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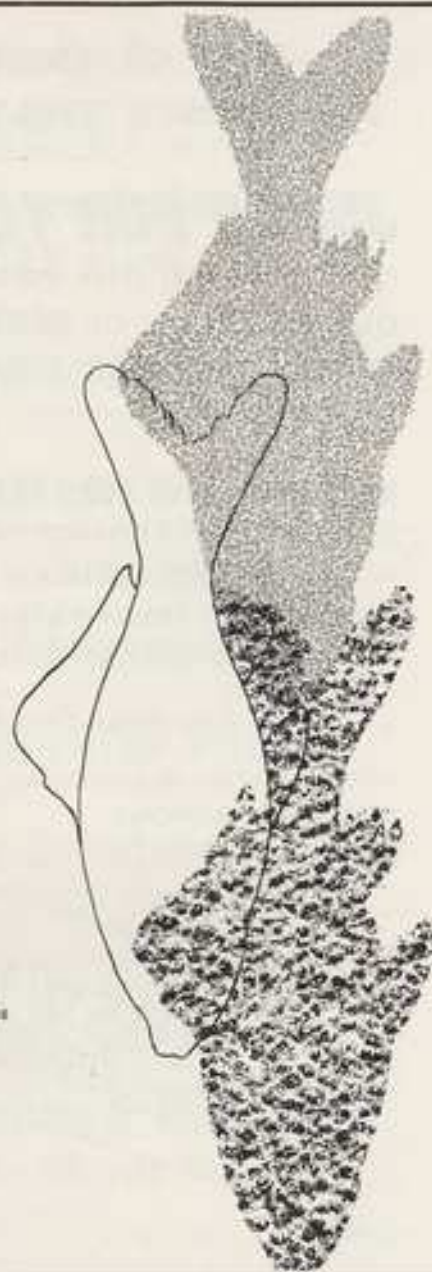
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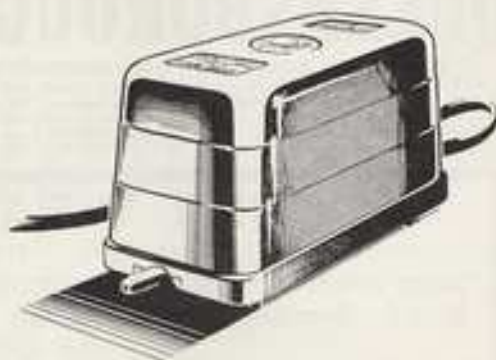
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#### Contents

What is your opinion?	27
Going marine—Part 4—Coral fishes	28
Our readers write	34
The Junior Aquarist—Freshwater shrimp	36
Competition results	36
Lampreys	38
The Lionhead	40
The Minnow	41
Readers' queries answered	42
Rearing young Caymans	46
Book Review	47
Showbench	48
Cryptocorynes	49
Best fish in the show—details	50
Manna grass	50
News from Aquarists' Societies	51

## What is your opinion?

by B. Whiteside

**M**ANY aquarium keepers are, like myself, keen to receive their monthly copy of "The Aquarist" and to glean from it the information and experiences of a variety of writers. One feature which I find interesting is the column in which experts answer readers' queries. To me, an even more interesting feature is the readers' letters section in which can be found many and varied comments and views on previous articles and on other subjects of interest to aquarists.

I'm sure many other readers enjoy these letters by readers who are keen enough to take the trouble to express their views on paper. After all, it only takes a little time and a 4d. stamp, to write and post a letter.

What about a new feature, on organised lines, whereby I pose several questions of general interest each month and invite you, the reader, to give your own personal answer or comments? In such a feature you would be free to give your own answers for which you would be given credit, although the editor would reserve the right to shorten letters used, if necessary. I

would also like to be allowed to pass a few comments on the answers received to my questions.

Such a series could, I'm sure, with the co-operation of yourself, provide a wide and varied collection of information on specific subjects and permit other readers to share the specific successes or failures which you yourself have had. In this we would have a wide selection of information from a large number of aquarists, instead of the opinion of just one writer, which the usual type of article provides. There must be many aquarists who have gained, from personal experience, information which would be of great use to other aquarists.

The first question which I would like to pose concerns the use of loam, clay or peat, or mixtures of these used as growing media for plants, beneath the gravel in community aquaria. What has been your experience in their use? Having just set up four tanks with under gravel loam and peat, I await with interest my findings and would be pleased to hear of the experiences

Continued on page 45

## Going marine – Part 4 Coral fishes

by T. Ravensdale

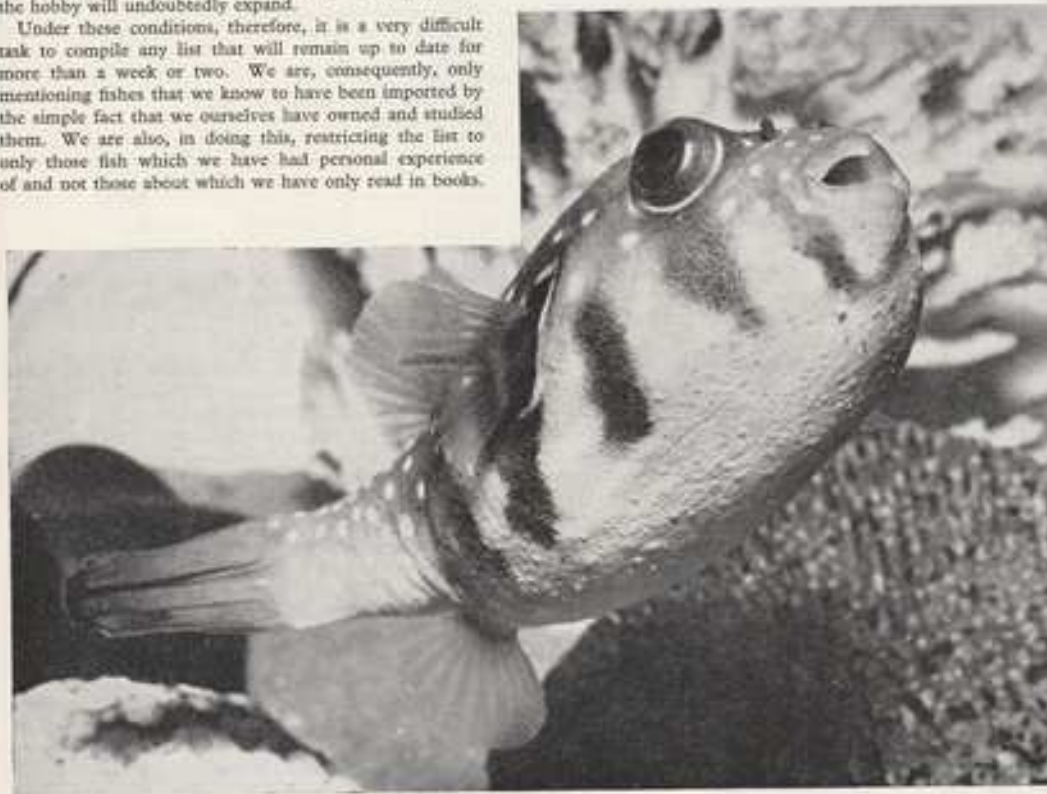
**T**HE many different specimens available in shops throughout the country change daily. New fish are to be seen every week. Many of these are either unidentified or incorrectly named and it is almost impossible for the dealer to know exactly what fishes will arrive after placing an order abroad. Of the twenty or so he may have picked from an export list, only two or three may actually arrive—along with others not even ordered. Up to 90 per cent of an order may arrive dead. The dealer, therefore, takes what he can get and consequently marine fishes are both scarce and expensive and, until the hobby gets a tighter hold (this isn't the first time we have seen a marine craze), this unfortunate situation will exist. However, now that more shops are "pioneering" and taking a chance on "Going Marine" the hobby will undoubtedly expand.

Under these conditions, therefore, it is a very difficult task to compile any list that will remain up to date for more than a week or two. We are, consequently, only mentioning fishes that we know to have been imported by the simple fact that we ourselves have owned and studied them. We are also, in doing this, restricting the list to only those fish which we have had personal experience of and not those about which we have only read in books.

### **Puffers (Canthigasteridae and Tetradontidae)**

These fishes are very often variable in their salt content requirements, quite often allowing themselves to be kept in fresh water altogether. But here again, the colours suffer and condition seems poor without salt. They can, however, grow to a considerable size and often exceed 12 inches in length.

The puffer is scaleless and able to inflate itself to a considerable extent—often quite noisily. They require plenty of space for reasons other than growth rate for they consume vast quantities of oxygen. Puffers are also inclined to be greedy and, with their sharp teeth, can inflict nasty wounds. Like the Clown fish, they are poor swimmers and, as nature has endowed them with other



Bottom left—Puffer fish

Sea horse (*Hippocampus* species)



forms of defence, these should be considered before installation into a community aquarium.

#### Sea Horses (Syngathidae)

Sea horses and Pipe fish (the latter can be kept in fresh-water) are unusual inasmuch as they have an external skeleton and rather unusual breeding habits. The female sports an ovipositor which, at breeding time, she inserts into the brood pouch of the male and deposits her eggs. The male carries these eggs until they hatch—usually about two weeks. Sea horses, although harmless to larger fish, should not be kept in the community aquarium for they are poor swimmers and seldom get any food. They will only accept living food such as brine shrimp or fry, but do make sure that the brine shrimp has been fed before using it. They must also be provided with somewhere to "park" such as branch coral, around which they entwine their tails.

#### Clown fishes (Pomacentridae)

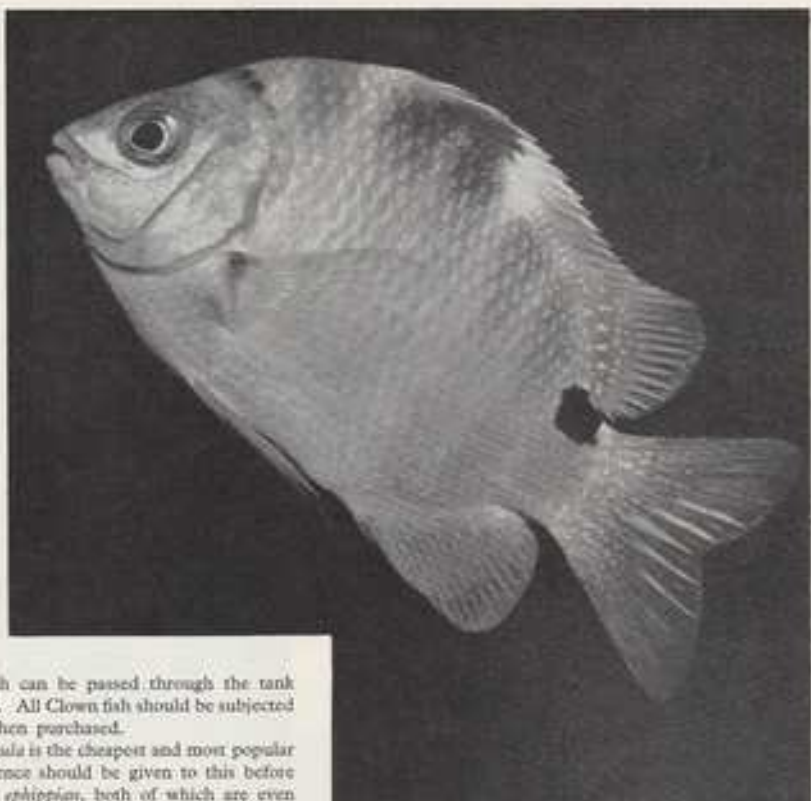
Clown fishes are probably the first choice of new marine fanciers. They are startlingly coloured and look rather as if they have toothache with a bandage round their heads. These fish look almost painted and certainly catch the eye. They are often associated with the anemone. They are not very good swimmers and seem to think they are still in company with an anemone even when not, for they display a peculiar waving motion at all times. They prefer a dark corner to which they can rush when frightened and will surprisingly chase away intruders with a nip. They are not the easiest of marines to keep and are especially prone to catching the disease Oodinium. My personal belief is that the anemone feeds on the skin of stricken clown fishes and consequently keeps it free

from disease, but much research is needed here, for the anemone does not restrict its "cleaning activities" to the clown alone.

Clown fishes will often refuse food for a long time after arrival but, after the first meal has been taken, will accept most foods greedily.

The Clown fish is also one of the few fishes from the tropical sea to have been spawned in captivity but, as yet, no successes have been reported in the growth of fry.

I do not personally feel the Clown to be the best of marines to begin with for it can be very timid and often



Sergeant major fish  
(*Abudefduf sordidus*)

carries a disease which can be passed through the tank with lightning rapidity. All Clown fish should be subjected to strict quarantine when purchased.

The *Amphiprion percula* is the cheapest and most popular Clown fish and preference should be given to this before either *A. nckx* or *A. ephippium*, both of which are even more delicate. The *A. percula* can grow to lengths exceeding eight inches. The *A. bicinctus* is probably the rarest of Clown fish and is often mistaken for the Tomato clown.

#### Damsels (Pomacentridae)

These are very tough little fish obtainable from both the Atlantic or Pacific and can stand a considerable variation of conditions. They are, however, usually aggressive and can cause considerable damage in a community tank. Consequently they must be furnished with hiding places and "territories" which tend to reduce their squabbling.

The Sergeant Major (*Abudefduf saxatilis*) from America is a very good choice for a first fish. He is peaceful, rarely grows larger than six inches in the wilds and eats anything from the weed go. He will soon teach other less bold fish how to eat, for wild fish are naturally greedy (they aren't to know where their next meal will come from) and find it difficult to ignore the Sergeant's mad rush for food at meal times.

The *Dascyllus aruanus* is another small fish (usually growing to about three inches only), but what is lacking

in size can often be compensated for by ferocity. It is quite similar to the *D. malinurus* except that the black dorsal is broken by the continuance of the white body band. Another good feeder—but one to watch.

The Dominoe (*D. trimaculatus*) is a very tough and desirable fish. A good feeder but inclined to be a bully where smaller fish are concerned. The white spots on his body contrast greatly with his photographic black texture. He is often the last to succumb to a contagious disease and can put up with wide variations in water conditions. He is one of the larger Damsels and can grow over six inches in length. Dominoes are easily obtainable and quite cheap to buy.

#### File fishes (Monacanthidae)

These fish are quite similar to the triggers except that they lack the folding mechanism. Their name "File" does not refer to the spike on their backs, but to the abrasive qualities of their skin. They are completely scaleless



and have a hide which is often used by natives for polishing and filing—rather like the tough skin of a shark. They are, however, rather difficult to feed if kept in a "hospital clean" aquarium for they prefer digging around in murky corners and are almost completely herbivorous. Their food, like surgeons, must be great in greenery content. They consume such vast quantities of algae that they soon litter the bottom of the aquarium with droppings often high in algae content that has not even been digested. In general, not a clean-tank fish.

#### Butterflies and Angels (Chaetodontidae)

There are probably more of these fish imported than any other and this is obviously due to their beautiful colours and vivid individuality. They are, however, rather timid and are sometimes too difficult to feed at first. The Atlantic Angels suffer the further detriment of being quite capable of inflicting frightful wounds upon each other with rather vicious spikes with which nature has endowed their gill plates. The Atlantic Angels have somewhat larger, more flexible fins than Pacific specimens.

When purchasing Angels don't be tempted into a "pair", for two of equal size may well destroy each other. Most butterflies require live foods to begin with and

sometimes even insist upon it throughout their lives. Some of the more delicate fish such as the *Chelmon rostratus* will always refuse anything but live food. This particular fish with its extremely long nose indicates its normal feeding habits quite plainly anatomically. It is a "coral picker" and lives naturally on minute animals; its nose allows access in the deep crevices of its coral home.

Most butterflies have small mouths and rather less extravagant noses than the *Chelmon* but they are, nevertheless, specialist feeders and should therefore be regarded with thought before purchase.



Angler fish with lure at the ready

#### **Batfish (Platacidae)**

The most common Batfish imported is the *Platax orbicularis* and this fish can become as tame as any pet. He will accept almost any food and soon learns to take it from the hand. The objection to this very friendly and strong fish is its size. Specimens with a two-foot span are not unknown and, in consequence, a very large aquarium is advised.

