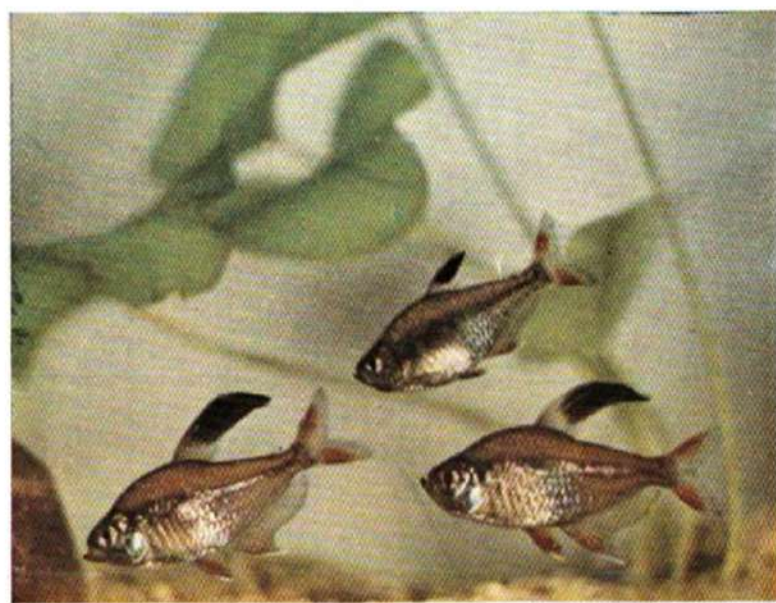


October—November 1956

Two shillings & sixpence

# WATER LIFE

*and Aquaria World*



## PRINCIPAL CONTENTS

How to Decorate Your Aquarium

Photographing Fish

Albino Moenkhausias

Flag-flying Tetras

A Pond for the Garden Scheme

Useful Temporary Aerator

FRONT  
COVER



From British Guiana and Brazil comes the Characin species, *Hyphessobrycon rosaceus*, popularly known as the Rosy or Black Flag Tetra. Our front cover photograph shows two males (lower fish) and one female. An article on them appears on page 214. [Photographs] [G. J. M. Timmerman]

# WATER LIFE

AND AQUARIA WORLD

## Art and Craft

LET us be quite honest about the standard of aquarium decoration in the home—it is not as high as it should be. We may see the most tantalising set-ups at aquarium exhibitions but when we arrive home and try to copy the design our efforts are generally not up to expectations. The majority of us are not born artists in the creation of underwater pictures; we cannot take a rectangular tank, a bunch of plants and a shoal of fish and create a scene aesthetically pleasing.

We have to rely much more on attempts to emulate someone else's artistry, carrying the picture of the aquarium away in our mind's eye and trying to make a perfect copy. We are usually unsuccessful for no greater reason than we did not make a detailed study of the technicalities of the set-up. We forget exactly where the pieces of rock were placed, for instance, or how a particular group of plants seemed to rise up and hide the angular corner of the tank. An error of just two inches in the confines of a 24 in. tank can turn artistry into confusion.

It was with these thoughts that we asked the Hendon Society to have its successful furnished aquarium exhibitors put the designs of some of their prizewinning exhibits on paper for the guidance of others. If we are not original artists, then we can at least be craftsmen and work from a plan to produce a set-up of which we can be proud. It is hoped that in the centre four pages of this issue readers will find some designs to their liking.

### Basic Facts

Though our main failing with indoor aquarium furnishing may be lack of inherent artistry, the same reason cannot be put forward for mediocre results in garden pond construction. Too often here it is a case of not understanding the fundamental principles, and blissful ignorance results in a pool being built which is neither a credit to the garden nor of much use for all-the-year-round fish culture.

An appreciation of certain basic factors can enable the prospective pondowner to go about his task with confidence. Mr. James Stott supplies the information on pages 215-217, giving further value to his contribution by illustrating it with diagrams of artistic and labour-saving designs.

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**COVER  
FISH  
SPECIAL**

## Flag-flying Tetras

A Proud and Peaceful Characin in the Rosy Tetra or Black Flag Fish, *Hyphessobrycon rosaceus*

**T**OP marks to the Rosy Tetra (*Hyphessobrycon rosaceus*) for possessing practically all the attributes we ask of our tropical aquarium fishes. The Characins are a large Family of fishes from which we can select, yet the Rosy Tetra is not far behind the Neon Tetra for colour appeal. If there is anything to its disfavour it is its fickleness in breeding but, to the seriously-minded aquarist who likes to pit his skill against the secrets of Dame Nature, this can add to, rather than detract from, the species' fascination.

*H. rosaceus* has a depth of body common to many Characins, including Flame Fish and Serpae Tetras, and is laterally compressed to give it a slim yet deep impression when the fish is viewed head-on. Body colour is a rich red which possesses a translucent quality, whilst the back and head are reddish brown.

### Dorsal Colouring

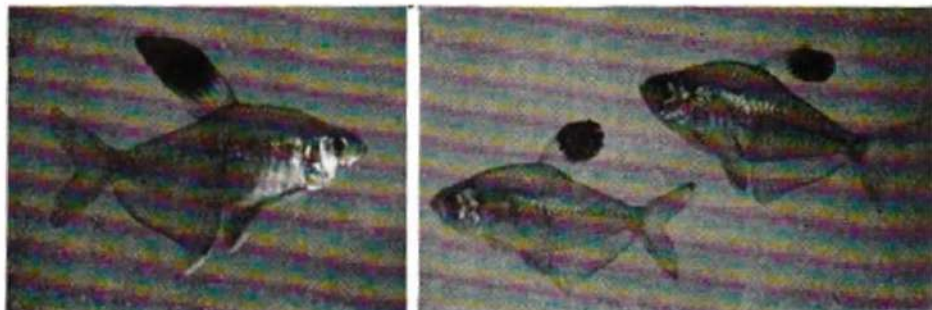
The fins carry the red colouring with a large black mark edged by white in the dorsal. The dorsal fin is tipped with enamel white as are the pelvics and the forepart of the anal. The red in the fins is particularly intense in the outer margins of the tail forks, in the pelvics and along the outer edge of the anal.

The sexes are particularly easy to distinguish as the male's dorsal has its first half-dozen rays extended so that the black patch is carried at full mast. Rarely is this fin at rest and it is carried with a pride which has resulted in the fish sometimes being called the Black Flag Fish. The first few rays of the male's anal fin are also well developed. At maturity the

### RED-TINTED CHARACIN

The Rosy Tetra (*Hyphessobrycon rosaceus*). Extreme right, two females. Near right, a male showing reasonable dorsal and anal fin development.

Photographs by G. J. M. Timmerman



female is rather fuller in the body and generally the extremity of her dorsal boasts a red tip.

*H. rosaceus* are fishes well suited to community tank life but, to be seen at their best, a shoal of upwards of half-a-dozen should be included. A group of such proportions will make them a focal point of the tank. With other Characins they seem in their element and many a prize-winning furnished aquarium has contained nothing more than groups of Rosy Tetras and *Hyphessobrycon serpa* with a few Lemon Tetras (*Hyphessobrycon pulchripinnis*) sometimes added for colour contrast. The adult length is about 1½ in.

If the fish is regarded as nothing more than a colourful

inmate of the decorative tank plenty of pleasure will be had from it but, for those who like to try their hand at breeding, water on the acid side (about pH 6.6-6.8) is suggested at a temperature in the region of 80 deg.F. Out of the breeding tank 72-76 deg. will suffice but water with a slightly acid reaction is still preferred.

### Conditioning the Parents

The pair from which it is intended to breed should be fully conditioned for a few weeks before being put in the breeding tank, well supplied with aeration. The spawning aquarium should be well sterilised before water to a depth of about 7-8 in. is added. Fine-leaved plants, artificial sea fern (Sea Cypress), coconut fibre or nylon wool should then be set fairly thickly but a clear area must be left between the water surface and the top of the spawning medium because very often the Rosaceus show a preference to spawn above the plants or whatever other medium is being used.

The adult pair of fish should be introduced in the evening and will generally spawn within two or three days. A close watch should be kept when spawning seems imminent as the parents are avid egg eaters and must be removed immediately egg-laying is finished. The pair come together and approximately a dozen eggs are laid which fall among the spawning medium. Pairing continues for about an hour after which the adults should be taken out.

### Shady Situation

The spawning tank should be shaded. Hatching takes place in from 24-36 hours and the fry become free-swimming after three days, when they must receive fine Infusoria. The young fish will continue to feed on Infusoria for rather more than a fortnight and may then be given the smallest of

*Daphnia* or newly-hatched Brine Shrimps. The rearing quarters should on no account be overcrowded at any period.

