Ethelred's Church, Fulham Palace Road, London, S.W.6. Enquiries to Mr M. Goss, 3 Boushers Court, Park Place, Plantation Rd, Amersham, Bucks.

22nd August, **BEDWORTH A. & P.S.** 3rd Open Show, Nicholas Chamberlain School, Ballington Road, Bedworth. Schedules: Mr K. Edkins, 72 Lister Street, Amlerborough, Nuneaton.

28th August, **ANSON A.S.** Open Show, St Andrew's Hall, Willenden, London N.W.10. Schedules from Mr D. Thomas, 15 Cornwall Gardens, London, N.W.10.

4th September, **F.B.A.S.** Assembly, Conway Hall, Red Lion Square, London, W.C.1. 2.30 p.m.

4th September, **YATE & D. A.S.** Open Show. Details awaited.

4th September, **BETHNAL GREEN A.S.** Open Show, Bethnal Green Institute, 229 Bethnal Green Road, London, E.1. Schedules: Mr S. G. Cowell, 26 Danton Road, Leyton, London, E16 7AF.

4th September, **RHONDDA A.S.** 3rd Open Show, Rhondda Transport Club, Park, S. Wales. Details: Mr M. Williams, 123 Top Trebanog, Trebanog, Rhondda, Glam.

4th-21st September, **MED-HERTS A.S.** International Open Show. Major trophies for all classes. Schedules: Mr C. S. A. Walters, 13 Charnmouth Road, St Albans, Herts. (phone 58246).

5th September, **LUCAS A. & P.S.** 1st Open Show, Joseph Lucas Ltd, Shalt Moor Lane, Birmingham. Schedules from Mr G. Roberts, 30 Charles Road, Solihull, Warks.

5th September, **WEYMOUTH & D. A.S.** Open Show, The Small Sidney Hall, Weymouth, Dorset. Details: Mr T. Hamon, 23 Brownlow Street, Weymouth.

5th September, **HUDDERSFIELD T.F.S.** Open Show, The Town Hall, Huddersfield.

10th-11th September, **Bristol A.S.** Open Show, St. Michael's Hall, Bishopston. Details: Mr S. Lloyd, 4, Curlew Close, Frenchay Park, Bristol 5. Phone 656331.

London's Annual
Exhibition of Fishkeeping
**The AQUARIUM
SHOW '71**

Friday 29th October
to Sunday 31st October

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

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

12th September, **HARWICH & D. A.S.** annual Exhibition of Tropical Fishes. The Queens Hotel, Dovercourt, Essex, 10.00 a.m. - 4.00 p.m. Secretary: Mr M. Bird, 3 Macdonough Cottages, Station Road, Harwich, Essex.

12th September, **BARNSELY T.F.S.** Open Show, Marglowell & Sainscross Village Hall, Sainscross, Barnsley.

12th September, **BRITISH KILL-FISH ASSOCIATION (COLLINGHAM GROUP)** 3rd Open Show, Collingham Memorial Hall, 22 Wetherby, Yorks. Details: Mr Crowther, 2 Beechwood, Church Street, Woodlesford, Leeds.

12th September, **BRIGHTON & SOUTHERN A.S.** 8th Open Show, The Marston Centre, Marston Road, Hove, Sussex. Details: Mr R. Browning, 34 Roman Close, Portlade, Sussex.

12th September, **WARRINGTON A.S.** 3rd Open Show. Details: Mr J. Higham, 42 Hood Lane, Gt Sankey, Warrington; phone 25929.

18th September, **HOUSLOW & D. A.S.** Open Show, The Youth Centre, Ceol Road, Houslow (change of date).

18th September, **HAVANT & D. A.S.** 1st Open Show, Deverall Hall, London Rd., Parbrook, Hants. Details: Mr V. B. Hunt, 22 London Road, Widley, 12 Portsmouth.

19th September, **STONE A.S.** Open Show, Walton Community Centre, Stone, Staffs. Schedules from Mr N. W. Plant, 28 High Street, Stone, Staffs.

19th September, **CLEVELAND A.S.** 4th Open Show, British Legion Hall, West Gate, Gosbergh, Yorks. Schedules: Mr Todd, 24 Prentiss Avenue, Kettletham Estate, Redcar, Teesside.

20th September, **FOUR STAR A.S.** 3rd Open Show. Details awaited.

25th September, **G.S.G.B.** Convention, Farrington House, Stonecot Hill, Surrey, Surrey.

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

26th September, **WEST CUMBERLAND A.C.** Open Show, New Civic Hall, Whitehaven.

26th September, **HUCKNALL & BULWELL A.S.** Open Show, Bulwell Youth Club, Coventry Road, Bulwell, Notts. Schedules: Mr E. Smith, 111 Longwood Drive, Daybrook, Nottingham.

26th September, **TORRAY A.S.** Open Show, Torquay Town Hall, Devon.

26th September, **REIGATE & REDHILL A.S.** Open Show. Schedules from Mr J. Wood, 22 Rickman Hill, Coulsdon, Surrey.

26th September, **MIDLAND ASSOCIATION OF AQUARISTS SOCIETIES** Convention at Dudley Zoo.

28th October, **EAST LONDON A. & P.A.** 19th Open Breeders Show. Judges: Mr C. A. T. Brown, Mr B. Baker, Mr J. Tomkins. Schedules: Mr F. Vickens, 23 Irons Way, Romford, Essex; phone 62523.

28th October, **EALING & D. A.S.** Open Show, Northfields Community Centre, Northcroft Road, Ealing, W.11. Details: Mr R. Sellers, 2A Lady Margaret Road, Southall, Middlesex.