#### **Frogfish (Antennariidae)**

These must surely be the weirdest creatures on earth, relying solely upon their ugliness to camouflage themselves in the great masses of floating weed in which they live. They are lazy creatures and prefer to lie in wait for food. The Anglerfishes actually sport built-in fishing rods complete with wriggling bait to entice the unfortunate prey into their enormous mouths. They are unsafe in the community aquarium and seem unhappy without the great masses of weed they are used to. They can be kept for a while by the enthusiast, relying solely upon live food for sustenance—the size of which does not seem to matter. Two equal sized *Sargassum* will inevitably become one overnight, so elastic are their stomachs. Not a recommended fish for the beginner, and one demanding great care and attention by the expert.

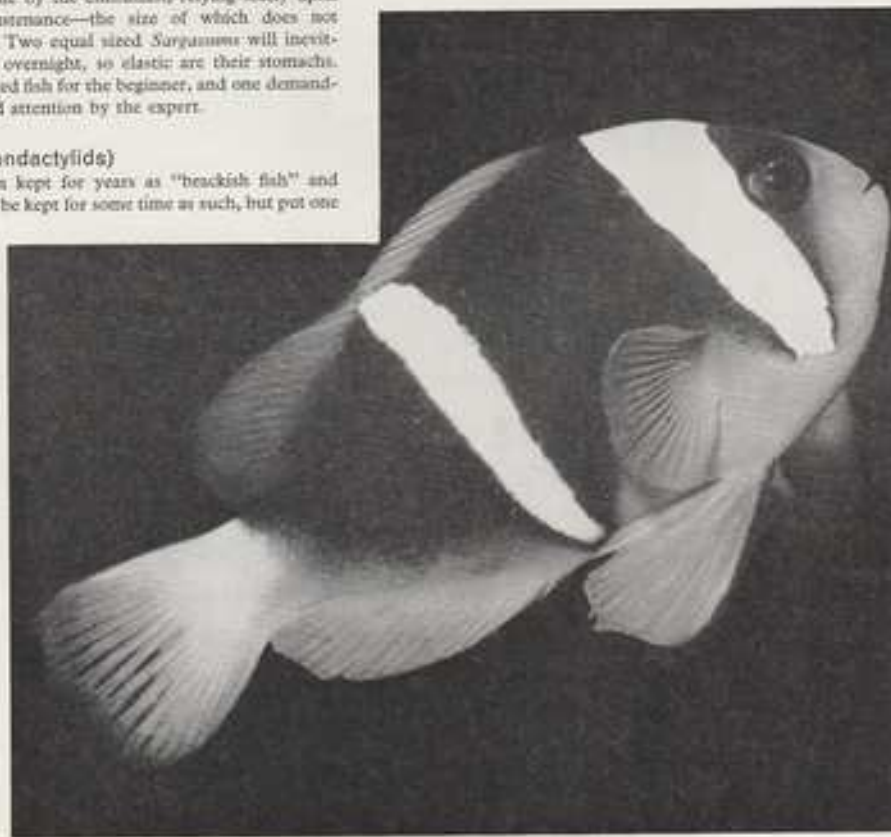
#### **Monos (Monodactylids)**

Monos have been kept for years as "brackish fish" and one can certainly be kept for some time as such, but put one

into a pure marine aquarium and see the difference. As with any silver coloured fish, plus the fact that it is small scaled, he flashes around the tank like a piece of mobile tin-foil. As his appetite is surpassed by none he grows prodigiously and his hardiness is much greater in marine water. Needless to say, any water changes must be made slowly.

#### **Moorish Idols (Zanclidae)**

Here is the undoubted Queen of the coral reef, the most graceful fish in the world and, unfortunately, one of the most difficult to keep. With her pursed lips, as though waiting for a kiss, and immense dorsal fin combined with startling colours, the Moorish Idol has been a prize attempted by many, but without much success. There seems little point wasting space here with our own experiences for we have been unable to keep one alive ourselves for longer than a month, so we suggest you leave this fish to the experts (or the rich) and console yourselves



*Amphiprion  
xanthurus*



*Scatophagus argus*

with a *Hemichatus acuminatus* which is a similar fish but much harder.

#### Scats (Scatophagidae)

Here is another "brackish" fish which is more often than not kept in fresh water—usually for not a long time. The Scat is undoubtedly happier in salt water. It will grow up to twelve inches in size and may become very tame, usually managing to get to the food first. More than one Scat in the same tank can prove troublesome for they can be aggressive towards each other. For this reason small timid fish should not be kept in a Scat tank for they will seldom see much food.

There are several varieties of Scat, the most common import being the *Scatophagus argus* (100-eyed-mackerel) which comes from the East Indies. Finally, Scats must be given a regular supply of green food such as string algae or lettuce.

#### Scorpions (Scorpaenidae)

There are several specimens imported into England at the moment, the most well known being the *Pterois volitans*. This weird and beautiful fish is a firm favourite of mine. It is tough, hardy, peaceful and is a pleasure to watch. The Scorpion is not a vicious fish—stinging all and sundry—and only uses his extremely dangerous

poisonous spines as a means of defence when attacked. The Scorpion is, in fact, an ideal community fish and often the last to catch diseases. He does, however, require a regular supply of live fish as food, and is always hungry. Being a predator he will engulf with remarkable speed any small enough to be considered food so he should not be kept with small fishes. Although some Scorpions can exceed 18 inches in length they are not very active and prefer to skulk, sometimes upside-down, in full view of the watcher. They can, because of their laziness, accept smaller living space than other similar-sized fish. A very desirable fish and one I would thoroughly recommend as a "flea fish"—provided you can keep up with his food requirements.

#### Squirrels (Holocentridae)

These are easily recognisable fish, being usually all red in colour. Their eyes are large enough to indicate an

Continued on page 45

## our readers



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

write

Address letters to The Editor, *The Aquarist*,  
The Butts, Half Acre, Brentford, Middlesex

### Saltwater Guppies

**T**HINKING that baby guppies would make better food for tropical marines if they would live in salt-water I decided to try and acclimatise them. Many guppies and much time later I now have a breeding population of saltwater guppies.

I would be interested to know if anyone else has had success in this field!

Yours faithfully,

G. W. BEARD,  
"Bryn Awelon", Sychuan Past Road,  
Conway, Caerns, North Wales.

### "Ware this Misnomer"

**I** NOTICE in your advertisements that *Rivulus achilles* is being offered for sale. May I warn purchasers that this is NOT the correct name for this fish.

For the past year I have been endeavouring, by sending preserved specimens, to obtain the scientific name of this species. I have been informed that the solution to this "Problem" fish is now nearer, and would ask aquarists to refer to this fish as *Rivulus* species meantime.

When the correct name is sent on to me I will let aquarists know through this column.

E. J. SYMOUR,  
Technical Editor B.K.A.,  
26, Liff Road, Lochee,  
Dundee, Scotland.

### Closing Remarks on pH

**A**T some stage the Editor of a magazine must close a correspondence which has occupied more than its share of his valuable space, a point that highlights the fact that a few minutes conversation would clear up matters which could occupy months in "Our Readers Write"—but I hope I may be allowed gently to contradict Mr. Stephen Byles (*Aquarist*, April).

My letter (in January) did not, I am sure, contradict the meaning of pH as expounded by Mr. Mackinnon's "pH Explained" (in October). On re-reading all the letters concerned, I still feel that it was apparent that I

wanted to disagree with the *derivation* of the letters themselves—that is, I did not consider we were correct in providing the "p" with an English derivation and went on to give my grounds for this comment.

As to whether older aquarists, at least, understand the meaning of pH, we must remember that argument on this subject crops up every few years, either in discussion or in print, and from this it might be deduced that on each occasion all explanations are forgotten and that fresh "generations" of aquarists need to go into the matter yet again. One such attempt at a non-technical explanation appeared in the pages of *The Aquarist* some 10-15 years ago, in the form of an article (with *faux pas*) under the names of my colleague Chris Pratt and myself. If memory serves, we aimed at providing an explanation without resort to mathematical expressions which are practically incomprehensible to a very large number of people. Like all other attempts, the idea and intention was good. Yet on reflection one might doubt whether any purpose is served by knowledge beyond the "fact" that pH numbers are a measure of acidity and alkalinity—and please don't squabble with that last remark, which is based upon the following thought:

I do not own a television (or radio, indeed) but if I did I would have no desire to understand what those tubes and wires might do—I would wish only to press the button. With patience I might be taught what to do if the picture got too dark—can we not leave pH somewhat in the same condition?

Yours sincerely,

H. J. VOSEY,  
London, S.W.16.

*Ed: As this correspondent points out, there comes a time when a halt must be called to protracted discussion on one topic, and that point has now been reached.*

### Aquarium and Room Decor

**A**LTHOUGH inside the aquarium receives full coverage through the medium of your columns, it would be very interesting to learn how readers of the *Aquarist* integrate aquaria into their home environment and, in

particular, how they manage to camouflage the various ancillary items of equipment which are essential for smooth running.

A brass tank on an angle-iron frame with pump, food, dip tube, etc., concealed behind a curtain on an adjacent window-sill can hardly be considered to enhance the aesthetic appeal of a home, however top-grade the fishes.

Again, many of the stand and aquarium units at present on sale are functionally designed with little regard for appearance. A little wrought-iron work with a frosted glass book-shelf conveniently placed so that any books are sure of a splash or two during periodic cleaning seems to be the designer's idea of every aquarist's dream.

I am sure many of your readers have overcome these problems and if any of them combine the hobby of photography with that of fishkeeping, it would be helpful and stimulating if we could see illustrations of their handwork in the *Aquarist*.

Congratulations on the excellent new cover.

Yours faithfully,

K. HILLYER,

Gerrards Cross, Bucks.

#### Information Wanted

THIS year our Society, the Marine Study Aquatic Society of Great Britain, intends to run a series of coastal surveys to determine the population densities of the commoner species of littoral marine fauna.

To enable us to undertake such an operation, we require supplies of information from the areas to be covered. The majority of our work will be concerned with the south and south-eastern shorelines of the U.K., from a line stretching between Weymouth and Ipswich.

This letter, therefore, is more of an appeal to all aquarists' societies or individuals who may be able to help.

Could they send details of local tide tables and other information concerning the above area, to our Public Relations Officer, Mr. T. Ravensdale, 1 Harefield Road, Brockley, S.E.4, marking the envelope M.S.A.S. Native Marine Surveys?

Our outings, besides being constructive (we hope) also present the opportunity for aquarists to meet one another, whilst enjoying a day by the sea.

Yours faithfully,

Gerald Jennings,

Marine Study Aquatic Society,  
of Great Britain.

#### An opinion about opinions

I HAVE always looked forward to reading each new article submitted to your magazine by Mr. Arthur Boarder. His style of writing, explicit and yet in simple terms, must appeal equally to beginner and expert. I often disagree with certain statements he makes, but I am not vain enough to feel properly qualified to do so in print, since few people can have had as much experience with coldwater fish as Mr. Boarder has had. On many occasions I have been grateful to him for his advice, often appearing "just in the nick of time".

Having found so many reasons to praise so regular and

reliable a contributor, I was very disappointed to find that Mr. Boarder is beginning to use his articles as a "political platform", from which he criticises show judging standards and point allocation systems.

In "Breeding types of goldfish" (November) he says: "I would prefer all fantails to be scaled as I am sure that many shubunkin type fantails are just throwouts from veiltails. A scaled fantail can never be bred as a throwout from any other variety". Not even from a scaled veiltail? He goes on to say: "Most veiltails are shubunkin types and in my opinion the scaled type should never have been acknowledged". "The pearl scales can appear in any type of scaled goldfish and in my opinion should never be classed as a distinct variety".

In "The Veiltail Goldfish" (January) he states: "I do not agree with these standards for the veiltail, as I consider that all exhibition fishes should be calico and not visibly scaled". Later on: "In my opinion the veiltail should always be calico and never scaled. I would like to see the fantail exclusively scaled and not calico as is often seen these days".

In "The Oranda—a fancy goldfish" (March) we are told: "My suggestions for a good pointing system for the oranda are:—Head 20 . . . etc." "It will be noted that I have ignored department as it is well known among knowledgeable aquarists that no fish can have a good department unless it is in good condition". Cannot a fish in perfect condition have poor department? "Another point I would like to stress is that a fault should never be penalised twice. I have known judges to knock off points for a damaged fin and then more for condition". Is there, then, no difference between finnage and condition?

Whilst all three articles are technically accurate and, I think, of benefit to the fancy goldfish keeper, the extracts quoted belong either in a letter to "Our Readers Write", or in an article entitled "What I think of British Show Standards".

Show standards are, after all, only arbitrary things. What a set of standards describe as an ideal fish is not really as important as the fact that the set of standards does exist. If the G.S.G.B. or the F.B.A.S. (or even, for a change, both!) decided that the ideal fantail should have green opercula, then the majority of fanciers would derive as much satisfaction out of breeding and exhibiting ideal fantails as they do now.

As for judging, every enthusiast who exhibits in competitive shows, whether for flowers, fish or pedigree cattle, knows that the judges do try to be impartial. They each have personal preferences, as does Mr. Boarder, but a good judge (They DO exist!) is aware of this, and would never disregard a perfect scaled veiltail placed on his bench because he felt that all veiltails should be calico.

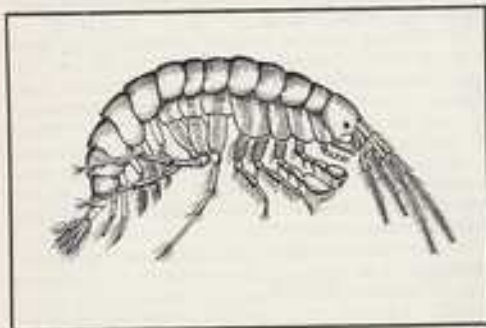
Please, Mr. Boarder, continue to teach us, as you have done, how to select, breed and raise fish which comply with the existing show standards. Don't confuse us with what should or should not be, in your opinion. This would be, in my opinion, wrong!

Yours faithfully,

R. S. HOLMES,

Limassol, Cyprus.





# The Junior Aquarist

The freshwater shrimp *Gammarus pulex*

## Freshwater shrimp

by Bill Simms

**A**LTHOUGH it will be but rarely that an aquarist finds one of these freshwater shrimps accidentally at large in his aquarium, they are nevertheless welcome inmates. The most common kind is *Gammarus pulex*, shown in the drawing. It has so many limbs that in order to avoid confusion I have shown only the limbs on one side of the body.

Usually these shrimps scuttle around on their sides, hiding under stones where possible. They gather around any dead or decaying animal matter to feed, for they are great scavengers.

The female lays her eggs between the two sets of wide plates, or lamellae, along each side below her body. There they are fertilised by the male and stay until they hatch out. There may be anything from thirty to many hundreds, and occasionally a thousand, so it will be realised that these small shrimps can increase very rapidly.

This matter of vast numbers of any one creature has always interested me, and it is an easy piece of research for anyone. The idea is to select a small area, about 1 foot square, that appears to carry an average population, and count all the members of one species found in that area. With the freshwater shrimp, which can move very fast when disturbed, this requires a little thought, but eventually I came up with an idea. Having selected a slowly flowing shallow stream I got to work. I had a square net with an extremely strong rim. It was a foot across the straight edge. This was dug into the gravel and mud at one end of the selected area, and scraped along the bottom for a foot. Then it was lifted until all the rim was above the surface. I had picked up a lot of mud, so I held the net

in a faster-running place until the mud was washed away.

The stones were carefully picked out, making sure that no shrimps adhered to them, and eventually I had a mass of live creatures in the net. Of course there were many other kinds than *gammarus*, but soon they were all sorted.

In the square foot of stream I selected for this test there were 62 shrimps. This seemed a lot, so I did it again in a different place, and came up with 46. An average of 54 to the square foot, 486 to the square yard. Imagine the many thousands—no, millions—that must live along our streams.

Without any doubt the freshwater shrimps form a major part of the food of many fishes, and in this lies a lesson for those of us who keep fairly large fish. I have used them many times, and find that even tropicals such as the larger cichlids and big angels thrive on them. Without any doubt, one of the aquarist's best friends.