### Choice of Partners

Following this procedure will not necessarily guarantee successful spawnings, for *H. rosaceus* is a species which many aquarists find difficult to breed. One of the major considerations seems to be to use fish for breeding which appear to have paired off naturally before the spawning attempt is made. This "self-selection" invariably results in more breeding successes although sometimes random fishes put together will spawn.

## Diary of a Pondkeeper

## A Pond for the Garden Scheme

Four Layouts that Can Be Adapted to Give Harmonious Water Garden Effects  
—Formal and Informal Alternatives

— By —  
J. Stott

*Mr. W. Bowen of Hendon, N.W.4, constructed this pleasing garden pool on the site of a brick air-raid shelter. It serves to show what can be achieved when a carefully considered design is incorporated in an average garden. Mr. J. Stott suggests some attractive formal and informal layouts in this month's article of his series.*



**A**UTUMN is generally regarded as the best season for pond building and the construction of water gardens because not only should the weather be suitable for working concrete, neither too hot or too cold, both of which can have adverse effects on the setting of concrete, but the ground, given normal conditions, is in a workable state for excavation after the Summer months. It is also a good time for transplanting the Spring and Summer flowering perennial plants. Furthermore, when the building is undertaken at this time, everything is given the opportunity to settle down and the alkalinity of the new concrete neutralized or "weathered out" through the Winter ready for the final filling and planting in the Spring.

When a decision has been made to build a pond, or even a more elaborate water garden, the lay-out must be seriously considered. The first thing that comes to mind is design or it certainly should be if the finished product is to be satisfying. Thought expended at this stage will be rewarding for seldom do good results occur after hasty, haphazard preparations. It is, therefore, my intention to confine my remarks in this Autumn number to the subject of design to aid beginners who are contemplating pond or water garden construction this Autumn.

#### Basic Requirements

Whatever form, shape or style the finished product may take six fundamentals must be embodied if trouble is to be avoided at a later date.

1. The concrete basin of the pond should be thick enough to withstand the severity of extreme Winter conditions. In my opinion there should be at least a 4-in. layer for the walls and a 6-in. thickness for the base.

2. If the pond or other waterway will be used for Wintering fish then a depth of no less than 2 ft. must be provided either overall or else at some part so that the fish can get well below the freezing line.

3. Position of the pond. An open site is the best so that plenty of sunlight will reach the water to ensure good results with the plant life. Overhanging trees should be avoided and prolonged excessive shade from nearby buildings is also undesirable.

4. If rockwork is to be included in the surround where alpines and other rock plants will be grown then adequate drainage must be provided for the proposed area. It is also a great advantage to have the rock banks or sloping beds facing south or as near south as can be arranged.

top soil by removing it completely in the first instance and storing it to one side. Deep excavations for the pond, waterways and moraines, etc., may then be commenced without loss of the original topsoil which can be replaced in any position it is required when the foundation work is completed.

6. If a bog or marsh garden is to be included in the surround care should be taken when constructing it to ensure that it will be able to maintain moist conditions at all times, including periods of Summer drought.

#### Decorative or Utilitarian

Finally one should give some thought to the principal purpose for which the pond is intended. If the would-be pondkeeper is chiefly concerned with fish breeding then the design can take a different form entirely to that of the pond which is intended to be, in the main, a decorative feature. On the other hand, if it is to serve both as a garden decoration and suitable for a certain amount of fish breeding as well, then the design must be one that will cater for both purposes. With these factors firmly in mind the actual task of planning the lay-out can be started and it is a great help to study the proposed site, carefully trying to visualize the finished work, then gradually to build up the idea as a drawing on paper.

Pond or water garden designing usually takes one of two basic forms, formal or informal, and from an aesthetic point of view it is unwise to mix the two together in one design. While the formal takes a strictly geometrical line with severe angles playing an important part in the appearance of the finished lay-out the informal depends on an irregular shape in an attempt to reproduce a natural effect. In a formal arrangement the pond may be built actually on the ground with the walls (usually made ornamental) exposed. Such a pool is referred to as a raised pond. The alternative is for the pond to be sunk in the ground so that the top of the walls are flush with the ground level. It is then known as a sunken or ground-level pond. Alternatively part of the structure can be sunk into the ground with the remainder above ground level to make a semi-raised pond.

#### Informal Pools at Ground Level

Informal ponds, however, are invariably of the ground level type which, of course, is understandable when the basic idea behind the informal design is to seek a natural effect, although some delightful designs of an informal type can be

## Photographing Fish

## With a Box Camera

By V. Capaldi

A SHORT while ago I thought it would be a good idea to take some photographs of my fish; the only apparatus I had was a Coronet box camera and attached flash gun. An aquarium about 18×10×10 in. was prepared, and I fitted a background to it on which I painted plants. This was done as I had found in my limited experience of photographing fish that they always hid in the plants at the wrong time, so a clear aquarium with decorative background was the only answer. I also put a layer of aquarium gravel on the bottom as it served a very useful purpose, which I shall explain later.

The ordinary lens of the camera was not in itself suitable for close-up work, as the camera had to be about



## GOLDFISH PICTURES

*Mr. V. Capaldi has managed to get satisfactory results in photographing his Goldfish by using a box camera with close-up lens and a flash unit. He employs an artificial plant background to the aquarium.*

*Twin-tailed Goldfish.*



4 in. from the front of the tank, so I made a few inquiries and found that a lens (4 dioptrc) would take an object about 9 in. away, this being just right if the fish was swimming half-way back in the aquarium.

When I took my first photographs all I got was either a photograph of a flashlight or a photograph reflecting the glass of the aquarium, so I covered the front of the camera with a piece of black cloth to stop reflection and cut a small hole for the lens. I also held the flash bulb over the top of the aquarium to stop any flash reflection coming back from the front glass. The gravel on the bottom of the tank prevented upward reflection.

In this way I managed to get quite good results from a cheap camera, as the photographs on this page will show. The type of bulb I used was a flash midget costing 10d. each. Before taking the photograph the camera was fitted up on a box in front of the aquarium in order that it did not wobble and thus spoil the picture.

## With an Old Bellows Camera

By A. Vernon Ashford, M.P.S., A.R.P.S.

MOST aquarists imagine that it is necessary to have a very expensive equipment to photograph fish, yet it is remarkable what can be accomplished with simple apparatus. In fact I believe that better results can be obtained than with a modern miniature camera and photoflood equipment.

All the photographs must have the following good points: (1) "Pin sharpness" and, if possible, with a suggestion of movement, similar to the illustration; (2) absence of reflections from the glass forming the tank.

Many people have, what they thought was out of date years ago, an old bellows camera with a single or R.R. lens. It might also be minus a shutter but this does not matter in the slightest. The cost of the camera used for the Siamese Fighter photograph was 30/- but, as it is now used for clinical photography, an ordinary anastigmat lens has been added. This is not essential, however. The reason is that one of the smallest stops on a lens, F 32, gives all that is required for sharpness, detail and depth of focus.

*Fighter with bubble-nest.*



Care must be taken that the glass of the tank is perfectly clean, inside and out, and free from scratches. Shorten the width of the tank by placing a piece of clear glass across it. This enables the plants at the back to be recorded whilst at the same time keeping the fish nearer to the front glass. The effect can be seen in the illustration.

Focus on a suitable plant, or as in the photograph here.  
(Continued next page.)

## Herpetologist's Notebook

## Careful Observations Can Aid Science

Says Alfred Leutscher, B.Sc.

ANYTHING curious or out of the ordinary always forms an attraction, and this can be said for animals, as well as people and events. Among the animals, reptiles and amphibians excite curiosity, mainly because they are not well known. This is what makes them so fascinating to many pet keepers.

Pets can always teach us something, and apart from the pleasure they give us in their companionship, or in breeding them and winning awards at shows, the knowledge we gain can sometimes be of value to science. This more serious side to a pet hobby is sometimes overlooked. Simple experimental work in an aquarium or vivarium quite often demands only a little patience and careful observation to prove a theory or uncover a problem which might take months to sort out in the open.

In herpetology the vivarium keeper has many opportunities for this, and can assist the scientist in numerous ways. For example, what exactly happens when two frogs or toads pair in order to spawn? One would think that we knew all about this familiar yearly act, yet it was only a few years ago that the full process of mating and spawning was seen in close-up and it took place in the aquarium.