28th-29th October, **BRITISH AQUARIST FESTIVAL** at Belle Vue, Manchester.

26th October, **KINGSTON & D. A.S.** Open Show, Territorial Army Centre, Farrington House, Stonecot Hill, Surrey, Surrey. Schedules: Mr G. E. Greenhall, 39 Garth Close, Morden, Surrey.

17th October, **SHERWOOD A.S.** Open Show. Details awaited.

23rd October, **CATFORD A.S.** Open Show. Schedules from Mr J. D. Wilson, 130 Foston Crescent, Lee, London, S.E.12; 01-857 4813.

28th-31st October, **THE AQUARIUM SHOW '71**, Royal Horticultural Society Old Hall, Vincent Square, London S.W.1.

31st October, **HALIFAX A.S.** 16th Open Show, Standeven House, Broomfield Avenue, Halifax. Details: Mr J. Grundy, 19 Tower Gardens, Wakefield Gate, Halifax.

6th November, **G.S.G.B.** Quarterly Meeting, Conway Hall, Red Lion Square, Holborn, London.

7th November, **MIXENDEN T.F.S.** Open Show, Mixenden Community Centre, Clough Lane, Mixenden, Halifax. Details: Mr S. Leedham, 74 Clough Lane, Mixenden.

14th November, **HORSFORTH A.S.** 3rd Open Show. Details to follow.

11st November, **CASTLEFORD & D. A.S.** Open Show, Castled Secondary Boys School, Castleford, Yorks. Details: Mr Eyre, 41 Leatham Crescent, Parnon, Featherstone, Yorks.

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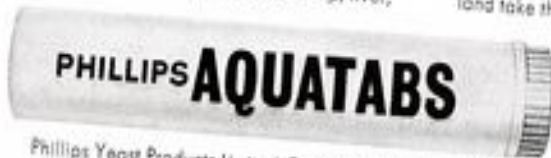
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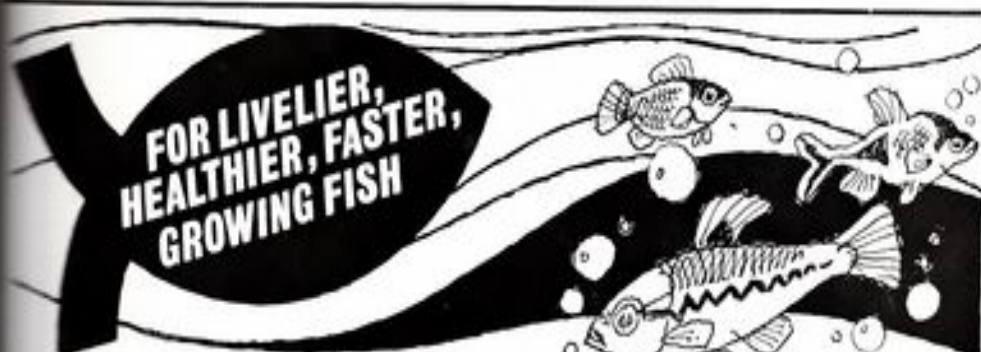
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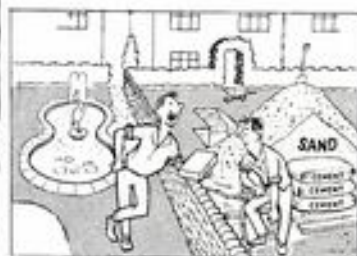
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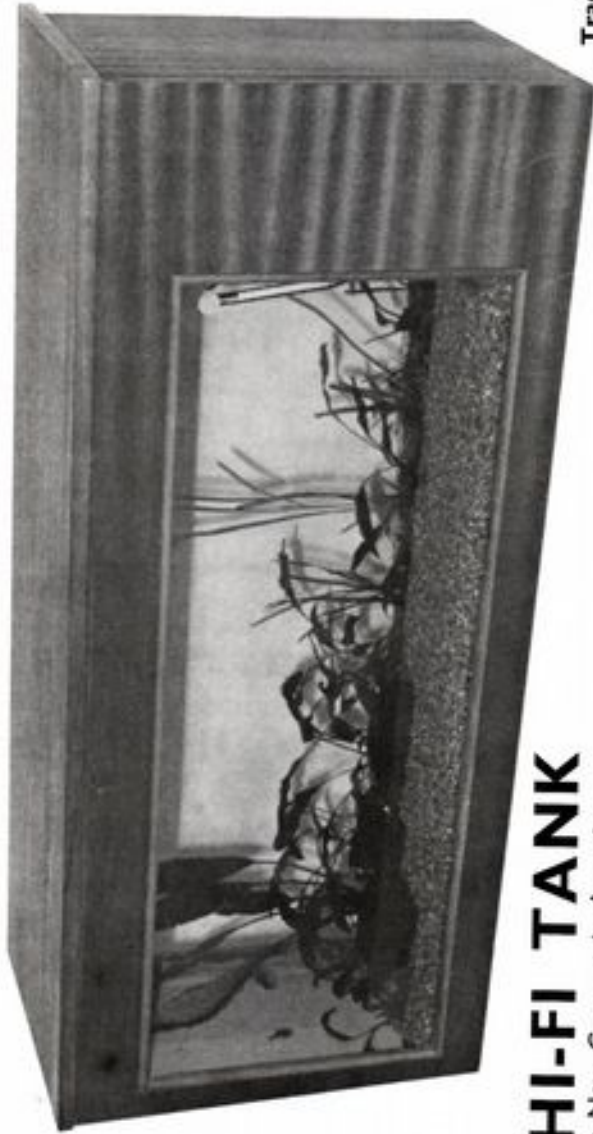
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