## Competition results

### The Aquarist & Pondkeeper (8-10)

**First prize of a £10 voucher to**  
Colin Anderson,  
62 Victoria Park Drive South, Glasgow, W.4.  
10 yrs.  
Scotstoun School.

**Highly Commended (all to receive one year's free subscription to *The Aquarist and Pondkeeper*)**

Dean Austin,  
23, Ravenscroft, Browns Lane, Storrington, Sussex.  
9 yrs. 8 mths.  
Spierbridge Primary School.

Stephen Paul Holmes.  
Star House, Charlton on Otmoor, Oxon.  
9 yrs.  
Charlton on Otmoor School.

Stephen Annelbs.  
42 Alrington Road, Drayton, Nr. Abingdon, Berks.  
8 yrs. 4 mths.  
Drayton County Primary School.

Dennis Jacques.  
The Green, Charlton on Otmoor, Oxon.  
10 yrs.  
Charlton on Otmoor School.

Sarah Montgomery.  
Summer Hill House, Willesborough, Ashford, Kent.  
9 yrs.  
Ashford Girls School.

Annette Dawn Spooner.  
13 Newtown Avenue, North Bersted, Bognor Regis, Sussex.  
8 yrs.  
Laburnham Grove School.

Annabel Spencer.  
43 Ringwood Avenue, London, N.2.  
9 yrs.  
Whittingham School.

Judith Margaret Skuse.  
39 Duchthorpe Lane, Outwood, Wakefield, Yorkshire.  
9 yrs. 10 mths.  
Newton Hill County Primary School.

### The Aquarist & Pondkeeper (11-13)

**First prize of a £12 voucher to**  
Malcolm Boyes.  
44 Penyghent Avenue, Burnholme, York, Yorkshire.  
12 yrs.  
Burnholme Secondary Modern.

**Highly Commended (all to receive one year's free**  
*subscription to The Aquarist and Pondkeeper)*

Glyn Walters.  
22 Cavendish Road, Herne Bay, Kent.  
12 yrs. 2 mths.  
Herne Bay Secondary School.

Clinton Roberts.  
61 Revesby Road, Carshalton, Surrey.  
13 yrs.  
Gaynesford County Secondary School.

Stuart Elliot Shircore.  
12 Seymour Gardens, Hanworth, Feltham, Middlesex.  
12 yrs. 11 mths.  
Lytmer Upper School.

David Evans.  
437 Reading Road, Winnersh, Nr. Wokingham, Berkshire.  
10 yrs. 11 mths.  
Bearwood C.P. School.

Felicity Hincks.  
51 Mulgrave Road, Ealing, London, W.5.  
13 yrs.  
Northfields S.M. Girls School.

David Cowlen.  
2 Warren Gardens, Chelsfield, Orpington, Kent.  
13 yrs.  
Orpington Secondary Boys School.

Jonathan Heston.  
17 Monckton Way, Kingston, Nr. Lewes.  
10 yrs. 2 mths.  
Soultover Primary School.

G. W. Bartley.  
West Hill Park School, Titchfield, Nr. Fareham, Hampshire.  
12 yrs. 6 mths.

Frank I. Stroud.  
122, Coburg Road, London, S.E.3.  
11 yrs.  
Paragon Comprehensive Boys School.

### The Aquarist & Pondkeeper (14-16)

**First prize of a £15 voucher to**  
Malcolm Wilmore.  
12 Brook Lane, Bexley, Kent, England.  
14 yrs.  
St. Mary's Grammar School.

**Highly Commended (all to receive one year's free**  
*subscription to The Aquarist and Pondkeeper)*

Anthony Nicholl.  
6 Westholme Gardens, Ruislip, Middlesex.  
14 yrs. 7 mths.  
Gunnerbury Roman Catholic Grammar School, Acton.

Alan Newman.  
112 Coombe Lane, Croydon, Surrey, CR0 5RF.  
14 yrs.  
Royal Russell School.

Gordon Derek Bell.  
15 Rugby Road, Bulkington, Nr. Nuneaton, Warwickshire.  
14 yrs. 11 mths.  
Nicholas Chamberlaine Comprehensive School.

Philip C. Danks.  
24 Oakways, Bexley Road, Eltham, London, S.E.9.  
14 yrs.  
Shooters Hill Grammar School.

Andrew Arden.  
19 Heathfield Road, Bushey, Hertfordshire.  
15 yrs.  
Deacon's House Felsted School.

S. W. Ettlinger.  
St. Davids, South Terrace, Dorking, Surrey.  
14 yrs. 8 mths.  
Dorking County Grammar School.

Christopher Heald.  
16 Bamacre Avenue, Brightmet, Bolton, Lancs.  
15 yrs. 1 mth.  
Bolton School.

Colin A. Eastman.  
2 Brickfield Road, Thornton Heath, Surrey, CR48DS.  
14 yrs.  
Selhurst Grammar School.

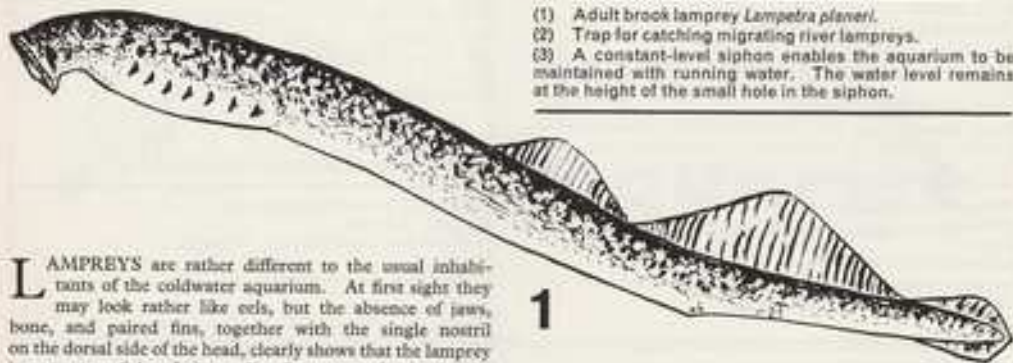
David Wilkinson.  
49 Westfields, St. Albans, Herts.  
15 yrs.  
St. Albans School.

Peter F. Burns.  
3 Copt Elm Close, Charlton Kings, Cheltenham, Glos.  
14 yrs.  
Whitelriars School.



# Lampreys

by Dr. M. Sage



- (1) Adult brook lamprey *Lampetra planeri*.
- (2) Trap for catching migrating river lampreys.
- (3) A constant-level siphon enables the aquarium to be maintained with running water. The water level remains at the height of the small hole in the siphon.

LAMPREYS are rather different to the usual inhabitants of the coldwater aquarium. At first sight they may look rather like eels, but the absence of jaws, bone, and paired fins, together with the single nostril on the dorsal side of the head, clearly shows that the lamprey is not a true fish. It is a relic of a group of animals that lived more than three hundred million years ago and from which true fishes may have evolved.

A row of seven gill openings along the side of the body have been mistaken for eyes by people all over the world. This has led to a host of local names such as nine-eyes in England, *neunaugen* in Germany, *negenoog* in Holland, *negesje* in Denmark, *nejonaga* in Sweden, *mitaga* in Russia, and even the Japanese call them *amayatsune*, which means, river eight eyes.

Lampreys were at one time commonly used as food. King Henry II is said to have died of a surfeit of these rather indigestible creatures, which are still eaten in parts of Europe. They have also been popular with fishermen for bait. Isaac Walton recommended them in his book, "The Compleat Angler". Before the trawl replaced the long-line method of fishing for cod, early this century, the Dutch fishermen used to bait their lines with pieces of lamprey. Each fishing boat carried a small boy whose job it was to bite in the heads of the lampreys, thus paralyzing them and enabling bait to be cut without chasing the slippery animals all over the boat.

The lamprey's life cycle starts with the eggs laid in fresh water. These hatch into larvae called ammocoetes, which burrow into the mud and filter microscopic food from the water. The ammocoete does not have the sucker-like mouth of the adult and its eyes are covered with thick skin without scales. However, cells in the skin are light-sensitive; even the skin of the tail can detect light. After several years the ammocoete metamorphoses into the adult lamprey, a change that is similar to the better known metamorphosis of the tadpole into the frog.

The adult develops a sucker with a rasping tongue armed with horny teeth. The eyes develop and the body colour changes from yellow with brown pigment dorsally to white with black pigment. The adult animals then leave the mud. Depending on the species, the adult may migrate down to the sea. There are three different species

of lamprey found in this country; the brook lamprey (*Lampetra planeri*), which may be about seven inches long, the larger river lamprey (*L. fluviatilis*) and, largest of the three, the sea lamprey (*Petromyzon marinus*), which at three feet or so is too large for most aquaria. The sea and river lampreys migrate down to the sea. There they remain for a number of years, although we do not know exactly how long they live there before returning to spawn in fresh water. They feed by sucking into fish and rasping away the host's flesh and sucking blood. They may also feed on invertebrates. The brook lamprey does not migrate to the sea, though it may move somewhat down stream. This animal probably never feeds after metamorphosis but lasts for the whole of its adult life on food reserves built up as a larva.

The river lamprey, which is the main one used for food, can be caught in rivers as it migrates upstream to breed. This migration starts in November and may last until February. The animals swim mainly at night and they are trapped as they attempt to overcome an obstacle such as a weir. The traps are wire baskets with a conical entrance. These are placed with the mouth facing upstream in the fast water below the weir. Animals which fail to swim over the weir at their first attempt are swept back into the trap where the fast current and narrow opening make it difficult for them to get out.

The ammocoete larvae can be caught by digging out the mud from streams and sifting it on a tray. They can be found in many streams where there are patches of mud provided there is no pollution. If the stream is good enough for trout it may well also contain ammocoete larvae.

I have found these animals easy to keep in aquaria. The larvae will live for years, eventually metamorphosing into adult lampreys. I find that it is best to keep the larvae in mud taken from the area where they were caught; this will provide all the food that they require for a long time but it is probably best to renew the mud every year.

Running water is beneficial and it can be maintained in the aquarium with the aid of a constant-level siphon. Small fish can also be kept in the aquarium although it is best to avoid species that stir up the mud. An aquarium cover is essential for the adults which will otherwise put their ability to climb weirs to use and escape.

The ammocoete larvae of the different species of lamprey are rather difficult to tell apart. However, all can be kept in the aquarium. The brook lamprey is the most suitable of the adults for the aquarist. The following account of reproduction in lampreys is based on my observations of this species.

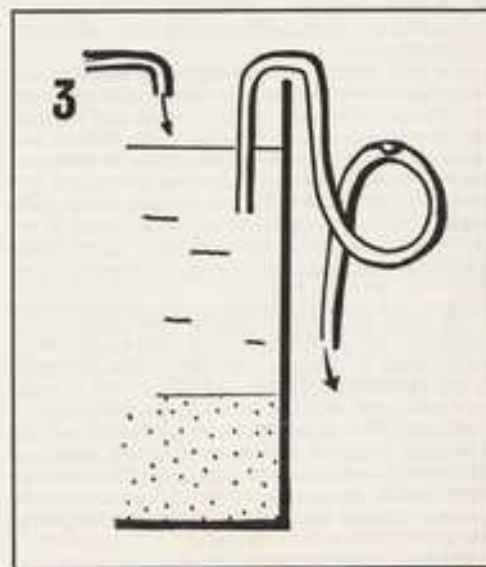
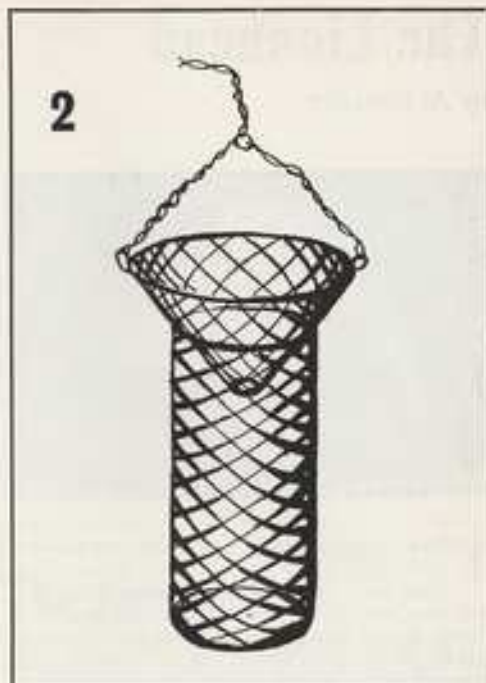
At sexual maturity the sexes are easily distinguished. The female has a ventral fin just behind the anus. This fin is absent in the male, which has a genital papilla. The animals build a simple nest, clearing a gravelly area of large stones with the aid of the sucker. The nest is hollowed out by sweeping the body through the gravel while the head is anchored to a nearby stone with the sucker. During courtship the male attaches his sucker to the side of the female at about the level of the anus. He then glides forward, keeping in contact with the female until the sucker is over the head. These movements may be repeated several times. When the eggs and sperm are shed the thrashing of the animals covers many of the sticky eggs with gravel. Fertilization appears to be external although the presence of the genital papilla in the male has led to speculation that internal fertilization may occur.

I have watched the brook lamprey spawning in streams in Derbyshire in April and then collected some of the gravel together with the eggs and taken them home to wait for them to hatch. These animals will also breed in the aquarium, but as I have never obtained many eggs when leaving the animals to themselves, I strip the eggs and sperm when I want large numbers of young.

Following spawning, whether natural or from stripping, the females are so exhausted that they die soon afterwards. The males seem to be less affected and I have found some alive in June, perhaps two months after spawning. They do not however survive for a second season. This is not surprising when you remember that brook lampreys do not feed as adults.

The fertile eggs hatch at 13.5°C (56.3°F). The newly hatched young are delightful creatures to look at under the microscope. They are less than one centimetre long and almost completely transparent. It is possible to follow blood cells as they circulate around the body. At first the young are difficult to pick out from the gravel but if this is disturbed then their wriggling movements give them away. If you wish to try to rear them they should be transferred from the gravel to some mud. I have given youngsters additional food in the form of drops of green pond water.

If you should ever tire of these animals or if you ever require the aquarium for other purposes then you might like to try lampreys stewed in red wine, but remember what happened to King Henry.



# The Lionhead

by A. Boarder



**T**HE Lionhead is a fancy goldfish which is not seen in numbers at any of the aquarist shows during recent years. At many shows I have attended there have been only one or at the most two specimens on display. During the past few years there have been more Orandas on the show benches but not many of them either and there is no doubt that the difficulty of breeding good show specimens deters aquarists from going in for this particular variety. I do not think that they can be described as handsome, but certainly have a peculiarity all their own.

In general shape this fish resembles a fantail but it has no dorsal fin and has the large raspberry-like formation on the head. The body should be about oval in shape with a good clean curve over the back. This is one feature of the present-day Lionhead which is usually absent. No dorsal fin must be shown on this fish but in the position where this fin is normally on ordinary goldfish, there are often one or two nasty humps on the back. This is the worst fault seen today and it is not easy to breed Lionheads which show an absolutely clean back.

The caudal fin should be well developed and be completely divided. It should be well forked and carried in an horizontal plane with the body. The illustration of the Lionhead in the old standards shows a caudal fin which is very deep but the one in the later standards shows one which is much smaller. Practically all the fairly good Lionheads I have seen in recent years have had too small a caudal fin and in consequence have appeared rather out of balance, the tail not being large enough to counter-balance the hood, making it difficult for the fish to keep the body at an even keel.

The hood should be well developed covering the head

above the eyes and running down over the gill plates. The common fault seen with this feature is that the hood does not come over the gill plates sufficiently, but I have certainly seen some Lionheads which had a larger hood than many of the Orandas I have seen. The anal fins must be double and separated. The pectoral and pelvic fins should not be too long or pointed. In the old standards these fins were quite pointed but under the newer ones they were more rounded and not over large.

The colour is variable: a self-coloured gold should be an entirely deep red and a variegated one should have two or more colours in a pleasing pattern. A shubunkin coloured fish is also recognised although I have never yet seen a good calico Lionhead which has the well formed hood. I do not see how such a fish can be obtained but of course this is only my opinion. I would have thought that the peculiar formation of the cells which form the hood would only appear in a scaled type of fish.