**Pairing of Amphibians**

It is well known that when these amphibians pair up, the female's eggs are fertilized by the male after they leave her body, that is, in the water. How does he know exactly when to fertilize them? The aquarium has given the answer. It is the behaviour of the female which warns the male. In the case of a frog, the female contracts her body in spasms as she lays. With the toad, the male feels the egg strings sliding across his hind legs as they emerge. In the absence of these two movements the males do not emit their sperm.

Sometimes a male frog or toad will grasp a spent female. It is then that her struggles tell him that he has made a wrong choice, so he lets go. A male gripped by another male will also struggle, and often croak in protest, with the same result. Normally, a female ready to spawn will remain passive.

The curious courtship of newts, in which the male performs a display, has also been observed in minute detail in the aquarium. An Italian naturalist thought up the idea of suspending glass tanks from the ceiling, so that he could watch the newts from all angles. All this can be observed each year by anyone who cares to keep some newts in a tank,

**Photographing Fish***(Continued from previous page.)*

on the bubble-nest, then with a panchromatic plate in position and a piece of black card held in front of the open lens, wait until the fish is seen to come near the point in focus. Now quickly uncover the lens, and fire a flash bulb directly over the tank as near as possible to the water. Immediately re-cover the lens, and the plate is ready for processing. It should be pointed out that as a small stop is used, the time elapsing from uncovering the lens to firing the flash is so short that there is no chance of an image being recorded on the plate.

The speed of the flash is approximately 1/75th of a second and is quick enough to catch the characteristics of your favourite fish. So just unearth that old fashioned camera, give it a thorough dusting, and get busy.

and can spare a few hours to watch their behaviour. Observations like these would be tedious, if not impossible, from the pondside.

A classical case of an accidental discovery was that of the famous Axolotls which "grew up" in their tanks in the Jardin des Plantes, in Paris, where they had been sent from Mexico in 1864. It was here, through an oversight, that the water was allowed to evaporate from their home, with the result that some of them transformed into land salamanders with lungs. Since then, innumerable experiments have been tried out on axolotls, to try and solve the mystery why they never grow up in Nature. Readers may be familiar with the giving of thyroid extract to these "Peter Pans", in order to make them metamorphose.

At any moment a vivarium keeper can make a new discovery. I remember on one occasion keeping a very tame



Photograph

[S. Crook

*The Adder, a native snake which the author observed in an outdoor Vivarium. He saw the dance of male Adders, which is a display of rivalry, as they establish claim on territory.*

toad and frog. The toad would allow itself to be placed on the hand, and would even catch flies if held up to the wall or window. The frog would attempt to "swallow" a finger if this was waved in front of it. One morning a large Slow-worm came near the frog. The frog made attempts to catch and swallow it, but could not obtain a grip on the smooth scales. Suddenly, it began leaping madly around the cage and ended up in one corner with its mouth open and emitting a noise. This is a frog's normal fear-reaction to a snake. It seemed as if the frog mistook the Slow-worm for a meal one minute, and a snake the next.

**Reaction of a Toad**

The "meal" was then offered to the toad. First it tried to catch it, then suddenly stopped, and instead reared itself on to its toes, swelling the body to twice normal size. Here again, this is exactly what happens when a toad faces a snake. The deduction one draws from this, is that frogs

\* A full account of this is given by the observer, Maxwell Savage, in his paper in the Proceedings of the Zoological Society, London, 1934.

and toads probably judge a meal by its movements and size. Large moving objects are to be avoided. It is possible that these two pets had largely overcome their fear-reaction in the presence of humans, and may have forgotten what a snake looked like.

The Slow-worm also taught me something; that these reptiles can eat snails. The much larger Slow-worm of South Europe, the Glass Snake or Scheltopusik, does it with ease, simply by crushing the snail in its powerful jaws, and swallowing the lot. A British Slow-worm with its small mouth cannot do this. My specimen solved the problem in this way. It approached the moving snail, a small example of the garden species, *Helix aspersa*, in the deliberate way that Slow-worms stalk their prey, and grasped the soft body before it could withdraw. In about five minutes it had worried and chewed the delicate morsel out of its home, leaving the shell behind.

#### Defence in the Grass-snake

Grass-snakes make splendid pets as soon as they become tame, but they can be objectionable at first. The unpleasant fluid which they emit is part of their defence mechanism, but this usually disappears once a Grass-snake is used to being handled. On the other hand, if we leave our snake entirely alone for a few days and do not go near it, it will revert to the wild behaviour, and the defence mechanism will return. This suggests that snakes have short memories.

Many interesting memory tests can be performed on pet reptiles and amphibians, such as experiments with different foods. Certain brightly coloured animals are avoided as food because they have an unpleasant taste. The yellow and black caterpillar of the Cinnabar Moth is a good instance. It is found in colonies on the ragwort, a common wayside plant. Hardly any bird will touch it.

I tried out some of these caterpillars on a salamander. It immediately took one, then spat it out. After about five goes it refused any more. An hour later the same thing happened, but this time with less mistakes. Only after the fifth experiment (they were done at hourly intervals) did the salamander ignore all the caterpillars. The whole experiment was repeated the following day, with slightly better results.

Only after the fifth day was the salamander fully aware of the caterpillar as something not to eat. A month later the experiments were repeated with similar results. The tables were really turned on the salamander, since this amphibian uses the same warning pattern of bright yellow and black, and is avoided by enemies because of the poisonous skin it has.

#### "Dance of the Adders"

Perhaps my most exciting personal observation was to see the strange "dance of the adders", in which these snakes rear up against one another and appear to sway in a curious fashion. Because this snake is a nervous captive, and usually refuses to eat, I kept my specimens for a while in a small garden reptiliary, and watched them at intervals unobserved from a hiding place.

At the time I made the popular mistake of thinking that I was watching a mating dance of adders. It has since been shown that only the males take part, and that this is a display of rivalry in order to establish a territory. The moral here, is that one should always be honest about what one sees, and resist the temptation to invent something, or fill in a gap from one's imagination.

Scientists are trained in accurate observation, but are always willing to encourage the amateur and enlist his help. The vivarium and the aquarium have a great deal to offer to science, and the hobbyist can play his part. The most important thing is to get it all down on paper before the memory fades. I wonder how many readers keep a notebook and pencil handy beside their tank or vivarium at home?

## READERS' HINTS AND TIPS

### REMOVING SURFACE SCUM

I FOUND the "newspaper method" of removing surface scum rather frustrating so I devised the following plan.

Submerge an empty jar until it is just below the surface of the water. Only the surface water will run into it carrying in the scum. If the jarful of water is poured back into the tank through a cloth (I use a small cotton net) the scum remains in the cloth and no water is wasted.

This method is particularly useful if there are floating plants in the tank as the majority of them are unaffected and those that are "caught" can be easily rinsed and replaced.—(E. W. QUICK, London, S.E.6.)

### CONTAINER FOR LIVEBEARER FRY

ANY transparent sandwich box of the approximate dimensions 8 in. long, 4 in. wide and 2½ in. deep, will suffice for the first home of newly-hatched livebearers. The container may be floated in the community tank, without being unobtrusively or interfering with the glass cover over the tank.

The advantages over the ordinary glass jar type of container are as follows:—

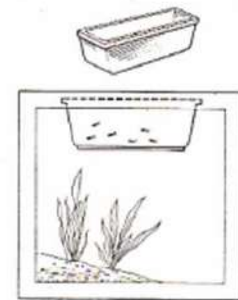
(1) It is very light in weight and displaces very little water, thus it may be filled almost to the top. The water level in the container is almost the same as that of the tank.

(2) The surface area is comparatively large and the water is ideally shallow for fry.

(3) All food will be easily found by the fry and uneaten food, etc., may be siphoned off quite simply.

(4) The fry can be readily observed.

This container can also be tried for breeding *Daphnia*.—(R. N. BURGESS, London, S.W.19.)



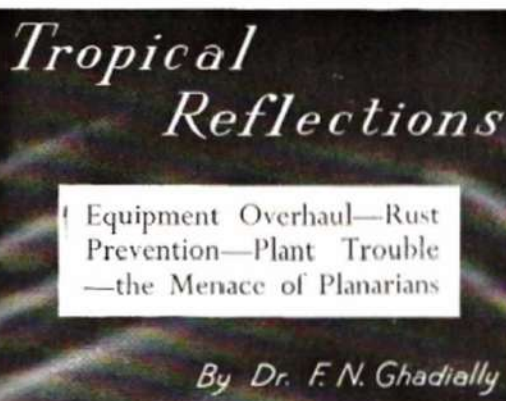
### TRANSPORTING TROPICALS

I HAVE made an effective tropical fish carrier using a national milk tin which, when lined with felt and glass wool, just accommodates a 2 lb. jam jar.

To adapt the tin, first soft solder two wire lugs to the top of it. These are intended to take the handle which is made from a length of soft iron wire bent to shape. Before shaping the handle thread it through a piece of ¼ or ½ in. dowel which has been drilled through the centre. This will give a comfortable hand grip.

The tin is lined with felt and glass wool on the inside and the jar is placed in the centre. These materials have proved effective against excessive heat loss. The tin and handle can be painted any shade required.—(F. L. HOYLE, Farnworth, Lancs.)

Readers are invited to send details of hints and tips they have found helpful in their fish-keeping. 10s. 6d. is paid for each one published.



**T**HIS is the time of year when an inspection of the heating equipment is advisable. There are some who like to take everything to pieces and do an extensive overhaul, others like to leave well alone. I, personally, prefer to steer a middle course. The first thing to inspect is all the wiring both within and outside the tank; any lengths of wire with frayed or decaying insulation should be replaced. Plugs, sockets etc., should be opened up and inspected for any corrosion, loose connections or other defects.

The other item worth inspecting is the contact points on the thermostat; in time these can become pitted and worn and a deposit form on them. This should be removed as it can either cause the points to stick or fail to close the circuit when they come together. It is important to use a method which will (a) remove the deposit and/or pits, (b) will not leave behind coarse scratches on the contact surfaces and (c) remove as little metal as possible in the process.

Of course, all these ideals may be impossible to attain but these are the aims that one must bear in mind. A very small flat-sided file is a handy tool for the job but should be used with caution. Usually all that is needed is to slip one corner of very fine sand-paper between the contacts and push and pull the paper about with one hand while exerting light pressure with the other to keep the points pressing against each other. Reverse the paper and repeat the process for the other point. This is safer than using a file as it is virtually impossible to remove much metal. Such gentle treatment would not be adequate, however, for correcting serious pitting or wear on the points.

#### Corrosion of Tank Frames

Most aquarists accept rusting of aquarium frames as something that is inevitable, something that one can do little about. This at any rate was my attitude about four years ago. I had vaguely heard about special undercoats and paints but I never gave them serious consideration. I felt that the only real answer was stainless steel, which is expensive, and I learnt to endure what could not be cured. On viewing some of my rusty tanks with the top angle more or less half eaten through, Mr. C. Massey, then a new member of the Sheffield Society and now a popular committee member, stated that he knew how to prevent this sort of thing happening. I listened politely but rapidly lost interest when he told me that the first step would be to get all the rust off!

However, I was at that moment constructing a large aquarium for the lounge and he offered to rustproof and paint it for me. This, as I mentioned, was about four years ago and to the present time the tank has not been repainted or treated in any way; in spite of the fact that the cover

glass rests directly on the angle iron frame there is not the slightest evidence of rust either on the top or under surface of the top angle iron.

Since then I have used the same method on numerous other tanks in my fishhouse and I am truly amazed at the results. The technique itself is quite simple. The angle iron frame should be either shot-blasted to remove all rust or at least wire brushed to remove all the loose rust in the first place. It is not vital that all the rust be removed but it is best to do as efficient a job as tools and circumstances allow. Next I paint the frame with a preparation called "Galvafruid" (Secomastic Ltd., 15 Upper Grosvenor Street, London, W.1).

This is somewhat expensive compared with most paints and not always easy to obtain at ordinary paint shops. One or two coats of the preparation, which dries quite quickly and can be laid on easily with an ordinary brush, finishes the rust-proofing process. The tank can then be painted with one or more coats of any coloured synthetic enamel you fancy. It is important not to use a cellulose paint on top of this material. It is as simple as that and the results are truly amazing. But for the fact that I had tried the preparation myself, I would never have believed it possible.

A curious incident occurred in my fishhouse recently. For about a year or so I have been painstakingly cultivating *Cryptocoryne haeseltiana*. They were thriving and multiplying at a fair pace, in ordinary aquarium gravel, no peat or any other subsoil being used. Nothing was added to the water. One evening I was proudly displaying my beautiful plants to a fellow aquarist. The next day, literally within 24 hours, all the leaves became translucent and jelly-like and within another day there was not a single leaf left on the forty-odd plants. Soon most of the stems also crumbled away. No other plants, including other varieties of *Cryptocoryne*, or fish were affected.

This was about two months ago, the stricken plants with inch-long stems still stand in the same spot they were except for the few that were transplanted to other tanks in an attempt to save them. None shows any sign of recovery or new growth. Has any other aquarist had a similar

#### HOME-MADE MICROSCOPE

A simple microscope is quite adequate for measuring the Infusorian content of cultures for feeding to fish fry. Here is shown the instrument made by the author for this purpose but equally efficient models can be purchased at moderate cost.



Photograph: [Dr. F. N. Ghadially]

experience? Can anyone offer any explanation for this peculiar occurrence? I have neither seen nor heard of anything like it before. We know a fair amount about diseases of fishes but we are painfully ignorant of the ills that affect our plants. I, for one, do not even know the name of a single such disease, and yet there seems no doubt that aquatics do suffer from mysterious ailments.

One such complaint that comes to mind is the appearance of numerous holes in the leaves of various *Cryptocorynes*. I have seen this disease affect *C. cordata* and *C. griffithii*. Following the appearance of these holes the edge of the leaf becomes frayed and soon the whole leaf is completely ruined. Almost all the leaves may be affected and yet the young ones, as they appear, are perfectly normal, at least



for some time. As usual, snails have been blamed but one can rule them out for this can happen in the absence of snails, though, when snails are present, they will, of course, attack the dead or dying leaves and create the impression that they are the cause of the trouble. Is this then an infectious disease? Is it due to the deficiency of some vital element, or is it a somewhat unusual, but normal, process by which this plant sheds its old leaves? Luckily this condition is transient and disappears as mysteriously as it appears. In my experience removing the affected leaves has not altered the sequence of events.

A small microscope is a handy thing to have around. There are many reasonably cheap instruments available but one can make quite easily too. The photograph on page 221 shows my home-made instrument. It is far more convenient for spotting Infusoria than any of the costly and elaborate microscopes used in the laboratory. It consists of a little box-like base fitted with a pocket torch battery and a lamp, controlled by a little push button switch. The light from the lamp emerges through a hole covered by a flashed opal disc. This built-in illumination eliminates fumbling about with a mirror and hunting for a suitable light source.

The microscope itself comprises a low-power objective and an eye-piece fitted at the ends of a brass tube. These are real, high quality microscope lenses which were obtained secondhand quite cheaply; thus the image obtained is as perfect as in any costly microscope.

The focusing is carried out by sliding the tube up and down in a split collar carried on a piece of brass rod fitted to the light box by means of a little flange. The length of the tube can vary quite a bit without apparently affecting the quality of the image. In this microscope it has been kept down to six inches though a length of 12 inches would have worked out as well and increased the magnifying powers.

My instrument is used for only one specialised job, i.e. spotting Infusoria, which it does quickly and efficiently. The drop of water to be examined is placed on the piece of flashed opal, the push button depressed to bring the light on and the eye applied to the end of the microscope. An expensive instrument needs looking after but my home-made microscope just lies about on the cover glass of the tanks in my fishhouse ready for use at a moment's notice. It fell into a tank once but, after a clean up, has carried on as usual. Contrary to what most people imagine, an elaborate high-powered instrument is entirely unnecessary for spotting Infusoria, what we want is a magnification of about  $\times 15$  to  $\times 20$ —anything much more than that is likely to give a very erroneous impression to the uninitiated about the actual Infusoria content of the specimen of water.

#### Planarians in the Breeding Tank

A surprising amount of controversy rages in aquatic circles regarding the nefarious activities of Planarians. Part of this trouble is due to the fact that many aquarists are not quite sure what a Planarian looks like. It is a flat worm with a characteristic "tri-lobed" head that moves about with a smooth gliding movement. The creatures may be seen crawling on any flat surface such as the leaf of a plant, rockwork or the glass slides of a tank. Sometimes they may be seen gliding along on the undersurface of the water film. There are numerous species and they vary in colour from jet black to pure white and their length may range from  $\frac{1}{4}$  to  $\frac{1}{2}$  in.

They are unsightly objects and nobody would like to see large numbers of these creatures promenading on the front glass of a decorative aquarium. However, in such a tank their presence is no more than a nuisance as they do not harm fish or plants. They are merely scavengers and perform the same function as snails. But in a breeding tank the story is very different. They avidly devour fish eggs and young fry when they are hanging helplessly on the glass before they become free-swimming.