The minimum length for an exhibition Lionhead is two-inch body length, any fish of this size which is a good specimen should beat a larger fish which was not of such a good shape. Always remembering that a good large fish should beat a good small one. It is far easier to present a good small one because faults can often occur in a larger fish as it gets older. The pointings of the Federation of British Aquatic Societies for the Lionhead under the latest rules are: type and colour, 40; fins, 20; body, 20; condition and deportment, 20. From this it will be noted that there are no points available for the hood which is the most outstanding and important feature of the Lionhead. Also only 20 points are available for the fins and as there are five to be judged it leaves little imagination to note that when the pelvic, pectoral and anals have been dealt with very few are left for the important caudal fin.

Under the old standards there were two sets of points, one for the scaled and one for the calico. I will give them with the scaled first. They are as follows: Head, 28, 27; body, 20, 18; caudal fin, 20, 18; pectoral fins, 2, 2; pelvic fins, 2, 2; anal fin, 4, 4; colour, 10, 15; condition, 4, 4; deportment, 10, 10. With this system of pointing the hood can be rewarded in pointing the head and the caudal fin gets plenty of points available as well.

My own suggestions for a pointing system for the Lionhead which would ensure that the important features were justly rewarded would be: Head, 30; body, 20; caudal 10; pelvics, 4; pectorals, 4; anals, 7; colour, 15; condition, 10. I consider that with this pointing it would then be possible to emphasise the faults or advantages

Continued on page 41

# The Minnow

by B. Fry



THE minnow (*Phoxinus phoxinus*) is a splendid little fish for a coldwater aquarium or garden pond. It belongs to the family Cyprinidae (Carps) and is widespread over Europe though it does not occur naturally in southern Spain or southern Italy. It is found throughout the British Isles except the north of Scotland and some parts of the west of Ireland.

In the wild state the minnow favours moving water over a gravelly bed and hardly ever exceeds 4 in. in length. It is a sociable little fish and likes the company of its own kind. Invariably it swims in darting shoals of a dozen or two up to a hundred or more. It is curious by nature and is readily attracted to live or "dead" bait.

In colour it is dark olive on the back, lightening through silvery yellow to whitish below. The rounded sides are marbled and irregularly barred with brown. A greeny-gold stripe or band extends from the head to the root of the tail. The fins are grey to yellow with some pink to crimson spreading across the paired ones. There are no barbels on the mouth; the scales are very small.

The external differences between the sexes are not apparent until spawning time (May-June), when the female develops rather bloated sides, and the reddish tints in the ventral and pectoral fins of the male become brighter and spill, so to speak, on to the underparts. The female lays her sticky eggs on the stones and the fry emerge within seven days. They feed on the tiny living creatures that swim freely in the water such as daphnia and cyclops. Growth is rather slow and three or four years may elapse before a minnow is ready to breed.

*P. phoxinus* will usually breed in captivity if a true pair is introduced into a tank large enough to provide plenty of chasing space. A tank measuring about 24 in. by 12 in. by 12 in. is about right. Other essentials are a good light

and clear, well-aerated water. Plants are necessary, too, to make the fish feel at home. Among the plants ideally suited to a minnow tank are *Vallisneria spiralis*, *Elodea densa*, and *Sagittaria natans*. (This plant is usually referred to, quite incorrectly, botanically speaking, as *S. natans*.)

As a rule, a properly housed and cared for minnow will live several years in captivity. It requires nothing special in the way of food but thrives best when small earthworms and pieces of raw lean meat (cut small enough to be swallowed easily) are included in its diet. Ordinarily it does not take long for a minnow to grow tame enough to snatch a worm or narrow sliver of meat from your fingers. Altogether, then, this species makes a decorative and entertaining aquarium pet.

continued from page 40

## The Lionhead

with a much better opportunity than is provided in the last standards. I realise that when the standards are made up it is not always possible to have specimen fishes on which to adjudicate but after one has had some years at judging various specimens it is possible to work out which points should have preference for certain features, and this applies to all the fancy goldfish whose forms have been produced from the original goldfish, and which varieties are recognised by their own particular abnormalities.

In breeding the Lionhead it must be remembered that it is no short time policy as the hood may take two or more years to develop. However, there are certain points which can be watched for before this time. The best pair of fishes should be obtained for breeding to ensure a good result. The hood is, of course, the main feature and only those fishes which have a good hood should be used. It is possible to breed into the strain the other necessities once a good hood has been obtained. Among the youngsters it is possible to discard all those which show a humpy back; by this I do not mean just snoutiness, but the appearance of one or more knobs or points on the back where the dorsal fin of an ordinary fish would be. The caudal fin can also be examined when the fishes are young to cast out any without a divided tail. It will then be a game of patience to wait for the hoods to develop and if only a few fishes from a spawning with such a hood are obtained then the efforts will not have been in vain.

As with my suggestions for pointing the fancy goldfish in previous articles I have omitted any points for deportment; as stated before this can only come with condition.

## Coldwater fish-keeping answered by A. Boarder

Many queries from readers of "The Aquarist" are answered by post each month, all aspects of the fancy being covered. Not all queries and answers can be published, and a stamped self-addressed envelope should be sent so that a direct reply can be given.

I intend to make a garden pond and as I am a novice at fish-keeping I want to start right. Can you give me all the necessary information on making the pond, planting it, suitable fishes and their maintenance?

It would take a book to give all the necessary information and such a book is available to you at 5s. 6d. post free from the *Aquarist and Pondkeeper*, entitled "Coldwater Fishkeeping".

I am having trouble with White Spot disease in my outdoor pond. Can you suggest a cure?

It is no easy task to rid a pond of white spot disease. For one thing the parasites take much longer to develop in cold water than they would in a tropical tank. If you realise the way these parasites increase you will realise the difficulties in effecting a cure. Whilst under the skin of a fish they cannot be killed and once they mature they drop from the fish and encyst. After a time, depending on the warmth of the water, fresh young parasites emerge which swim around to find a host. Unless they can do so they will soon die. One of the surest and easiest methods of cleansing fishes is to isolate them in rather warm water. Each day move the fishes from one tank to a clean one. The cysts are then washed away every day before the new parasites have a chance to hatch out. Obviously this method cannot be employed whilst the fishes are still in the pond and I know of no means of clearing away the parasites while the fishes are still in the pond. Such chemicals which can be used in a tank are not likely to have the same results in a fairly large pond.

I cut back the plants surrounding my pond. Should I have also cut back the oxygenating plants in the water as they have grown very rampant?

If the under-water plants were very dense you could have removed some of them. However it is usual for many of these to die back somewhat during the winter. You had better wait until the spring before doing any pruning. These plants soon grow afresh once the water warms up.

I have a tank and the iron of the frame has rusted. Is there anything I can do to preserve it?

You can remove any rust with a wire brush and then paint it with one of the rust preventives on the market. A builders' merchant should be able to supply this. Alternatively you could paint the cleaned surface with a good aluminium paint as an undercoat and then give it one or two coats of a good enamel paint.

I have a goldfish which damaged the dorsal fin. Although it has healed up it has not grown again. Will this fin grow again and is there anything I can do to make it do so?

Damaged fins usually grow again after a time. There is nothing much you can do to hasten this. A salt bath helps a little but only use a dessertspoon of sea salt to a gallon of water and leave the fish in for a couple of days.

I have a fish which lost its tail with fin-rot and several fishes have black marks on them, especially on the fins. What is the cause?

When black marks appear on a goldfish once it has changed to gold, it is usually because of some damage to

that spot. When new skin or flesh grows it is often black. This black will fade away in time and there is nothing much you can do about it. Once the water warms up a little, feed well with as much live food as the fishes will eat and make sure that the water in the pond is clean and pure.

I have an outdoor pool with some goldfish and golden orfe. During the winter I have found the orfe in a bad way as they have lost their balance. What can be the cause?

The orfe are not likely to have been affected by the cold weather as they like cool water at all times. However they must have a good clear, well-oxygenated water at all times and are one of the first types of coldwater fish to suffer if there is a deficiency of oxygen. The pond water which you state has not been changed for some years may have become impure and you should change as much as possible as soon as you can.

I have a few small goldfish in a 24 in. tank which is warmed. The fishes are suffering from fin-rot which causes the fins to rot and fray away. They get blood streaks in the fins and eventually die. What is the cure?

It does not appear to be the usual fin congestion as this is mostly caused by a chill. As the water in your tank is warm there must be another cause. I think that the trouble is caused by a form of parasite but which one it is would be only conjecture on my part to say. There may be flukes on the fishes and these could account for the blood streaks in the fins but there would also be others on the body. The fishes under fluke attack would become emaciated, go off their food and mouth at the surface of the water. I recommend a bath in a mild solution of Dettol, say a quarter teaspoonful to a gallon of water. Leave the fishes in for a few minutes only or less if they turn over. The water which you say has not been changed may be one of the causes as it could be over-charged with minerals. Try a complete change and see if things improve.

I have a fish pond in the garden and have some goldfish in it. Recently I bought two fishes with black stripes down their bodies. I have enclosed a sketch. I have missed some small goldfish since these fishes were put into the pond. What do you think these fishes are and can they eat other fishes?

From your sketch it is apparent that the new fishes are Perch. These are a British coldwater fish and they are carnivorous. They can eat any fish small enough to get into their large mouths and there is little doubt that the goldfish have been eaten by the Perch.



The common perch

## Our experts' answers to tropical fish-keeping

**What is a convict fish and where is it found in the wild?**

The species usually referred to as the convict fish is *Cichlasoma fasciatum*, better known among old-time tropical fish fanciers as the chanchito. The chanchito was one of the first cichlids to be imported into Europe—about seventy years ago—from its native Brazil.

**I have noticed one of my male guppies displaying before and making dashes at a female molly. Is it at all likely that this female will produce guppy-fathered offspring?**

It is possible for a male guppy to fertilize a female molly. However, it is not a common occurrence, and any fry resulting from such a mating are usually sterile.

**Please supply me with the scientific name, range in nature, and aquarium requirements of the freshwater sole.**

The so-called freshwater sole is *Achirus fasciatus*, which is native to the coastal fresh, brackish and saltwaters of the eastern sea-board of North America, from Massachusetts to Texas. This species needs a well-washed sandy floor to its tank, clean, well-aerated water, and a temperature range of from 68°F (20°C) to 75°F (24°C). Any small live and flesh food is taken.

**In the treatment of disease, why is ordinary cooking (block) salt recommended in preference to the more easily procured table salt?**

Ordinary cooking salt, whether in crystal form or chopped from a block, is pure salt with well-known germicidal and healing properties. Table salt is salt to which chemicals have been added to prevent it caking in the packet and to insure easy running. Therefore, because of its additives, table salt is not suited to medical use.

**Recently, I bought two loaches called *Gyrinocheilus aymonieri*. I cannot tempt them to take dried food or live food. Please give me some information about this species' requirements in the aquarium.**

First and foremost, *Gyrinocheilus* is not a loach, though it is closely related to the loach family (Cobitidae). It is purely and simply a sucking fish that seems to turn its nose up at all the foods, alive or dried, that most aquarium fishes find eatable. What it lives on is algae. Put it in a tank in which mossy algae grows and it should do very well. A temperature in the neighborhood of 75°F (24°C) suits it best.

**Most dealers and aquarists I know maintain their tanks at a temperature of about 78°F (26°C) to 80°F (27°C). Yet in a book I was reading the other day the author expressed the opinion that a prolonged temperature of 78°F (26°C) is bad for tropicals. Please may I have your comments?**

Many dealers and aquarists keep their tanks unnecessarily warm. A temperature range of 72°F (22°C) to 75°F (24°C) is adequate for most, if not all, tropicals. For breeding, however, a temporary rise to about 80°F (27°C) is called for.

**I bought a wasp goby the other day. It has retired to the back of the tank and has made no attempt to swim around with the other fishes. I am a beginner and feel rather worried about this fish. What do you advise?**

Your wasp goby is behaving quite normally. Gobies are bottom-haunting fishes that seldom, if ever, swim around in the middle of the water. Your particular goby needs to be left alone to settle down in its own good time. When it gets used to its surroundings you will see it moving about more often. Introduce whiteworms, chopped earthworms, and tiny fragments of red meat into the aquarium last thing at night. It will eat these things after the other fishes have quietened down. The addition of one teaspoonful of sea salt to every gallon of water in its aquarium (this quantity of salt should not harm the other

fishes) is advised. But once the recommended quantity of salt has been added, do not add any more.

**Please give me some information on a puffer fish scientifically known as *Tetraodon lineatus*.**

This puffer, a species native to the Congo, is one of the most sought after members of its family because it is handsomely coloured, inoffensive, and seldom grows larger than 2½ in. It flourishes best on pieces of meat, worms and live *Daphnia*. But it has one failing: it likes to nibble at plant life.

**My dealer has some rather handsome looking fish which he says are commonly called yellow dwarf cichlids. What is the scientific name of this species and what are its basic requirements in the aquarium?**

The yellow dwarf cichlid is properly known as *Aptinogranosa rathieri*. This little fish (never larger than about 2 in.) flourishes best in a well-planted tank (no other fish present) filled with soft, peaty water. The usual tropical range temperature suits it. An abundance of live food is necessary to keep it in good health.

**I am planning a decorative tropical tank for my lounge. The tank will be adequately, but not brightly, lighted and I should like to know what plants, in your experience, will help to achieve a tidy, yet artistic effect. Also, kindly indicate the positions the plants should occupy.**

We suggest a well-developed *Cryptocoryne Manni* about the middle rear of the tank. In front of this anchor a narrowish strip—about 8 in. long—of the beautiful aquatic moss called *Vesicularia dubyana*. On both sides of this lacy moss plant drifts of *Sagittaria subulata*. Lead these grasses up to clumps of *Cryptocoryne affinis*, backed with plantings of *C. Natansii*, *C. beckettii* and *C. millii*. The resulting underwater scene should not fail to please you and provide a fine environment for the fish.

**I have just acquired two young *Tilapia guineana*. I should be grateful for any information you can give me regarding the sexing of this fish, the size it will attain in an aquarium, its preferred food, and its attitude towards other fishes.**

This species is not easy to sex unless it is in breeding condition, when the female develops bloated sides and the male displays brighter colours. In a spacious tank it will reach a length of about 7 in. Worms and meat are taken with relish and help to keep it in good condition. It is not an aggressive fish and will get on quite well with other fishes of about its own size.

**Is a thermostat absolutely necessary in an electrically heated aquarium?**

Provided the heater is switched off in really warm weather, and the body of water heated by electricity is sufficiently large to preclude rapid cooling down, then a thermostat is not really necessary. Nevertheless, you must bear in mind that a thermostat does save the aquarist the trouble of keeping a frequent watch on a thermometer, and switching the heater on and off as the temperature rises and falls below the required range. Also, it is most unwise for anyone without much experience of tropical fishkeeping to omit a thermostat from his set up. Abrupt changes of temperature in a tank soon lead to mounting losses and frequent outbreaks of disease.

**Please give me the scientific name of the African scat. Also, in which part of Africa does this fish occur?**

The scientific name of the scat popularly referred to as the African scat is *Scatophagus terracastellus*. It is found in the salt, brackish and fresh coastal waters of East Africa, but it is not confined to this part of the world alone. It is said to be quite widespread in the coastal waters of New Guinea and northern Australia.

## Marine queries answered by T. Ravensdale

I recently treated my marine aquarium with copper sulphate solution and now the coral is turning brown. Can I remove this discoloration?

Provided the discoloration has not passed the 'brown' stage to black it will wash off under the tap. If this does not remove all the discoloration a soaking for one hour in water with one tablespoon of bleach per gallon added will remove the unwanted colour. Citric acid will also remove copper sulphate but this is tricky and should be avoided until all else fails.

Dr. Axelrod recommends that new fish should be sterilised in a solution of potassium permanganate, and fresh water—25mg to the gallon for two or three minutes, when just purchased from a dealer, then place the fish in salt-water tank, and potassium should be the first treatment used for all diseases. Is this true?

"B" He goes on to say, that chloromycetin, penicillin and thiazolidin will control furrot, tailrot, and bodyrot, he does not say anything about white spot, and what antibiotic would I use to cure white spot?

"C" If I set up a salt-water aquarium, can I use sea urchin shells as ornaments, if the animals and spines are removed, and the urchin shells treated?