Even when they become free-swimming the fish are not out of danger. Many fishkeepers believe that once the fry are about three to four days old they can look after themselves reasonably well and, because the Planarians are sluggish creatures, they cannot possibly catch active free-swimming fry. These same people think the idea that Planarians attack free-swimming fry has arisen because Planarians, being scavengers, will devour fry that have died from other causes and when an aquarist sees them doing just this he is likely to think that the Planarian killed the fry in the first instance.

I used to support this viewpoint until I had a unique—and unfortunate experience. I had spawned a pair of Nigger Barbs in a clean tank; the fry had been free-swimming for about 24 hours and had consumed Infusoria during that period. At this stage the tank developed a leak and it became imperative to move the fry to another tank so I rapidly took out some adult fish in a planted tank and transferred the fry into this container. All was well, the fry were swimming merrily about, and it was about 6 p.m. I potted about the fishhouse for another half-an-hour or so, saw the fry happily settled in their new quarters and then went off to attend to other matters.

#### Worms Making the Attack

About an hour later I had some more time to spare so I returned to the fishhouse, switched on the lights, and the most amazing sight met my eyes. The planted tank that I had imagined quite safe for fry was in fact full of Planarians and there was a real battle in progress. Numerous Planarians and fry were engaged in combat on the floor of the aquarium. There was no question about the fry being dead and the Planarians just eating the corpses for it was quite clear that the fry were alive and struggling to try to get away from the Planarians.

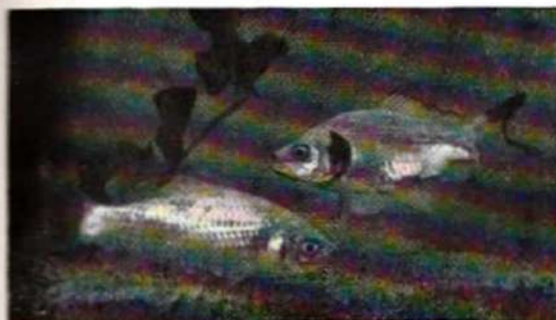
Two certain and one probable means of capture became apparent. I saw some Planarians detaching themselves from the surface of the water or from plants and dropping through the water; in two instances they met up with fry during their descent and then carried down with them. Another method of capture was achieved by a Planarian hanging on to the front glass by the tail end of its body whilst it waved its head about in the water. A passing fry which ventured too close was caught and Planarian and fry dropped to the bottom of the tank to carry on the struggle.

The third method of capture was rather peculiar; a few fry approached the front glass of the tank and became stuck. Later on Planarians passing by devoured these fry. Why the fry stuck to the glass in this manner I do not know but one possible explanation is that when the worms glide about the glass they probably leave behind a sticky secretion. I have seen this on scores of occasions with *Daphnia* too, they get stuck to the glass in little clusters and later on a group of Planarians gathers around the mysteriously adherent, but still live, *Daphnia*.

Planarians are nocturnal in their feeding habits and it seems to me that they must play real havoc with resting fry. There is no doubt that Planarians not only eat fish eggs but they can also capture and devour healthy, free-swimming fry.

Young fish, the size of newly-born livebearers or larger, can be considered safe from this danger. Unfortunately there is no simple or easy way of getting rid of these worms. Perhaps the best method is to keep the tank clean and feed sparingly in the hope that these scavengers have no leftovers to feed on and multiply. A fair number may be trapped by placing small bits of meat in the aquarium. The worms cluster round the meat and whole masses of worms, plus meat, can be removed with the aid of a dip tube or siphon.

But none of these methods guarantees that the tank is completely free of Planarians. This is one of the reasons why I prefer to spawn fish on artificial spawning media in clean, mature tap water placed in a freshly-cleaned-out tank, and not on plants in an old, established tank.



[Photograph]

Left, Common Goldfish (*Carassius auratus*) and, right, the Crucian Carp (*Carassius carassius*), for comparison.



[G. J. M. Timmerman]

### Coldwater Fishes

By R. J. Affleck, M.Sc.

## Crucian or Prussian Carp

THE fishes illustrated belong to the Genus *Carassius*. *C. auratus* is the wild type fish from which the Goldfish has been evolved, while *C. carassius* is the fish popularly known as the Crucian Carp. Both species are a dull, olive green.

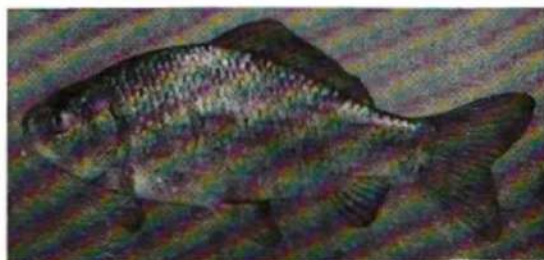
The main differences between the two are as follows:—

	<i>C. auratus</i>	<i>C. carassius</i>
Body .. .. .	long/not deep	short/deep
Scales, along lateral line ..	25-29	28-35
Scales, lateral line to dorsal fin ..	5-6½	6½-9
Spine of dorsal fin .. .. .	strong	not strong
Outer margin of dorsal fin ..	concave	convex

The varieties of Goldfish are well known but a variety of Crucian Carp called the Prussian, or Bronze Carp is not so often seen. It could be bought pre-war but I have not seen any lately. This variety is a bronze colour and slightly more elongated than the wild-type fish but the scale counts, shape of fins, etc., are the same.

Both *C. auratus* and *C. carassius* are very hardy and may be kept in ponds or aquaria, although the Crucian Carp

and wild-type Goldfish cannot readily be seen in ponds as they browse among the roots of plants and tend to stir up the bottom layer.



[Photograph]

[L. E. Perkins]

Prussian or Bronze Carp, a variety of *C. carassius*.

## Water—the Basis of Fishkeeping

By WATER LIFE Analyst

MENTION has been made, in previous articles of this series, of the fact that the nutrition of aquatic plants depends upon certain dissolved mineral salts being present in the water in suitable concentrations. Of these salts, the carbonates and the phosphates of calcium must be considered as basically indispensable for the maintenance of growth. A simple method has already been described whereby calcium phosphate may be formed *in situ* in waters having a titratable alkalinity due to calcium (WATER LIFE, April 1956 issue).

To some extent, water having a fairly high calcium alkalinity will be softened in this way. The slightly acidic pH value attained after treatment will have some of the physical characteristics of water in the natural environment of many tropical freshwater fish species. In furnished aquariums a general improvement will be noticeable in

the growth of rooted plants, but at the same time it must be borne in mind that in well lit, and sparsely planted tanks, abundant algal growths will make their appearance when the water has been chemically fertilized by the method already described.

Emphasis has been placed upon the importance of maintaining healthy plant growth in decorative aquaria firstly because the water will be kept at a high level of dissolved oxygen saturation, a factor essential to fish life, and, secondly, because the micro-organism population will be confined to those species that break down organic matter, i.e. uneaten food, dead vegetation and fish droppings, etc., into harmless inorganic end products. Thus, the small bulk of water in a furnished aquarium is kept at a relatively high degree of organic purity, even though the population level of fish life must always be enormous compared with that in natural habitats. Hence, it is obvious, that a main ecological factor functioning in the wild, that of the ratio of population level to volume of water, is completely reversed for fishes kept in aquaria and this is the reason why the water must be kept at a high level of organic purity.

It has been stated that in a well oxygenated tank micro-organisms (aerobes) will break down organic matter to produce finally harmless inorganic salts. However, in the case where organic pollution proves to be very excessive,

(Continued next page.)

# Useful Temporary Aerator

By P. Martyn Lunken

**A**ERATION is of great value in the aquarium especially when an unusually large brood of young fish finds the aquarist with insufficient tank space. This home-made aerator I shall describe need not cost more than a couple of shillings to make.

All that is really needed are two large tins. One should be half as large again as the other and the smaller should fit inside the larger. Make sure that they are both water-tight. Give the larger one two coats of paint inside and out—any type of paint will do, so long as it is a good protective against rust.

Now take the smaller tin and drill or punch three holes in the bottom at A, B and C (see diagram). These holes should be  $\frac{1}{8}$  in. in diameter. If the holes are punched make sure that there are no jagged edges. A short length of metal pipe is pushed through hole A and soldered into position. This is for the outlet tube. A glass or plastics tube can be used as an alternative and set in by means of a rubber sealing compound.

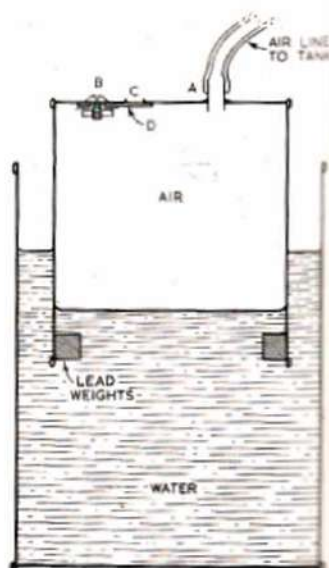
## Fitting Lead Weights

While the soldering iron is out, fix three or four lead weights to the inside of the open end of the small tin (see diagram). These can be made of plumbers' solder. Three or four weights are required and more may be needed if the tin is an extra large one. Now paint this tin in the same manner as the larger one.

When the tin is dry the inlet valve should be fixed. This consists of a small nut and bolt, a brass washer and a thin strip of rubber (D in the diagram). A piece of old bicycle inner tube will do nicely for the rubber strip. Fix these into position as in the diagram making sure that the rubber is tight against the inlet hole C but can be easily pushed away. It then forms a flap valve.

The setting up of the aerator is very simple. First decide on a suitable position by the tank, it does not matter whether it is at a higher or lower level. Get enough airline tube to

*Diagram to show the set-up and construction of the non-electric aerator. The smaller tin is inverted into the larger one which contains water, and the enclosed air flows through the air line into the aquarium to be served. Holes A, B and C are made in the base of the small tin, and D is the strip of rubber which acts as a valve. Control is effected with a clip on the outlet tube.*



reach to the tank and fix one end to the outlet tube A. The end in the tank can be fitted with any type of diffuser. An airline clip should be fitted to regulate the flow of air.

The larger tin should now be two-thirds filled with water and the smaller one inverted into it (see diagram). This small tin should float upright; if it tends to fall over and spill the trapped air more lead weights are needed. The air that is enclosed in this tin is to a certain extent compressed so that it forces its way through the outlet tube and aerates the aquarium water.

All that is needed to refill is to lift the floating tin, the weight of water inside it will tend to form a vacuum and air will enter through the inlet valve C and refill the reservoir. The length of time the air supply lasts depends, of course, on the size of the smaller tin and the speed at which the air is allowed to pass into the tank. This is regulated by the airline clip.

## Water—the Basis of Fishkeeping

(Continued from previous page.)

the microbes speedily die out, owing to a lack of dissolved oxygen, and a population of micro-organisms rapidly takes over which are mainly anaerobic in character. Anaerobic conditions existing in aquaria are always fatal to fish life, because of the almost complete absence of dissolved oxygen and also because the end-products of the decomposition of organic matter taking place under these conditions result in the production of poisonous gases quite lethal to all life. Once these bad conditions have gained a hold in a tank it will be found that the bottom compost, consisting of either sand or gravel, becomes blackened.

The blackened appearance of the compost is due to the action of sulphuretted hydrogen (one of the poisonous gases evolved), combining with iron present in the sand or gravel to form iron sulphide. This insoluble sulphide is a potential source of danger to fish life (even though the compost may be thoroughly washed) should the compost be used again for re-establishing aquaria without first having special cleansing treatment. Without treatment it will prove to be a good medium for anaerobic bacteria to flourish and multiply with extreme rapidity.

Compost that has become contaminated in this way can be made quite safe and clean by covering with hot water and then adding a good measure of liquid bleach, thoroughly

stirring the whole with a stick. Allow the water to cool and drain from the compost which must then be thoroughly washed in running water for half an hour to remove all traces of the bleach.

Many of the tropical rivers and streams are acidic, and pH values of these waters are very often quoted in articles dealing with the breeding of many of those species of freshwater fishes found in the rivers, and that can be maintained in captivity. Whilst low pH values for these river waters may be of ecological significance in the wild, such acidity may not be so important for those species of fishes bred under aquarium conditions. In the natural habitat the fluctuations of acidity of the water can be considerable within a small range of the surroundings.

Invariably the whole of the acidity is quoted as being due solely to acids of organic origin from peaty bogland, while in fact not an inconsiderable amount is of inorganic origin, i.e. from the presence of dissolved carbon dioxide. Thus, during the rainy seasons, when the run off of surface water from the land is very considerable and rapid, most of the acidity is no doubt due to the content of dissolved carbon dioxide.

Under these circumstances it would not appear that acidity originating from peat extracts alone is a primary ecological factor for successful spawning and breeding of aquarium fishes.

# Marine Aquarium Keeping (4)

Amazing Diversity of our Coastal Creatures

By J. S. Vinden

**B**EFORE dealing in detail with any marine animal or group of animals suitable for the aquarium it would be useful to consider the conditions under which these animals exist in the natural state. Broadly speaking the animal population of the sea can be divided into two main groups. Pelagic animals, which is to say those that inhabit the mass of the water in contrast to the bottom, and the benthos, those creatures which live on the bottom of the sea right from high-water mark to the greatest depths.

Both these groups are further split into smaller divisions. The pelagic animals are split up into the plankton and the nekton. The plankton are those creatures, mostly small, that have little or no power of independent movement and so drift passively wherever the current takes them, and the nekton are the actively swimming creatures, such as fishes, octopuses, turtles and whales. The benthos, or bottom-living animals, are divided into those that live in water up to 200 metres deep, known as the littoral or shore fauna, and the deep water organisms.

## Changes in Way of Life

Certain animals during their life development change from one way of living to another. The young oyster for instance starts life as part of the plankton, but when adult is a benthic animal. The sea-squirts are nekton when young, and benthos when adult. Many other examples of this altered mode of life could be given.

Most of the animals kept in marine home aquaria are members of the littoral benthos. Animal plankton will arrive in the tanks sooner or later, and it will be welcome as food but, unless the aquarist is fond of the microscope, these animals do not make showy aquarium exhibits. At certain times of the year the animal plankton abounds in larval forms of both fishes and invertebrates and, with luck, it might be possible to maintain some of these and watch their

metamorphosis. On the whole it is only those aquarists living on the coast who will be able to do this owing to the fact that many of these microscopic creatures require quantities of minute marine plants as food.

Actively swimming pelagic fishes will not usually live for any length of time in home aquaria and, even if it is possible to catch them, it is not rewarding to take them home unless you have tanks of six feet and over.

## Hazards of Shore Creatures

Most shore animals live a precarious existence, few of them reach maturity, and they are beset with enemies on all sides. The sea itself must kill many animals every time there is a storm and, after bad weather the beaches may be seen strewn with the remains of many species of animals. To protect themselves from the battering of the waves various forms of marine life have adopted different methods of protection. They burrow into rocks, permanently attach themselves like mussels, cling on by means of suckers like certain fishes, bury themselves in the sand like cockles and many worms, or hide in rock clefts like many fishes, molluscs and other animals.

Possibly the animal best adapted to withstand the force of the breakers is the Common Limpet, *Patella vulgata*. The harder it is beaten by the waves the more strongly it clings to the rock. Its shell is so shaped that it is mechanically perfect for the job, for with its broad base of attachment and its small apex it offers but little resistance to the rushing water. By the shape of a limpet's shell it is possible to tell from which zone of the shore it was taken. Those that live on exposed rocks have shells that are high with a narrowish base and those that live in pools and sheltered spots are broader and have a lower apex to their shell. This is due to the fact that the exposed limpets are continu-

(Continued next page.)

## Plants for the Aquarium Surround

### *Tradescantias and Zebrinas*

**U**NDER a cloak of the profound scientific names of *Tradescantia*, *Zebrina* and, for good measure, *Rhox*, are species of popular room plants, known collectively, and generally indiscriminately, as the Wandering Jew. The majority of the plants are prolific in growth and of hanging habit, dropping over the sides of their pot and effectively concealing it. A few species do have a more upright stance.

Most highly prized are the forms with variegated leaves although individual plants will quickly revert to the plain leafed pattern if allowed to do so unchecked. Others, and particularly the Zebrinas, have larger leaves and are purplish-green with lighter variegations.

All these plants are among the easiest of indoor subjects to grow, they tolerate bad conditions and will develop at a phenomenal rate, given surroundings to their liking. They like a light, but not excessively sunny, situation, and the best soil is equal parts of loam, leaf-mould and coarse sand. Generous applications of water should be given from early Spring to Autumn and more moderate amounts in Winter. Some plants show a tendency to go bare at the base after



Purple-tinged Zebrina growing in profusion.

a time and when this happens it is best to take healthy and well variegated shoots for cuttings which root easily.

Both *Tradescantias* and *Zebrinas* respond well to small applications of fertiliser, including plant tablets, but these should be given only when cuttings are well rooted and the plants are receiving adequate light. Otherwise growth will be leggy.

doubly important for the Celestial. I would not think of keeping one without allowing at least 30 gallons of water for an adult specimen together with a filter running day and night.