"D" What size and make of filter would I need for a tank 48 in. x 15 in. x 15 in., and what type of compound would I use to glaze a marine tank? Your comments please.

Dr. Axelrod has had considerable experience in writing about tropical fish and, in the U.S.A., where he lives, the method he suggests for sterilizing fish may be perfectly all right—climate, conditions and speed of transit etc. but here in Great Britain where fishes have just been subjected to the greatest upheaval of their lives by being pulled out of the sea, stuffed into a dark box and shunted half-way across the world I feel it would be little short of fatal to then plunge them into a bowl of fresh water dosed with potassium permanganate. We are dealing with extremely delicate fish that are in a very shocked state, not a bag of daphnia. No, I'm afraid I prefer the old-fashioned method—quarantine. Put your new arrival into a quarantine tank with plenty of hiding places, keep it reasonably dark and add enough good old-fashioned methylene blue to make the water deep blue. After a week or so it should be feeding well and free from unwanted organisms.

### Question B:

Once again this is a case of the difference between a country where drugs are not difficult to obtain—and Great Britain. I have again personally found methylene blue quite effective in the control of "white spot" in the marine aquarium. If drugs are easily obtainable to you then try Penbritin and penicillin in the same quantities suggested by Dr. Axelrod—I have found this to be excellent.

### Question C:

I do not recommend the addition of sea urchin shells to the aquarium, whether marine or otherwise. They are very brittle and usually break up within a month or two. Can you not fit the urchins behind the rear glass?

### Question D:

The size of filter suitable for your tank must surely depend upon your pocket. If it does not then plump for either two small or one double Eheim. Anything less than a high powered electric filter should be supplemented with either a sub gravel filter or frequent water changes, depending upon the type and number of fish in the tank.

Ordinary ferromastic putty is quite sufficient for glazing provided this compound is not allowed free access to the water. It can be sealed by a remarkable American product called "Dow Corning" or a lesser quality product called "Aqua Sealer".

I wish to set up a coldwater marine aquarium but I would like more information on several aspects of the subject.

Firstly, the question of using natural or artificial sea-water and if the latter is recommended, how should it be prepared and which is the best type to use?

How should the alkalinity and acidity of the water be controlled, and the use of pH kits, etc.

The decision between natural or artificial sea water in this case must rest solely with yourself. If you are in a position to make frequent water changes from the sea then by all means use it but new commercial products such as "Tropic Marin Neri" are so well composed there is little to gain by not using it and much to lose by the possibility of collecting foul water. Another point is that synthetic water is controllable and can be altered with a spoon. If using the latter, make sure that the density and pH of the water in which your specimens live tallies with your aquarium water.

A special salt water pH kit (costing about £1) is available on the British market and is reasonably accurate provided the test is made with clean equipment. Alkalinity can be attained by the addition of Sodium Carbonate (common washing soda). It is seldom necessary to lower the pH level and should remain as constant as possible (weather alone can change the pH) at 8.3.

I wish to raise brine shrimp to adult size. A few times I have tried sea salt mixed with water, have plenty of hatchlings and fed with liquifry but after a couple of days all have died. I have now bought the proper marine salts for marine aquariums but would appreciate your advice on feeding.

The probable reason for your failure to raise adult brine shrimp is simply excess. Excess brine shrimp and excess food. Instead of tipping enough eggs to cover a fingernail into the hatching tank try a dozen eggs only and leave the container near a window where algae can form. This algae is quite sufficient to feed the shrimp but, should you wish to use liquifry, feed only the very tiniest drop once a week. After the young shrimps have grown enough (about three weeks) they can be fed with live food such as young brine shrimp!

In preference to a square container use a round one such as a goldfish bowl and aerate this if possible.

## News items

So great has been the response to the Marine Study Society of Great Britain that a fellowship committee has been formed. This committee is comprised of Messrs. A. S. Metzen, G. H. Jennings and T. Ravensdale. The latter has also been appointed to the general committee as public relations officer.

The M.S.S. have also shown great concern for the damage caused to fish around the South coast of Britain over the oil ship disaster and are organising a fund for the aid of this relief.

A new book of interest to marine fanciers is to be published later this year by Messrs. Foyles of Charing Cross Rd. The book is to be called "Coral Fishes, their care and maintenance", and is written by T. Ravensdale who is currently writing our series on "Going Marine".

A new marine tank may be appearing on the market shortly. It is of fibreglass construction and will have only one viewing front of glass. The manufacturers will be Messrs. C. B. Boats Ltd. of Tollesbury, Essex.

## Going marine—part 4 Coral fish

almost nocturnal existence and should, consequently, be provided with hiding spaces or subdued lighting. These fishes grow quite large (up to 18 inches) and should, therefore, be kept only in the very largest of aquariums.

### Surgeons (Acanthuridae)

The Surgeon is a fish to be watched when handling for he sports a very sharp pair of "scalpels" on the rear section of his body which, when extended, can cut to the bone. His dorsal fin is also sharp when erected and can sometimes sting with poison.

All Surgeons live practically exclusively on algae and, unless you provide them with some, they will not live long. Although reasonably hardy and peaceful, a Surgeon will instantly attack any new arrival which is near his own size. He seldom attacks smaller—or larger fish. If you intend keeping a Surgeon, then introduce him to the community tank last of all, and with a suspicious hand. The Surgeon prefers a temperature near to eighty degrees F. and can grow to at least twelve inches, so allow room for him to "operate".

### Triggers (Balistidae)

Most triggers originate from the Pacific and some can grow to lengths beyond twelve inches, so again take into consideration your tank space.

The popular Hawaiian Trigger (*Balistapus undulatus*) is rather timid and often difficult to start feeding. He must be provided with a place in your rockwork or coral where he can articulate his trigger mechanism, which is simply an extended folding dorsal extension which can be locked into position thus rendering removal from its home an involuntary act. (Dorsal fins which do more than simply act as a steering aid as in freshwater fishes, are quite common in the marine world where life is in far greater danger.)

The Trigger, although having an enormous head compared to body size, has a very small mouth, but do not regard this as indicative of weakness for many Triggers can gash a hand or remove a finger with one snap—and they often do!

This very active fish, when happy, can become quite tame, tipping up on its side to be tickled. I know one particular *Balistapus undulatus* which collects all the coral in its tank at night, piece by piece, and piles it up in the corner before going to bed in it.

Triggers are unfortunately particularly susceptible to Oodinium and should be checked regularly for signs of distress.

### Trunkfish (Ostraciidae)

This family includes the cow fishes, boxfish, and some spined variety. The fundamental aggression deterrent of this family is their difficulty in being digested, for not many fish are able to swallow them.

The Trunkfish usually lives inside a built-in shell which covers the body entirely except for the mouth,

continued from page 33

tail and fins. This "stiff body" makes swimming difficult and therefore most foods are accepted greedily. Great care should be taken not to excite a fish from this family for some can emit a substance poisonous not only to all the fish in the aquarium but also to itself. A Trunkfish should, furthermore, be given plenty of water space per inch of body size for it consumes oxygen rapidly and should be regarded as a fish of twice its actual size.

### Wrasse (Labridae)

Wrasse can be found all over the world and in practically any tropical sea. They are the toughest of all coral fishes and therefore a very good fish to start your marine aquarium with. They are undemanding and will take most foods. They also like to chew coral with their very tough jaws.

The wrasses are very fast, streamlined fish and range in colour from drab colourless specimens to some of the most "painted" beauties of them all.

Some wrasses can give their owners heart attack by tipping up on their sides periodically and drifting, as though dead, in the most unnatural positions. This is quite normal and only indicates their natural laziness, although try catching one to see just how fast they can be.

Most wrasses prefer to dig themselves into the floor covering at night and sometimes vanish altogether in this way. Some even go to the trouble of manufacturing a bubble every night (e.g., *Thalassoma bifasciatum*) which they use as a tent.

The *Coris gaimard* is a popular import and, although it can reach the twelve inch mark in the wilds, seldom outgrows an aquarium. It is peaceful, colourful and a joy to watch with its acrobatic tendencies; in fact, well worth considering when "Going Marine".

continued from page 27

## What is your opinion?

of others with these media.

Having been a keen user of under gravel filters for the past number of years, I have decided to abandon their use for a trial period, resorting to other forms of filtration. What has been your experience of the use of under gravel filters?

I would be most pleased to have your comments on the above two questions. It does not take long to write a short letter. Remember your answer could be the long awaited solution to a problem which has been giving trouble to many aquarists for a long time. Let's have a good response letter-wise. Remember "The Aquarist" has probably given you a lot of useful advice in the past. What about you returning the help by dropping me a line in the post, c/o "The Aquarist?"



# Rearing young Caymans

by M. Peaker, B.Sc.



A Mississippi alligator—a relative of the caymans



SINCE measures were taken to protect the Mississippi Alligator (*Alligator mississippiensis*) in the U.S.A., the most commonly imported crocodilians are the South American Caymans particularly the Spectacled Cayman (*Caiman crocodilus*) which was for many years known as *C. sclerops*. It is so-called because the eye sockets appear to be connected by a ridge giving the owner a bespectacled appearance. Incidentally, the correct plural of cayman is caymans and not caymen as is so often seen. To the pet-trade they are usually simply "alligators" but this title is reserved for the Mississippi and Chinese species although caymans do belong to the same family—the Alligatoridae. The size of imported specimens varies from about eight to twelve inches but the fully-grown length of this species is from five to six feet and it is well worth remembering this before buying these animals. Several years ago there were far more medium-sized ones than could be accommodated in zoological gardens and many owners had difficulty in finding a home for their animals when they became too large.

It is unfortunate, if not criminal, that a great many of these delightful reptiles find their way to pet-shops whose owners know little (and in many cases are willing to learn less!) of their requirements and that many are then purchased by people in a similar ignorant state and who can get little advice on their care. It is hardly surprising that many fail to survive for more than a few weeks. Most deprecable, I think, was a notice that I saw in an East Midlands pet shop several years ago stating that room temperature was satisfactory for these animals and that they were guaranteed not to bite. They were housed in a tank without heat and containing far too much water. In consequence, they were floating on the surface in a semi-torpid condition. Reliable animal dealers usually have healthy caymans.

I think the best way to keep young crocodilians is in an aquarium tank until they reach a length of about two feet or even less when a similar arrangement to that used in many zoological gardens would be more convenient; that is, a heated pool with a beach for basking under the sun or a lamp. This, of course, would be more expensive to

set up and keep at the necessary temperature.

A tank two or three feet in length and fifteen to twenty inches wide is suitable for several specimens until they outgrow their quarters. One third of the space should be land and the remainder should contain only a few inches of water as they appear to like the feel of their feet on the bottom (this is probably a protection against predators which lurk in deep water). I have used pieces of sandstone for the land area but firmly fixed wood is often suggested and would doubtless prove satisfactory. Hooped gravel is most unsatisfactory as it is difficult to clean and is soon pushed into the water area. Rocks usually remain where they are put and are fairly easy to clean especially if two sets are available and are alternated at each cleaning-out. The dirty ones can be scrubbed and left in the sun until required again. The water level will often need to be brought back to normal owing to the high evaporation rate.

An ordinary aquarium heater and thermostat (I prefer the combined type) can be used to regulate the temperature to 80-85°F during the day although the night temperature may fall to 65°F. The tank should be covered—partly by glass to retain heat and a high level of humidity and partly by perforated zinc to allow air to enter and prevent escapes. Floating plants may be placed in the water as some specimens may prefer to hide under vegetation just leaving their nostrils and eyes above water. During winter days or if there is no access to direct sunlight, an electric lamp may be carefully suspended over the animals for several hours each day. Similarly an ultra-violet lamp can be used but only for a few minutes daily. In both cases I am inclined to give some form of shelter that the animals could use if they desired. The heating equipment should

be installed and checked several weeks before the arrival of specimens as I have lost several in cold weather owing to the thermostat sticking in the "off" position and in future alarm systems will be installed to give warning of falling temperatures. The heaters should be protected against knocks by wrapping them in perforated zinc or enclosing them in a wooden frame before being fastened to the side by suction holders.

Feeding presents few problems and although it is often stated (perhaps erroneously) that fish is the main food in the wild, mammalian food is preferred in captivity. Mealworms are often rejected but earthworms, large insects, tadpoles etc. are taken. Ours are usually fed on a variety of food with meat as the main part of the diet. This is cut into small pieces and fed to the tame specimens from forceps or placed at the water's edge. Provided that the temperature is sufficiently high, little difficulty should be experienced in feeding. Small dead mice are very good as they contain many essential dietary factors. A few small round pebbles should be provided as they are often swallowed by crocodilians perhaps to aid in the grinding of food, perhaps as "ballast" in swimming. My Mississippi Alligator was seen to swallow stones and soil during his first few weeks with us.

A little cod liver oil should be added to the food at regular intervals either as liquid, which tends to be messy, or as capsules which can be pushed into the meat. Powdered calcium phosphate or a proprietary calcium additive should be sprinkled on to the food at the same time that cod liver oil is given. This oil containing vitamin D aids the absorption of calcium from the intestine thereby preventing rickets to which many young animals are particularly susceptible. A multivitamin preparation, "Abdec" (Parke-Davis) for example, can also be given on the food—a few drops each week.

Green tanks are beneficial to health as the algae taken in with the food is a valuable source of many vitamins and their chemical precursors. There is, however, a difference between a green tank and a dirty tank containing putrefying meat and faeces. Occasionally the animals should be scrubbed clean for which purpose a tooth brush is ideal. Their teeth and mouth should at the same time be brushed gently with weak salt water.

I know of only one person who has tamed a cayman sufficiently well to handle without it biting (they are far more difficult to tame than Mississippi Alligators). Even then the specimens were handled daily. It has sometimes been said that excess handling is inisurious to health, so obviously the keeper must use his own discretion. If treated properly a young cayman may well increase in length by fourteen inches per year.

A young cayman should cost from twenty-five to thirty-five shillings depending on the time of year, size etc. but it is inadvisable to transport them or have them sent during cold weather as they are extremely susceptible to a sudden decrease in temperature and death may easily result.

These young crocodilians are extremely good tropical reptiles for the novice to keep and are easily cared for once a few basic facts are known. They should be of great interest to their keepers.

## Book Review

**'Diseases of Aquarium Fish'** by Gottfried Schubert. Translated by Gwynne Vevers. Studio Vista. 10/6d.

DR. SCHUBERT'S contribution to the Aquarium Paperbacks series will certainly prove a valuable addition to the serious aquarist's library. After a brief run-through of the tools for the job (nets, the basic equipment for dissection, lenses, measuring cylinders and so forth), followed by some useful information on compiling a file of case histories for future reference, and the painless destruction of fish (for humane reasons or to stop the spread of infectious disease), the author, by the inclusion of a chart called "A guide to diagnosis", and a table of recommended drugs, makes conveniently possible the easy recognition and treatment of many of the major and minor illnesses that trouble captive fish. Between the chart dealing with diagnosis and the table of drugs are interestingly written sections devoted to parasitical and non-parasitical diseases. There are, too, sections covering the preparation and use of drugs, and the steps to be taken when no diagnosis can be made. Preceding the adequate index is a section headed "Prevention is better than cure". This part of the book should prove of especial benefit to the beginner.

One may not agree with all that Dr. Schubert writes (for instance, while on the subject of the danger of collecting live food from ponds he says: "Tubifex is a problem, for without it an aquarium could scarcely be kept through the winter". The reviewer, like thousands more, makes do very well with scraped red meat, whiteworms and a top-grade dried food), but one cannot fail to be grateful to the author for the research he has undertaken and for his skilful presentation of the subject. 27 fine line drawings and four photographs illustrate the text.

**'Aquarium Care'** by Guntha Sterba

ALL aquarists who own *Freshwater Fishes of the World* by this author will waste no time in possessing themselves of this indispensable companion volume which is produced in the same superb style with exceptional colour and black and white photographs.

The two volumes of the original German edition have been compressed into one volume which is basically divided into three parts. The first of these covers the technicalities essential to the aquarist who aims at successful management of his tanks and also embodies an introduction to basic biology to assist him in his investigations within this field.

The second part deals with fish diseases, their causes and visible symptoms; how to examine ailing fish and the measures to take for the avoidance of disease outbreaks.