If artificial light is necessary to maintain plant growth it would be wise to have one end of the aquarium with surface plants to enable the fish to get shade when it feels like it. As it is not an active variety, care should be taken to feed nourishing food which can be easily digested otherwise Fin Congestion may occur. From all these remarks it will be seen that the Celestial is definitely a fish for the connoisseur and the expert.

#### Egg Goldfish

From time to time breeders will introduce the beginner to the Eggfish. Usually it is deep bodied, short and *without a tail*. The general effect is that of an egg. Sometimes the dorsal is missing too which gives an even greater impression of a fish looking like an egg. The novice should look for the twinkle in the breeder's eye for no such fish is recognised although there is no reason why a variety could not be fixed. Generally these are the fishes which have just managed to get away from their more cannibalistic brothers leaving their tails behind them.

Very, very occasionally an alevin is born without a tail but usually life is short for it under such a handicap for it is unable to keep pace with the others unless the food situation is so flush that the food literally comes to it. From the specimens that have appeared periodically one would expect them to be badly out of balance but an all-accommodating Nature appears to compensate by modifying the shape of the swim bladder, thus enabling the fish to maintain a reasonably even keel. Having said all this the fact remains the fish is a freak and should not be kept.

#### Metallic Blue Goldfish

Readers by now will be aware that, unlike the Nacreous and Matt groups, the Metallic Group of Goldfish are

limited in their colour patterns to black, white (absence of pigment), yellow and orange red. The Nacreous and Matt groups are rendered much more attractive by a background of blue. For some reason, blue in Metallics is very rare. Nevertheless the Chinese have established this characteristic and fishes so endowed are very attractive but seldom seen in this country.

The rich blue glint in the shiny Metallic scale makes a very pleasing colouring and it is to be hoped that one day British breeders will give this quality serious consideration. Readers fortunate enough to visit the late Duke of Bedford's estate will remember he had a magnificent strain of Carp which were blue and of which he was very fond. It is therefore not impossible to establish and I am sure the great family of Goldfish would benefit by the addition of this characteristic.

And so we come to the end of the present series on Popular Goldfish. It must be clear that there can be very little left upon which to build further modifications. If the work of the early pioneers is not to be lost then each variety must be cultivated for its own sake. Nothing could be more tragic than a promiscuous crossing of pure, defined strains of breeding stock.

#### Losing a Strain

The breeder who lightheartedly mates a Bubble-eye with a Lionhead to get a Bubble-eyed Lionhead is not only unlikely to get the results he wants but he will also produce a lot of fishes which are of little use for further breeding. I cannot envisage a course more likely to cause a breakdown in the Goldfish side of the hobby if practised generally. It is not necessary to be a mathematician to realize that by a simple permutation of the existing varieties that many more thousands of varieties could be claimed. It is to avoid this chaos that the Goldfish Society, of which I am chairman, has taken the stand it has in recognizing only those fundamental mutations which can be counted on the fingers of both hands. To us, this is commonsense.

## Aquatic Plants

ONE of our daintiest floating aquatics is the Fairy Moss (*Azolla caroliniana*). Although a native of Northern, Central and Southern America, it is hardy in this country and has become established in some of our native waterways. Whether in the tropical or coldwater aquarium or the garden pool, a close watch should be kept. Where it finds conditions to its liking, growth is rampant, and strict control must be maintained.

Normally the fronds, delicate in their tracery and  $\frac{1}{2}$  in. long, are a pleasant light mossy green, but, where the lighting is good, russet tints are taken on, and this is particularly true in the Autumn after which time the plant tends to die back until the following Spring. So distinctive and pleasing is its foliage effect that *A. caroliniana* is sometimes grown in a bowl of water for indoor decoration when it must have a sunny window situation.

There is a related species, *A. filiculoides*, with larger fronds and rather paler green and pink colouring. Its growth can be rapid under tropical aquarium



## Fairy Moss

(*Azolla caroliniana*)

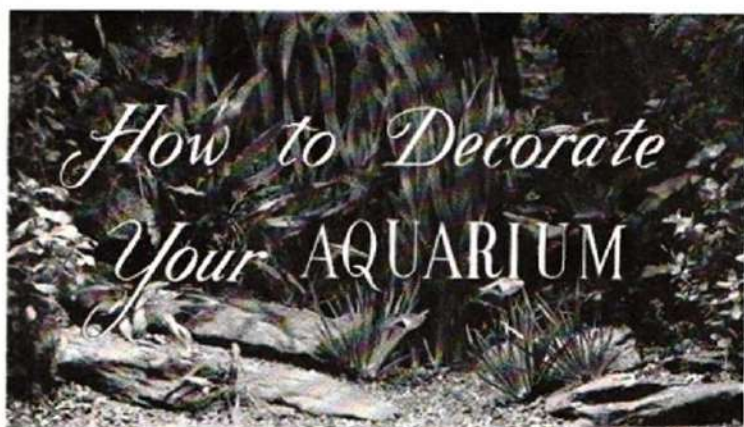
conditions and the fronds tend to build up into thick blankets of surface foliage.

*Azolla caroliniana* is similar to most other floating plants in providing a useful top cover for young fishes, particularly livebearers, away from their predatory parents. In moderation, it can also prove decoratively effective in the aquarium or garden pool.

The Federation of British Aquatic Societies recognises *A. caroliniana* for use in competitive coldwater aquaria only. Certainly, in the heated aquarium the species is more utilitarian than aesthetic in appeal, unless a rigid control is kept on its development which can be particularly fast at tropical temperatures.

#### Wide Distribution

The *Azolla* Genus is widely distributed over the world, the two species mentioned having the Americas as their habitat, whilst others come from Australia, New Zealand, Africa and Asia. The name *Azolla* is derived from the Greek, meaning "killed by drought".



Hendon Society's  
Members Provide  
General Guidance  
and Easy-to-  
Follow Designs  
for the Furnished  
Tank Enthusiast

## INTRODUCTION

THE Hendon A.S. has always put stress on the setting up of furnished aquaria when planning programmes as we believe that it incorporates every possible angle of the fish-keeping hobby with the exception of breeding and the groundwork involved is even useful in that field.

One of the first points we consider when setting up is the bottom layer (compost) and rockwork. The ordinary compost marketed for aquarium use is particularly suitable but attractive rockwork to match is hard to find. Club members have therefore spent many holidays and weekends collecting rocks and appropriate sand from shore and stream in an effort to produce original and more colourful examples for aquarium displays.

Generally speaking, it has been found that any rock and compost material collected which will wash clean and is not so soft that it is continually breaking up under the action of water is suitable. Under the above specification we may not use soft chalks, soft sandstones and soft shales, all of which produce cloudy water conditions. Contrary to general belief many forms of limestone are ideally suitable—the Westmorland stone which cracks and weathers so attractively and is favoured by many aquarists is, in fact, one of the limestones we have found effective.

We favour the collection of our gravel from streams, etc., to ensure that every piece is nicely worn down by water

action, and discard gravels produced by crushing machinery for roadwork, etc. The rocks are selected for matching, attractiveness of shape, size, facings, etc.

The selection of plants depends to some degree on the fishes to be displayed as indeed does the arrangement of the rockwork, particularly when it is intended to display fish of one type only. For a general community tank five to seven different plants should be adequate.

The selection and arrangement of the plants is then further governed by display, using the varied colours, shape of leaf and type of plant to set off the clump next to it. It is also necessary to remember not to position any tall spreading plant where it might rapidly fill in the swimming space at the front of the tank, or screen the occupants from easy view. It is necessary to devote much thought and effort to the design of tanks that can be looked into rather than at.

When it comes to choosing the fish for competitive aquariums we try to select colours that will show to advantage against the background provided, and perhaps in this respect the operative word is show.

Favourites are those that by their very nature and characteristics will, in fact, come to the open space at the front and swim nicely at a central level. Good results have been achieved by providing small shoals of different types of fish, each preferring to swim mainly at varying levels.

## HOME AQUARIUM MAINTENANCE

FURNISHED aquaria in the home allow much more scope than the competitive type of exhibit. In the aquarist's living accommodation is an opportunity for him to use his originality in displaying a wider range of fish as he can make a full choice of position, size and shape of tank, lighting, etc. Also there is no limit to the ingenuity and contrivance in setting the tank to fit in with the furnishings of a living room, bedroom, kitchen or any odd corner, carefully hiding all the less attractive but most necessary wiring, foods and handy items of equipment.