The final section comprises a systematic and thorough account of all the marsh and aquarium plants that have been introduced into the aquarium world with detailed descriptions of conditions necessary for their cultivation.

Over five hundred pages of reliable and necessary information presented in a fashion which makes this book a joy to browse through.

# Showbench

An interview with an A.S.L.A.S. (Association of South London Aquarists' Societies) Judge by Tom Hurst

**J**UDGING fish is not the easiest of pastimes especially with all the new fish available and the acute shortage of judges but most clubs have a show or two during the course of the year. Lots of hobbyists want to show off their better specimens and where better than the showbench? The trouble here is who is to judge the fish? Surely not a fellow club member.

The Association of South London Aquarist Societies are well aware of this problem and do their best to provide unbiased judges for any member of their association. These judges are carefully selected and must go through a strenuous course before they are even considered. Any experienced aquarist may apply (through his club secretary) for enlistment in the A.S.L.A.S. judges' course and, when enough applications are received, a course is organised. Groups of three or four would-be judges go along with a senior judge to learn all the "tricks of the trade", attending as many shows as possible. The "probationists" extract as much information as they can from the senior judge and have some six months in which to do so. Their spare time is taken up in studying as many books as possible—in particular Sterba's *Freshwater fishes of the world*, a book without which no judge is to be seen. Exercises are organised and all possible knowledge and experience is passed from senior to junior judge. At the end of the course each prospective judge is "judged" by a panel of senior officials. Competent applicants are then rewarded by an appointment as judge. These "new" judges only deal with closed club shows until enough experience is gained to warrant their appearance at open shows. It should be pointed out, however, that stipulations for a standard of judging are exactly the same whether for an open or closed show; the system does not differ according to the class of show.

There are three types of show to be judged. The furnished tank show, the fish show and the breeding class. These are best dealt with separately.

## A furnished tank show

As in all shows, a points system is used and this pointing is made up in the following way; plants 25 points, fishes 25 points, rockwork and general appearance 50 points. Points can be deducted from the maximum by such delicacies as incompatibility between fishes and plants (e.g. fish from the Amazon mixed with plants from Africa) to such obvious laxities as poor plants, algae coatings, dirty glass and poor fish mixed lackadaisically. A natural layout should be aimed for and such additions as plastic divers and automatic shells should be avoided. Equipment necessary to the function of a tropical aquarium should be

concealed and the crowns of plant roots should be showing where nature demands it. The tank should not be overcrowded or the community haphazard in selection. A pair of large angels with their babies would attract any judges' eye but do ensure that all the fry are of the same size.

## A fish show

The points system for judging fish is as follows; colour 20 points, size 20 points, finnage 20 points, body shape 20 points, condition and deportment 20 points.

The main point loser these days seems to be poor size. Most fishes that appear in club shows are far below their standard size and great point losses must occur. Fish simply aren't as large as they were once upon a time and colours seldom as vivid. Colour foods should not be used in an effort to improve coloration for any judge worth his salt will detect colour food usage and down-point accordingly. Most fish will lose their colour when frightened by a net—characins are notorious for this—and should therefore be caught well before show time. Great care should also be taken not to damage the fish when catching it—a split fin may cost you a prize. The point losses possible in a fish show are far too numerous to list here but do at least try to avoid the obvious failings such as damaged scales, split fins, broken feelers, food in the jar or oxygen bubbles clinging to the fish through using fresh tap water. Use the water from your aquarium and do not fill the jar (which should be square and large enough not to cause discomfort to the fish) to the brim but allow room for air.

## The breeders' class

This class is usually combined with a fish show and does not refer to professional breeders. It simply judges fish which have been bred by the exhibitor. This points system gives 50 points for matching, 20 points for size (for age), 20 points for colour, 20 points for condition and, strangely enough, only ten points for achievement of breeding. There is little one can add to this except to emphasize that all the fish should be the same size. Only six are required and these should be the best match you can manage, having the same body shape and size, the same colour and all aged from six to twelve months.

As pointed out, one could continue with the "dos and don'ts" for pages but it all boils down to one basic fact. You are out to win a prize and in order to do so you must have the best exhibit in the show so take care and give your best attention to the fish before you show it. Remember, even if you never win, your fish will look better for the extra care necessary for show fish.

# Cryptocorynes

by B. Whiteside

IT is a well-known fact that plants of the genus *Cryptocoryne* are prone to losing their foliage if subjected to certain changes in their environment. Anyone who has grown these plants will know the sort of changes in environment to which I refer. There have been a number of very good and logical reasons put forward as to why such changes cause the plants to lose their foliage.

Having recently introduced a single plant of *Cryptocoryne petchii* into an aquarium which was mainly planted with other species of *Cryptocoryne*, I was expecting this plant to lose its foliage in the usual manner. Before introducing the new plant it was washed in tap water and no extra water was added to the aquarium. As expected, after a few days the leaves on the newly planted specimen began to show signs of disintegrating or rotting.

What interested and annoyed me was the fact that the other established, strongly growing species of *Cryptocoryne* in the particular aquarium, as soon as the newly introduced *C. petchii* began to disintegrate, all began to do exactly the same. The only species which did not show any signs of rotting was the dwarf form of *C. nevilli*.

What I would like to suggest is that the disintegrating foliage of the *C. petchii* exuded some substance, common to the other species, which acted as a trigger mechanism for the other species to also commence disintegrating. I have no idea as to what this substance might be, or if indeed there is any such substance. The introduction of new plants of other genera, at different times, into the same aquarium, had no adverse effects on the already present *Cryptocoryne* species. This would lead me to believe that only plants of the genus *Cryptocoryne* exude the supposed substance.

This hypothesis is, of course, open to ridicule as it does not explain why the introduction of other plants in some cases, or even of new fish, will precipitate the same leaf loss; nor does it explain why foliage will also often disintegrate when plants are moved, or when all, or even some of the water, in an established aquarium is changed.

Possibly the idea of one decomposing plant of *Cryptocoryne* exuding some chemical substance, organic or inorganic, which causes other plants of the genus to lose their foliage, has been suggested before but as I have not seen anything on this particular idea in print before, I think that it would be interesting if other aquarists who grow plants of *Cryptocoryne* would, through the letters column of the magazine, offer their own personal findings or opinions on this matter.

Although the plants in the particular aquarium are, as is usual, regenerating and producing new leaves, it is disappointing to have a tankful of healthy plants lose their leaves as it takes rather a long time for them to regain their former

stage in development. It would be most interesting if someone could find the exact chemical cause and perhaps produce an inhibiting chemical which would prevent the leaf loss—assuming there is a chemical cause.

On the other hand, the process may be an innate protective mechanism which can no more be prevented than can leaf-fall in deciduous trees in this country. Perhaps the process works on the principle that a newly introduced plant disintegrates and exudes some substance which, in causing the other plants of the genus in the aquarium to lose their foliage, gives the newly introduced plant an almost equal chance of obtaining its own portion of water space for its leaves and of obtaining its share of available light. Of course the new plant has to establish its roots in the compost. It would be interesting to know what other readers think.

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## OBITUARY

With a heavy heart I pass on sad news of the sudden and tragic death of Mr. Paul Stokes and Mr. Harry Williams in a car accident on the 21st March.

Two aquarists who will be missed not only by aquarists in the Midlands, but the world over, due to their ties of friendship with the B.K.A.

Paul was chairman of the British Killifish Association; Chairman of the B.K.A. New Species Committee, stabilising and distributing new species as they came into the country.

Most of the information pamphlets were from Paul's pen, sent out every month to members.

He was also on the committee of the M.A.S. and 'A' class judge. With Harry he ran training courses for judges as well as being Chairman of the Tipton Society.

Harry was the treasurer of the B.K.A., and did all the duplicating and mailing of the monthly newsletters, etc. (no mean task in itself) and a member of the New Species Committee, and 'A' class judge, also being a member of the Tipton Society.

Both of them would travel miles to judge or give a talk.

The void that both of them have left will be very hard to fill.

As an outsider from London I have lost friends of short-standing, but they had become close friends in the world of fish, that can cross the barrier of dialect or language.

I speak for all members of the B.K.A. when I say, may they rest in peace—but not be forgotten.

D. W. Ellis,  
British Killifish Association.

## Introducing the "CHAMPION OF CHAMPIONS" contest

FOR THE FIRST TIME IN THE HISTORY OF FISHKEEPING in this country a competition is to be held to decide the Champion fish of the shows, and this will be promoted by the *Aquarist and Pondkeeper*. The entries will come from the winners of the "Best Fish in the Show" awards which are included in the open shows now being held, and they will be automatically eligible to enter for the "Champion of Champions" contest which will be held in conjunction with the British Aquarists' Festival at Belle Vue, Manchester on the 28th-29th October. The cash prizes and other awards for this contest are given below.

This competition is the natural development of the "Best Fish in the Show" awards, previous information regarding which has been published in the last two issues of the *Aquarist and Pondkeeper*. We can now give the requirements of these awards, but it must be emphasised that the success of the entire scheme depends on our obtaining the full co-operation of club secretaries.

The proprietors of this magazine are awarding a gold plated pin to the winner of the "Best Fish in the Show" event at the open shows. An entry shall be a single fish, not a pair, a breeder's entry or a furnished tank. British native fishes are not eligible, but in addition to the varieties of goldfish the following can be considered: golden orfe, golden tench, golden rudd, mirror carp and hi-go. The awards are for open shows only, and club or inter-club shows will not be considered. The winners of the "Best Fish in the Show" events will be invited to enter their fish for the "Champion of Champions" contest as previously mentioned.

A form which is required for completion in connection with the "Best Fish in the Show" award will be sent to all secretaries and the pins will be sent for presentation at the show as soon as these are available. Where a show has been held the form will be sent to the secretary for completion and return to the *Aquarist and Pondkeeper*, when the pin will be sent direct to the winner from this office. The names of all the winners for the "Best Fish in the Show" and who are eligible for entering the "Champion of Champions" contest will be announced monthly.

### Prizes for the "CHAMPION OF CHAMPIONS" contest

As mentioned above, the winners of the "Best Fish in the Show" at open shows will be entitled to enter for the "Champion of Champions" Contest. The prizes for this classic final are as follows:

**To the winner.** A cash prize of twenty guineas, a solid gold pin and a commemorative plaque. **The second successful contestant will receive a cash prize of thirteen guineas and plaque, and the third will receive a cash prize of seven guineas and a plaque.**

On the success of this contest, which is the first of its kind, will determine what alterations, if any, are necessary to be made in the future. The object is to encourage the breeding and exhibiting of good class fish, and it is in this connection that full support from the clubs is essential.

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## Manna-grass

by B. Fry

**T**HE striped reed sweet- or manna-grass (*Glyceria maxima* var. *variegata*) is one of the finest, and hardiest, of the ornamental grasses that can either be used to add attraction to a pond surround (bog or ordinary moisture-retentive bed) or the pond itself, for it is a plant (derived from the ranker-growing native manna-grass sometimes planted on river banks to prevent the soil being washed away, and to provide a valuable fodder for cattle) that is quite indifferent to its lower parts being habitually under water.

The young foliage is most beautifully suffused with a sort of violet-tinged pink. This entrancing shade of pink also spreads over the foliage in the autumn, that is before the shortening days and biting winds bleach and dry them to the texture and colour of hay. Ordinarily its coloration is silky olive-green, vertically decorated with narrow stripes of ivory and white. Yellowish-white spikelets, inches taller than the foliage, are produced towards the end of the summer.

The strap-like leaves attain a height of about 2 ft. and arise from stout wiry rhizomes which spread underground with great rapidity. It is, therefore, necessary to confine these rhizomes to some receptacle (non-toxic if it is to stand in water inhabited by fish) or cut lots of them away before the new season's growth begins. If you neglect to do either of these things the plant will soon overgrow its companions.

## News from AQUARISTS' SOCIETIES

**THE Hendon and District A.S.** will be having an Open Show on Saturday, 13th May, at the Club house, The Bushbrook Hall, Edgware Road, West Hendon, London, N.W.8. All are welcome and show schedules are obtainable from the Show Secretary: Mr. Joe German, 431 Honeycot Lane, Stammers, Midd. During the afternoon, while the judging is in progress, the visitors will be entertained by an "outside" lecture on Reptiles, who will be bringing live exhibits. New members to the Society are always welcome and can write direct to the Secretary: Mr. K. L. Poulton, 3 Halse Way, Stammers, Midd., or just turn up on a Thursday evening at 8 p.m. at the above address. The Society meets every Thursday, one of the few clubs that have a weekly meeting.

**THE Huddersfield Tropical Fish Society** held their annual general meeting and dinner recently, when approximately 40 members and guests were present. The dinner was followed by the presentation of trophies to the winners of each class. Each class had been shown three times at the monthly Table shows and points tallied. Mr. Philip Kaye, Huddersfield Channel swimmer presented the trophies as follows: Aquarists: Mr. L. Kaye; Goldfish: Mr. L. Kaye; Characins: Mr. P. Ledger; A.O.V.: Mr. P. Ledger; Livebearers: Mr. D. Woodhead; Barbs: Mr. J. Peart; Breeders: Mr. J. Rowell; Goldfish: Mr. P. Hovey; Ladies: Mrs. C. Kaye; Juniors: Master N. Kaye. The trophy for the overall points winner was won by Mr. P. Ledger and the trophy for the most successful member in Open Shows was awarded to Mr. L. Kaye.

The following officers were elected for the coming year: Chairman, Mr. E. Ledger; Vice-Chairman, Mr. J. Wier; Secretary, Mr. L. Kaye; 4 Trustees, H. H. H. Huddersfield; Treasurer, Mr. J. Rowell; Show Secretary, Mr. P. Bonn, 1 Bradshaw Drive, Hooley, Huddersfield.

**THE Alfordton and District A.S.** held their first annual general meeting recently when the following officers were elected: President, Mr. A. Lindley; chairman, Mr. D. Lemson; Vice-Chairman, Mr. D. Gould; secretary, Mr. S. Hill; committee, Mr. A. Dooley and Miss M. Lindley. The chairman reported that the Society had had a very successful first year and that membership had steadily increased. An Annual Open Show would be held this year on 23rd June. A publicity campaign is to be put into operation in the area covered by the society to increase membership still further. The Table Show points trophy was presented at this meeting by Mrs. M. Simons Parkin, the winner being Mr. S. Hill.

The society meet at the Agro Centre, Chesterfield Road, Alfordton, every first and fourth Friday of each month. Activities at these meetings include a table show, lecture, film shows and a question and answer panel. Visitors and prospective members are invited to attend any of these meetings.

WE have received recently this year's handbook issued by the **Federation of Scottish Aquarist Societies**. This publication should prove a good investment for societies and is available for 3s. post free, from Mr. R. Ferguson, "Inverrie," 27 Watson Street, Falkirk.

THE new address of the show secretary of the **Reigate and Redhill A.S.** is as follows: Mr. G. Bass, "New Trees," Westcott Road, Dorking, Surrey. Telephone: Dorking 3327.

AT the March meeting of the **Pontefract and District A.S.** members were given a lecture on Aquarist plants by Mr. E. Winterburn. The results of the monthly table show were:

Plants: 1, P. Bradley; 2, H. Mortimer; 3, Goodall and Piper; Catfish: 1, G. P. Nash; 2, P. Bradley; 3, D. Cohen; Loach: 1, Goodall and Piper; 2, T. Trotter; 3, E. Bradley. The fish were judged by two visitors from Wakefield A.S. The Society's Open Show is to be held on Sunday, 6th June.

**THE North of Scotland A.S.** had a very good attendance at the March meeting. Great enthusiasm was shown when a talk entitled "Fishes of the Tropics" was given by Mr. Miles of Dunwich. The talk covered a wide range of subjects and recollections of bygone days in the original club. The recent enthusiasm on the part of the new committee and office bearers which were elected at the A.G.M. on the 16th February has encouraged a steady increase in membership, and if this trend continues the club will be once more in a very strong position.

THE first round in the 1967 Club Championship Cup contest took place at the last meeting of the **Cranley College A.S.** The judge was Mr. D. Hill, A.S.L.A.S., and the winners were as follows: 1, Mr. T. Goggins (Carpus Gasterus) 75 points; 2, Mr. Wain (Pseudorasbora) 74 points; 3, Mr. Sigmund (Labeo Rutilus) 73 points.

MORE information is available regarding the **Midland Association of A.S. Annual Convention and Open Show** at Leamington Spa on Sunday, 14th May. Leif Christensen from Denmark will be the principal speaker and there will be other demonstrations and lectures from members of the Marine Study Aquatic Society, the Federation of Guppy Breeders' Societies and the British Killifish Association. A new feature appears in the Schedule of Classes and this reads as follows: "Aquarist Projects—Individual or Society entry. Competitors should lay out on a table top 3 ft. by 2 ft., a demonstration of any technique associated with fish keeping, i.e., Breeding Set-ups, White Worms or any live food cultures, Filtration, Fish House construction plans, etc. Plans or typewritten explanation of procedure may be used. Entries will be judged and awards made on the application and general efficiency of the project in relation to the hobby."

**THE Moray A.S.** has now been formed one year and the occasion celebrated with a dinner and dance at which 32 members were present. Fourteen Trophies were presented to the winners of Home Aquaria, Table Show and Breeders classes. At the Society's first annual general meeting the following office bearers were elected: President, Mr. R. Newson; vice-president, Mr. F. P. Burns; secretary, Mr. J. W. G. Rawlings; treasurer, Mr. J. Johnson; show secretary, Mrs. A. Stewart. Committee members: Mr. A. G. Wain, Mr. W. Smith, Mr. W. Wain, Mr. G. Steer. Meetings are now held in the "Golden Phoenix," Babochmill, Elgin, and the Secretary is Mr. J. W. G. Rawlings, 4 Gordon Street, Hopeman.

A LECTURE given by Mr. A. Lindley of Nottingham at the **Chapelton and District A.S.** monthly meeting was thoroughly appreciated and enjoyed by all the members. The attendance was very pleasing and the future of the Society is looking very promising. Arrangements for the Open Show are well in hand and the results of the monthly table show judged by Mr. A. Ashby were as follows: Egglayers pairs: 1, Mr. E. Fernough (Scholobeta Barina); 2, Mr. J. Turner (Orange Chromide); 3, Master J. Anson (Rory Barb). The commencement of the interchangeable fish growing contest amongst members of the society was very successful.

AT the annual general meeting of **Calthorpe and District A.S.** some excellent suggestions were made with regard to future lectures, competitions, etc., particularly to attract new members. The treasurer reported the financial position as being "as sound as ever." Officers for the coming year are: Chairman, Mr. E. Wilkinson; treasurer, Mr. K. Carden. The new secretary to whom all enquiries should be addressed is Mr. T. N. Talbot, 68 St. Huberts Street, Gr. Harwood, Nr. Blackburn, Lancs. Meetings are held on the second Wednesday of the month at the Dog & Partridge Hotel, Waddington, Calthorpe, and visitors can be assured of a warm welcome.

THE first of the two meetings held in February of the **Honeycombe A.S.** consisted of a Table Show for six variety tropical fish, the winner being Mr. P. Geoghegan (Red Tailed Black Shark); second, Mr. J. Sweeney (Aphyosemion Anstroni) and third, Mr. S. Johnson (Black Molly). After the judging, the judge answered the many questions the members asked about the fish exhibited. While the judging was taking place the secretary gave a practical demonstration on setting up miniature furnished tanks. The second meeting was given over to a general discussion, the main subjects being foods, feeding, community fish and breeding fishes. The club is now well established with about 36-40 members and plenty of ideas for the future. The secretary is Mr. P. Gains, 1 Manserret Road, Ashford, Middlesex.

THE entertainment at the March meeting of the **Aireborough A.S.** included an Auction and an extremely interesting slide show. Awards for the Table Show were as follows: Specified class (Barbs): 1 and 3, Mr. P. Iverson; 2, Mr. Burns; A.O.V.: 1 and 2, Mr. R. Lister; 3, Mr. P. Iverson; Novice (Barbs): 1 and 3, Mrs. P. Iverson; 2, Mrs. J. Whalley; Junior: 1, Master K. Lister. The award for the Best Fish in Show went to Mr. R. Lister.

THE guest speaker at the **Swillington A.S.** was Mr. Ray Hampton, who gave an excellent evening's entertainment with slides and tapes he has exchanged from the American society of Iowa A.S., which gives an idea of how the American approach to fishkeeping differs from our own. This entertainment can be recommended to all aquarists. The Table Show results were Catfish: 1, Mr. K. Shales; 2, Master P. Reynolds; 3, Mrs. A. Gough; 4, Vester and new members are most welcome. The second Annual Show is to be held on the 18th June at Swillington Primary School. For further details please contact the Show Secretary, Mr. P. Smiler, 22 Preston View, Swillington, Woodford, near Leeds.

ALL officials and members of the committee were re-elected at the **Bedford A.S.** annual general meeting. The club secretary is Mrs. B. Rashid, 71 Power Hill Road, Bedford. Recent winners have been as follows: Beginner Class: 1, Mr. East; 2, Mr. Danna; 3, Mr. Durdley; 4, Haylands Youth Club. Intermediate: 1 and 2, Mrs. Hall; 3, Mr. Ames; Senior: 1 and 3, Mr. and Mrs. Jeffs; 4, Mr. Davis.

At the annual dinner and dance 115 members and friends spent an enjoyable evening when the President, Mr. Geoghegan, presented the following awards: Geoghegan Trophy (Best Goldfish), Mr. Abraham; Munton Trophy (Best Tropical), Mr. B. Thompson; Bell Shield (Best Furnished Aquarium), Mr. B. Whitfield; Gavrin Trophy (Best Breeders), Mr. and Mrs. Jeffs; Geoghegan Cup (Breeder's Pair), Mr. B. Thompson. Most Points gained at Club meetings during 1966: 1, Mr. B. Thompson; 2, Mr. B. Whithead; 3, Mr. K. Satterthwaite. Results at the March meeting were: Tooth Carps: 1 and 3, Mr. R. Thompson; 2, Mr. Daver; Pauchak: 1, 3 and 4, Mr. R. Thompson; 2, Mr. and Mrs. Jeffs.

RECENTLY, Miss G. Russell Allen, president of the **Northwich and District A.S.**, presented on behalf of the Society an ultimatum to the Casualty department of the Victoria Infirmary, Northwich. The 3 ft. Aquarium on a wrought iron stand was obtained with money raised through selling Christmas cards. It was cracked

with plants and fish donated by members who will carry out the routine servicing on the third Wednesday of the month at 7.30 p.m. at the Old Friends Club, Barbary Lane, Off Queensgate, Northwich. New members always welcome. Information can be obtained from the Secretary, Mr. L. Bradley, 4 Ash Road, Sandiway, Northwich, Cheshire.

At the Salisbury and District A.S. annual meeting shields were awarded to members holding the maximum number of points at monthly bottle shows. These were as follows: 1, Mr. L. Goddard; 2, Mr. A. Cooper; 3, Mr. R. Brown. It was also agreed to hold the third Open bottle show again this year on Saturday, 10th June. Anyone wishing to join the Society should write to the Secretary, Mr. J. Goddard, 98 Fisherton Street, Salisbury, Wilt.

The February programme of the Blackpool & Fylde A.S. began with the presentation of the Junior Awards for 1966-67. The President of the Club, Mr. Clifford Cross, presented the cups which were awarded as follows: W. G. T. Trophy, David Taylor; Junior Fish of the Year Trophy, Keith Guise; Singleton Trophy, David Taylor; Belgrave Trophy, Chris Hartman; Hammond Trophy, David Clark; Simonis Trophy, David Taylor. A highly amusing and original film show followed. The second February meeting took the form of a quiz, North Blackpool v. South Blackpool. The South took the honours, but only by a margin of one point.

The following members have been elected to serve at the coming year's Show Committee: Show Chairman, Mr. R. B. Simmonds; Show Secretary, Mr. J. Cross; Show Committee, Messrs. P. Corbett, L. Jones, B. Little, A. Mather, J. F. Taylor, B. Turner, P. C. Wilkin. All enquiries regarding show business should be addressed to the Show Secretary, Mr. J. Cross, 14 Rose Avenue, Blackpool. Any other enquiries can be addressed to the Club Publicity Officer, Mr. B. Turner, 3 Kent Road, Blackpool, phone 22524.

At the annual general meeting of the North Warwickshire A.S. the following were elected as officers and committee members for the year: Chairman, S. Swaffling; Vice-Chairman, Mr. A. Skinner; Secretary, L. W. Hale, 880 Kingsstanding Road, Kingsstanding, Birmingham 22; Treasurer, D. Bennett; Show Secretary, K. Brigham. Other members elected on to the committee were Mrs. N. Orton, T. Nason and M. Reynolds.

The report on the society's activities showed that 1966 had been yet again another successful year both in achievement and financially. The society had again taken first place in the Midlands Open Show and the record was stood at four firsts and one second in the last five years. Over 70 members attended the last meeting to hear a very interesting talk and film slide show on "Fish House construction." This was followed by slides of a few of the fish. It came as a great shock to all members to hear of the sudden death of Jim Edwards, show secretary of M.A.P.S., and the society would like to convey their sympathy to Mrs. Edwards and to M.A.P.S. at their very great loss. The society will meet twice a month and any person interested should write to the Secretary who will be pleased to forward details.

At the two recently held club meetings of the Uxbridge and District A.S. members heard lectures from Mr. T. Summarts and Mr. Morrice. Mr. Summarts talked on water and suggested that fish should be kept in as near natural conditions as possible, soft water for fish requiring soft water and so on. The lecture by Mr. Morrice was on fish breeding. He advised members to obtain a good pair of fish being them up to top condition and then when the young have spawned and grown to a reasonable size sort out good from bad thus ensuring that only good fish were kept.

Another interesting evening was the Hummell Convention held recently. Mr. J. Kelly gave a most interesting illustrated talk on his experiences with fishkeepers in the U.S.A. The society's Open Show will be held on Saturday, 17th June at Meadow School, Royal Lane,

Hillingdon, Uxbridge. Full details are available from Mr. P. Gigger, 2 Clovelly Avenue, Hillingdon, Uxbridge.

A TABLE show for A.V. fish was decided at a recent meeting of the Stockton-on-Tees A.S. the results being as follows: Egg-layers: 1, Mr. W. Bowman (Blond Cave fish); 2, Mr. and Mrs. P. Patterson (Tiger Barb); 3, Mr. and Mrs. P. Patterson (Nigger Barb); 4, Mr. and Mrs. K. Chinnert (Giant Gourami); 5, Mr. and Mrs. P. Patterson (Seaweed); 6, Mr. and Mrs. P. Patterson (Claris Catfish); Livebearers: 1, Mr. W. Payne (Vahl Molli); 2, Mr. J. Chamberlaine (Vahl Molli); 3, Mr. L. Collins (Red Sword); 4, Mr. L. Collins (Red Sword); 5, Mr. L. Tomlinson (Vahl Molli Guppy); 6, Mr. K. Pearson (Victory Platy). A very interesting talk and demonstration was given by Mr. W. Bowman on tank glazing and this was very well received.

#### To Club Secretaries

The details of the "Best Fish in the Show" awards can be obtained by referring to the Champion of Champions notice on page 50.

THE results of the Belle Vue Open Show were as follows: Guppy: 1, D. Johnson (Stockport) 75 pts.; 2, C. Bridges (Belle Vue) 75 pts.; 3, J. Allen (T.A.B.) 75 pts.; Platy: 1, K. Pearson (Belle Vue) 75 pts.; 2, Mr. Kershaw (Heywood) 71 pts.; 3, G. Hodgkinson (Gorton & Openshaw) 69 pts.; Molli: 1, M. Fisher (Glossop) 72 pts.; 2, Mr. Woodward (Blackpool) 70 pts.; 3, Mr. Wills (Stratford) 68 pts.; Swordtail: 1, Mr. Berridge (Blackpool) 74 pts.; 2, Mr. Kline (Heywood) 70 pts.; 3, Mr. Slater (Macclesfield) 68 pts.; Small Barb: 1, Mr. Gregory (Oram) 76 pts.; 2, Mr. Gregory (Oram) 75 pts.; 3, Mr. Tomkinson (Glossop) 71 pts.; Large Barb: 1, Mr. K. Parks (Merserside) 90 pts.; 2, Mr. Parks (T.A.B.) 75 pts.; 3, Mr. Jackson (Belle Vue) 70 pts.; Small Characina: 1, Mr. Hill (Alfreton) 76 pts.; 2, Mr. Newall (Glossop) 72 pts.; 3, Mr. Booth (T.A.B.) 69 pts.; Large Characina: 1, Mr. Parks (T.A.B.) 77 pts.; 2, Mr. Wills (Stratford) 76 pts.; 3, Mr. Price (Gorton & Openshaw) 72 pts.; Killifish: 1, Mr. Hodgkinson (Gorton & Openshaw) 75 pts.; 2, Mr. Jackson (Belle Vue) 73 pts.; 3, Mr. Hill (Alfreton) 70 pts.; Minnow and Danio: 1, Mr. Ingram (Glossop) 70 pts.; 2, Mr. Hayes (Heywood) 68 pts.; 3, Mr. Bradley (Oram) 66 pts.; Shanks and Poets: 1, Mr. Kershaw (Heywood) 74 pts.; 2, Mr. Mulla (Merserside) 72 pts.; 3, Mr. Woodward (Blackpool) 70 pts.; Barbours: 1, Mr. Gregory (Oram) 72 pts.; 2, Mr. Gregory (Oram) 70 pts.; 3, Mr. Pywell (T.A.B.) 68 pts.; Small Goldfish: 1, Mr. McGour (Gorton & Openshaw) 78 pts.; 2, Mr. Taylor (Oram) 77 pts.; 3, Mr. Jackson (Belle Vue) 74 pts.; Large Goldfish: 1, Mr. Mulla (Merserside) 75 pts.; 2, Mr. Allen (T.A.B.) 72 pts.; 3, Mrs. Lomas (Glossop) 71 pts.; Angelfish: 1, Mr. Woodward (Blackpool) 76 pts.; 2, Mr. Tomkinson (Glossop) 70 pts.; 3, Mr. Woodward (Blackpool) 68 pts.; Catfish: 1, Mr. Booth (T.A.B.) 77 pts.; 2, Mr. Parkin (T.A.B.) 74 pts.; 3, Mr. Roberts (Coltbrook) 72 pts.; Loaches: 1, Mr. Wills (Stratford) 76 pts.; 2, Mr. Taylor (Oram) 75 pts.; 3, Mr. Hodgkinson (Gorton & Openshaw) 72 pts.; Fighters: 1, Mr. Wilkesham (Oram) 72 pts.; 2, Mr. Bassley (Oram) 71 pts.; 3, Mr. Booth (T.A.B.) 69 pts.; Anabantids: Mr. Pywell (T.A.B.) 75 pts.; 2, Mr. Mulla (Merserside) 71 pts.; 3, Mr. Parkin (T.A.B.) 72 pts.; A.O.V. (Tropical): Mr. Moorhouse (Bradford) 82 pts.; 2, Mr. Wills (Stratford) 80 pts.; 3, Mr. Hodgkinson (Gorton & Openshaw) 75 pts.; Coldwater: 1, Mr. Greenwood (Stratford) 72 pts.; 2, Mr. Roberts (Coltbrook) 70 pts.; 3, Mr. Birch (Heywood) 68 pts.; Juniors: Livebearers: 1, Master Slater (Macclesfield) 72 pts.; 2, Master Middleton (Gorton & Openshaw) 70 pts.; 3, Miss Birch (Heywood) 69 pts.; Egg-layers: Master Hodgkinson (Gorton & Openshaw) 74 pts.; 2, Master Middleton (Gorton & Openshaw) 72 pts.; 3, Master Slater (Macclesfield) 69 pts.

OFFICERS of the Marine Study Aquatic Society of Gt. Britain for the period 1967 are elected at their annual general meeting recently. They are as follows: Chairman, Mr. L. V. Clements; Vice-Chairman, Mr. W. T. Ryder; General Secretary, Mr. T. R. Hall, 21 Canfield Gardens, London, N.W.8; Assistant General Secretary, Mr. K. Martin; Shows Secretary and Editor, Mr. G. H. Jennings; Assistant Editor, Miss P. Blackwood; Treasurer, Mr. I. Rose; Librarian, Mr. G. Klugger-Langer; other committee members being Mr. Prady and Mr. A. Crouch; Public Relations Officer, Mr. A. S. Metzger.

The Society reports an extremely successful year, the membership now being just under 100. Due to many enquiries for information it has decided to inaugurate a new grade of membership for other aquatic organisations, that of Affiliate membership. Also just published are the first series of judging guides and standards for marine fish. Full further particulars on the society's activities can be obtained from the General Secretary, Mr. Hall.

At the Portsmouth A.S. March meeting, the Table Show was for Livebearers, the judge Mr. I. Smith, commended members on the high standard of the fish. The best fish in the show was won by Mr. P. Willis with a Platy. Other results: Male Guppy: 1, Mr. P. Carlson; Female Guppies: 1, 2 and 3, Mr. A. Smith; 4, Mr. E. Berridge; Platies: 1, 2 and 3, Mr. P. Willis; 4, Mr. P. Carlson; Molli: 1, Mr. E. Bowers; 2, Mr. G. Marks; 3, Mr. B. Dimond; 4, Mr. E. Berridge; Swordtails: 1, Mr. G. Marks; 2, Mr. P. Carlson; 3 and 4, Mr. E. Berridge; Lionfish: 1, Mr. G. Marks; 2 and 3, Mr. P. Carlson; 4, Mr. E. Berridge. The guest speaker was Mr. T. Trimminger, who gave a very interesting talk illustrated by coloured films on Sea-Angling.

THE proceedings at the first meeting in March of the Hull A.S. were taken by the tape lecture on White Spot. Mr. Chapman (chairman) gave an interesting demonstration on making tanks look more pleasing to the eye with the addition of a concrete backing. After the usual business on the second meeting in March, there was a panel dealing with members' questions on breeding and raising problems. The panel was composed of Mr. W. Hall, Mr. Chapman and Mr. Searcy.

ON the 13th March, the Ilford and District Aquarist and Pondkeepers' Society held its monthly meeting at St. Lawrence's Church Hall, Barkingside, Ilford, when the main item on the programme was a sale of fish, plants and equipment for members. The first Table Show at the new season drew a large number of entries, and the winning subjects were as follows: Any Variety Egg-layers: 1, Mr. J. Hatten (Cherry Barb); 2, Mr. R. Birch (Blue Acara); 3, Mr. J. Hatten (Rory Barb); 4, Mr. J. Hatten (Tiger Barb); Any Variety Livebearers: 1, Mr. J. Hatten (Platy Variants); Mr. J. Hatten (Scarlet Guppy); 3, Mr. Sheehan (Female Guppy); 4, Mr. Sheehan (Stance Platy); Mr. T. Robinson (Black Molly). At the kind invitation of Mr. Wade about twenty members visited his tropical fish establishment at High Street North, Nassau Park, E.12 recently to view his display of marine aquaria. A most interesting talk on this subject was given by both Mr. and Mrs. Wade and the setting up of marine tanks and the keeping of marine fishes was discussed in detail. In addition, two excellent films of underwater life were shown and those who attended had an informative and entertaining evening.

In May next the London Borough of Redbridge will be holding an Arts Festival which will include an Arts and Crafts Exhibition to be held for five days at Selldrop, Ilford. The Society will be taking part in the exhibition and it is hoped that in this way further publicity will be given to the hobby locally. Information about the Society is available from the Secretary, Mr. E. Runk, 13 Dunkeld Road, Dagoban.

THE Lanarkshire Aquarist Society raised its first place in the 1966 F.A.S. Club table.

The speaker at the March meeting was Mr. N. Beales who gave the club a very interesting talk accompanied by slides on the keeping and breeding of Dwarf Goldfish.

The results of the Table Show were as follows: Dwarf Goldfish: 1, P. Haggarty; 2, H. Christie; 3, A. Watt; A.D.V. Tropical: 1, H. Christie; 2, P. Haggarty; 3, R. Rissall; Sharks: 1 and 3, A. Watt; 2, R. Patterson. At the March 1967 Convention of the F.S.A.S. Open Show the following Trophies were won by club members: S. Niswirth—Dundas Key Trophy (Brooders Livebearers "A"); S. Niswirth—Troy Trophy (A.O.S. Class); R. G. Hall—Tom Beveridge Cup (Gouramini); A. Watt—Scottia Cup (Egg-Laying Trout Carps); A. Watt—Erachan Kerr Trophy (Brooders Livebearers "B"); E. Watson—Soudate Trophy (Large Goldfish).

The Society holds its meetings on the first Friday of every month. Visitors are assured of a very warm welcome and further details can be obtained from the Secretary Mr. J. Watson, 8, Westmorland Street, Glasgow 52.

At the annual general meeting of the **Birkenhead and District Aquarist Society** the following members were elected to office on the committee: Secretary: Miss Maria Hughes, 174 Mount Road, Preston; Treasurer: Mr. Kevin Lander; Show Manager: Mr. Ian Threlkeld; Chairman: Mr. Terry Fretwell, P.R.O. Mr. Ernie Longhorn, 109 Green Street, Birkenhead.

The Society meets every other Wednesday at the Music Hall Hotel, Clougham Road, Birkenhead and new members are cordially invited to join.

On the 26th March the Chairman Post club were visitors and a quiz and show was held. Chairman Post took most of the honours at the show while the lion won the quiz.

**MEMBERS of the Leamington and District A.S.** recently held a really first-class talk on Nerine Marlines by Mr. Sharp, illustrated with some very good slides. There was a very good run out for the Table Show, particularly in the Novice classes. The results were as follows: Novice—A. V. Englester, 1, M. Leyton; 2, M. Smith; 3, Mrs. S. Underwood; 4, J. Barlow. Novice—A. V. Englester; 1 and 2, P. N. Thomas; 3 and 4, Mrs. S. Underwood. Open—Tree Plant of England: 1 and 3, Mrs. J. K. Smith; 2 and 4, P. Underwood.

To any persons who reside in the North of England, and who are interested in rearing and showing Tropical Marine or Goldfish Marlines and Invertebrates and who would be willing to attend meetings to be held one night each month, the first one to be held in the vicinity of Manchester—

A number of people wish to form a Society for the furtherance of the hobby, and made available to all interested. The following people have been approached to act as Officers, and will be in attendance: Chairman: Mr. C. Walker; Secretary: Mr. P. Moorhouse; Treasurer: Mr. A. Harper. To arrange the first meeting with interested persons please contact: Mr. C. Walker, 95 Springwood Hill Road, Fitton Hill, Giffarth, Lancashire.

The March issue of the monthly Bulletin of the **Nottingham and District A.S.** contains a tribute to Mr. Harold Lazen whose health is gradually improving. The winner of the Mackenzie and Lazen challenge trophy was Mr. K. Riley and the Appreciation Cup was awarded to Mr. and Mrs. N. H. Goodfirth. The annual show is to be held on the 9th and 10th September at the Drill Hall, Triumph Road, Nottingham.

At the Annual General Meeting of the **Worcester Aquarist Society**, the following officers were appointed: Chairman: Mr. D. Boscroft; Vice-Chairman: Rey. Sell; Secretary: Mr. L. Coman; Assistant Secretary: Mr. F. Price; Show Secretary: Mr. F. Fairbairn; Treasurer: Mr. P. Fairbairn; Committee: Mr. B. Howe, Mr. D. Boscroft, Mr. T. Smith. Trophy winners: W.A.S. Furnished Aquarium: Mr. J. Johns; Table Challenge Shield, for Table Show: Mr. Whelan and Mr. Graham. The

cup for livebearers was awarded to Mr. and Mrs. P. Fairbairn.

The Club will shortly be moving to new and better headquarters, and in the meantime however, the next meeting will be held at the "Labour Club", New Street, Worcester. A cordial invitation is offered to new members who may contact Mr. L. Coman, 117 Cloverdale, Stoke Prior, Birmingham.

The speaker at the main meeting in March of the **Bradford and District A.S.** was Mr. Bateman, his subject being "Water". The table show was for Characins and the results being as follows: 1, Mr. G. Orchard; 2, Mr. G. Holdsworth; 3, Mr. P. Moorhouse. A.D.V. results: 1, Mr. B. Lightowler; 2, Mr. G. Orchard; 3, Mrs. J. Creep. On the 4th June there is a social evening in Clatworth House and Gardens, the home of the Duke of Devonshire.

#### AQUARISTS' CALENDAR

**6th May:** Trowbridge and District A.S. Annual Open Show, Nelson Haden School, Trowbridge. Details from Mrs. P. Parson, 69 Alfred Street, Wexbury, Wiltshire.

**7th May:** Regent Society Derby Annual Show. Details are available from Show Secretary, Mr. A. Widdowson, 19 Panchley Avenue, Mackwood Estate, Derby.

**7th May:** Oram A.S. Open Table Show.

**7th May:** Leigh A.S. Open Show, Leigh Rugby Union Club, Beach Walk, Pennington, Leigh.

**10th May:** Preston A.S. Second Open Show at the London School of Printing, Elephant and Castle, London, S.E.1. Schedules available from Show Secretary, Mr. A. Howe, 28 Robson Street, Catford, London, S.E.6.

**10th May:** Harlow and District A.S. Open Show, The Brotherhood Hall, Edgware Road, West Harlow, N.W.9. Show schedules from Mr. J. Gorman, 41 Honeyport Lane, Stansmore, Middle.

**10th May:** Lanchashire A.S. Open Show. Further details are available from the Secretary, Mr. E. Watson, 8 Westmorland Street, Glasgow, S.2.

**10th May:** Workshop Aquarist and Zoological Society, Third Annual Open Show, Venus Kiln Youth Club, Kiln Hill, Worksop.

**10th May:** Annual Convention of the Midland Association of Aquarist Societies, Lockhead Hydraulics Ltd., Works Caravan, Leamington Spa.

**21st May:** Morden T.P.S. Second Annual Open Show. Schedules available from Mr. H. Brown, 9 Clough Bank, Morden, Halifax.

**2nd June:** Catford A.S. Open Show. Full details from Show Secretary, Mr. K. D. Owen, 42, Elmer Road, Catford, London, S.E.6.

**4th June:** Postnort and District A.S. Open Show.

**10th June:** Salisbury & District A.S. Open Bottle Show. Secretary, Mr. J. Goddard, 98 Fisherton Street, Salisbury.

**11th June:** Lytham A.S. Open Show at Lowther Pavilion, Lytham.

**17th June:** Uxbridge and District A.S. Open Show. Venue to be announced later.

**17th June:** Brighton and Southern A.S. Annual Open Show at The Raffle Hall, Hove. Enquiries to Mr. Bry. Browning, 34 Bowen Close, Portlido, Sussex.

**18th June:** Glossop A.S. Open Show. Secretary, Mr. John Ingram, 37 Charltonston Road, Glossop, Derbyshire.

**18th June:** Stone A.S. Annual Open Table Show to be held at the Walton Community Centre, Walton, Stone, Staffs.

**24th June:** Southampton and District A.S. Open Show at St. Peter's Hall, Commercial Road, Southampton (open, Guestbook closed). Hon. Show Secretary, Mr. D. V. Jones, Five Farn, Curdridge, Southampton.

**25th June:** Alfreton and District A.S. First Open Show at the Alfreton Arts Centre, Clatterfield Road, Alfreton. Schedules available from Mr. S. Hill, 35 South Street, Kiddings, Derbyshire.

**25th June:** Didcot and District A.S. Open Show at Didcot Labour Club. Schedules from Mr. P. Tuckey, 2 Morris Close, Didcot.

**25th June:** Skopon and District A.S. Open Show.

**1st July:** Hutton Grammar School A.S. Annual Open Show. Enquiries specially invited from Junior Sections and School Aquarist Societies. Show Secretary, Mr. D. J. Buckle, "Kilda," Todd Lane South, Lutwick Hall, Preston.

**2nd July:** Leamington & District A.S. Second Open Show to be held at the Warwick Youth Centre, Cotem End, Warwick. Further details from the secretary, Mrs. S. Underwood, 22 Wentley Road, Leamington Spa.

**2nd July:** Maresfield A.S. Open Table Show.

**9th July:** Basingstoke and District A.S. Annual Show at St. John's Hall, Victoria Street, Basingstoke. Schedules from Mr. A. Marshall, 61 Pinnac Close, Basingstoke, Hants.

**26th-27th August:** Harlow A.S. Aquatic Show. Secretary Mr. J. Dawson, 28 Long House Rush Fair, Harlow.

**7th-12th August:** Portsmouth A.S. Open Show.

**23rd-26th August:** Midland Aquarium and Pool Society. Annual Open Show at Ringier Hall, Birmingham. Show schedules from Mr. J. Wynn, 120 Franklin Road, Kings Norton, Birmingham, 30.

**26th-27th August:** Oram A.S. Annual two-day Show.

**2nd September:** High Wycombe A.D. Annual Open Show at the Rye, High Wycombe. This will include a Guppy Show staged by the Three Counties section of the F.U.B.S. to be judged under their rules. Details for both sections from Mr. C. Pike, 16 Ashley Drive, Tyers Green, Potts, Bucks.

**2nd September:** Yate and District A.S. First Open Table Show. Schedules from Show Secretary, Mr. J. B. Powell, 114 Cranleigh Court Road, Yate, Glos.

**3rd September:** Reigate and Redhill A.S. First Open Show. Secretary (Show) Mr. E. Bass, 1 Caroline House, Rees Road, Redhill, Surrey.

**9th-10th September:** Nottingham and District A.S. Open Show at the Drill Hall, Triumph Road, Nottingham.

**10th September:** Huddersfield Tropical Fish Society. Fifth Open Show. Secretary, Mr. L. Kaye, 6 Tootles, Hemforth, Huddersfield.

**12th-16th September:** Bristol A.S. Annual Open Show at Bishopston Parish Hall, Gloucester Road, Bristol. Hon. Secretary, Mr. W. G. Hans, 18 Imperial Road, Bristol, 4.

**16th September:** Newport A.S. Annual Open Show. Show Hill Secondary School, Newport (to be confirmed). Show Secretary, Mr. M. J. Parry, 45 Western Drive, Guballa, Cardiff.

**17th September:** Atherton A.S. Open Show. This is a provisional date. Show Secretary, Mr. A. W. Spence, 13 Orchard Close, Wetherley, Atherton, Warwicks.

**23rd September:** Backwell & District A.S. Open Show, Victoria Hall, Backwell, Berks. All available details from Show Secretary: Mr. B. Johnson, 18 Highfield Close, Cave, Farnborough, Hants.

**24th September:** Backwell and Fyde A.S. Open Show at Harrowood Solarium, South Promenade, Backwell.

**1st October:** Raywood and District A.S. Open Show at Labour Club, Bridge Street (opposite Seven Stars), Heywood, Lancs.

**7th October:** Mid-Herts. A.S. Open Show at St. Paul's Church Hall, St. Albans.

**25th-28th October:** British Aquarist's Festival, Belle Vue Zoological Gardens, Manchester. Details from Mr. G. W. Cooks, Spring Grove, Field Hill, Batley, Yorks.

**28th November:** Fur, Feather and Aquaria Show organised by the Borough Council of the London Borough of Hackney, King's Hall, Upper Clapton Road, E.5.

**3rd December:** Leeds and District A.S. Open Day Show.

**2nd December:** Ainsborough & District A.S. Annual Open Show.



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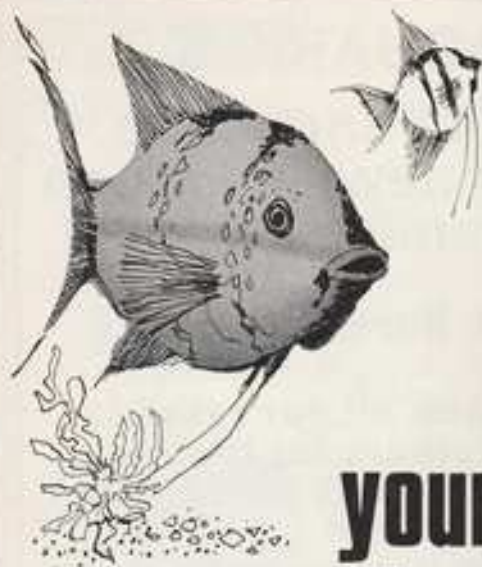
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