Time for alteration and modification until perfection is achieved, both in set-up and maintenance, is also an advantage. Once well installed the home aquarium can, and should be, an asset to a room at all times, giving pleasure to the whole family.

Some experimenting is needed to find the strength and period of lighting which gives the best conditions for alga control. Fuller use should be made of the more strongly rooted plants such as *Cryptocorynes*, Amazon Sword Plants and the like which will ensure growth over a long period.

Fine-leaved plants are rather less useful for the home aquarium because they seldom thrive for long in such conditions and, at the best, are inclined to straggle and need periodic trimming and resetting. Malayan Sand Snails only should be used in the tropical set-up to avoid unsightly snail damage to plant leaves.

There must be careful and varied feeding of fish to maintain health and vigour and to avoid excess food resting in the aquarium. Regular cleaning of the front glass, both inside and out, is desirable.

—MRS. B. ROBERTSHAW.

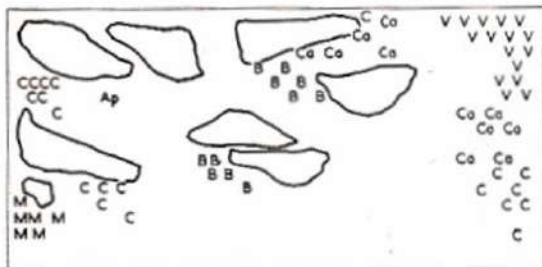
### Key to Planting Plans on Following Pages

Ac = *Acorus*, Ap = *Aponogeton*, B = "Bacopa" (*Hydrotrida*), C = *Cryptocoryne*, Ca = *Cabomba*, Cer = *Ceratophyllum*, Ds = Dwarf *Sagittaria*, E = *Egeria densa* var. *longifolia*, F = *Fontinalis*, H = *Helxine*, L = *Ludwigia*, La = *Lagarosiphon major* (*Elodea crista*), Lim = *Limnophila* (*Ambulia*), M = *Myriophyllum*, Mac = *Macuillamia*, N1 = Needle-leaf *Ludwigia*, S = Spatterdock, V = *Vallisneria*.

# An Ideal Setting for Harlequin Fishes

By  
J. Robertshaw

**I**N this tank, which is 15 in. high, the rocks consist of light grey shales with an attractive brown peat stain. They were collected from a stream in N. Wales, together with matching gravel and re-set in the tank standing on end to repeat the natural formation found in the actual stream. Care was taken to arrange the markings and angle of inclination correctly. This arrangement produces a tank with many small channels



which add considerable depth to the picture. The rocks themselves are rather bright and colourful under water but such an expanse of rockwork has to be broken up a good deal by careful planting.

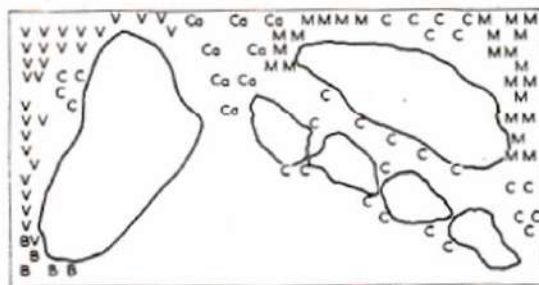
### Screened with Fine-leaved Plants

Some fine-leaved plants are employed to give a partial screening effect and most of the plants used are pure greens of varying shades. The exception is *Cryptocoryne cordata* in one back corner to add a small touch of pink to the general colour scheme. The background arrangement proved a good setting for a shoal of Harlequins and would be equally suitable for a collection of mixed Barbs.

# Neon Tetras to Advantage

By P. O'Connell

**T**HE aim in this set-up is the provision of light and colour. Quartz rocks are the choice but, because of their whiteness, they were carefully selected, and those chosen have the slate showing to which they were originally attached. The gravel of matching quartz is graded, and the fine sand set apart for a top



covering of the gravel when the tank is fully set up. The rockwork is arranged to give a channel to the back left-hand corner of the tank, and to the right-hand side it is built up for height, to avoid giving a "flat" appearance.

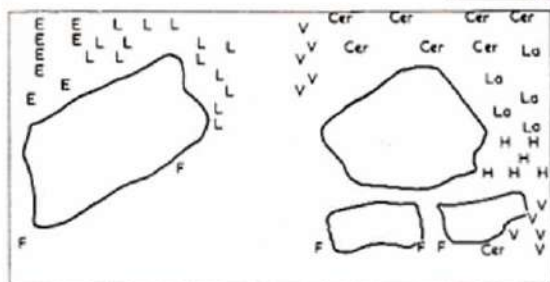
### Colour Contrast

The plants selected to complete the colour picture contain light and dark reds and greens. Fine-leaved plants are used to create depth, and broad-leaved subjects, for contrast. The red plants are set at the rear corners of the tank with a reddish *Cryptocoryne* at the front right.

Neon Tetras of even size are used because their brilliant red and blue hues were enhanced by the darker blue of the slate, and the red of the plants.

# Some Fancy Goldfish in a Coldwater Aquarium

By F. Oliver



Photographs on pages 219-232 are by Roy Skipper. Diagrams were prepared by the various authors. Key to the drawings appears on page 229.

ORDINARY aquarium compost is used in this cold-water aquarium. The rocks have sandstone strata of complementary colour; with seven varieties of green in the plants this makes for good contrast against the reddish rockwork. Three small Fantails were chosen for the set-up as larger fish would be out of proportion in a tank of this size (24 x 15 x 12 in.).

The planting is arranged with contrast of colour and leaf shape in mind, so that we have, as a background, *Ludwigia* set off by *Egeria densa* var. *longifolia* and *Lagarosiphon major* (*Elodea crista*) against a group of *Ceratophyllum* (Hornwort) flanked by *Vallisneria spiralis* var. *torta*. The light green of the *Helxine* shows to advantage in front of the dark green of the *L. major*. The rockwork (outline) is softened with small groups of *Fontinalis* (Willow Moss).



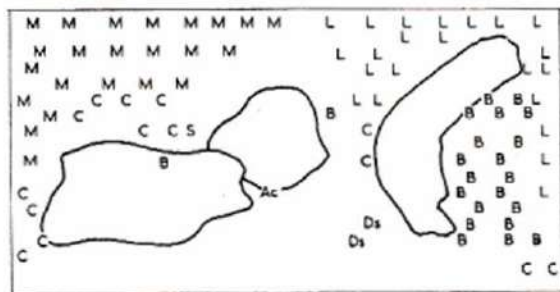
# An Underwater Picture with Two Characin Species

By T. S. Hobday

THIS arrangement of Westmorland stone, which had been stained a good mellow brown in a solution of permanganate of potash until it matched as nearly as possible the ordinary aquarium compost, is set off with liberal plantings of *Myriophyllum* in the left-hand corner and side. In front of the *Myriophyllum* is a contrasting group of *Cryptocoryne cordata* which in turn shows to advantage the delicate green of the Spatterdock.

The right-hand side of the tank shows only the end of the rockwork. This curves backwards to form a gully which is planted thickly with Dwarf *Sagittaria* and gives an impression of depth. The compost on this side slopes steeply to the back corner forming a small mound on which graduated clumps of "Bacopa" (*Hydrotrida*) are planted.

The rockwork is backed by large *Ludwigia* with the red undersides of the leaves showing through the dark green.



This gives colour and height to balance the rockwork. The whole set-up forms a good setting for the Beacon Fish and Lemon Tetras which show to perfection.





## For Barbs, Characins or Rasboras

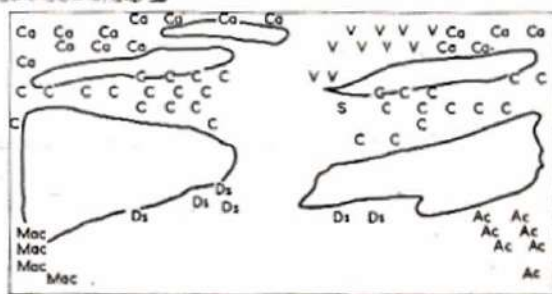
By A. F. Baldock

**T**HE effect aimed for in this set-up of blue-grey rockwork, matching compost and eight plant varieties is an eye-catching blend of colour, highlighted by certain plants and fish. There is a suggestion of the bed of a stream winding towards the back of the tank, to encourage the viewer to look a little longer into the depths beyond.

### Ridges of *Cryptocorynes*

Thick ridges of *Cryptocoryne cordata* are backed by rich green *Cabomba*. In the right foreground is a thick ridge of green *C. beckettii* which is between rocks sloping gradually to the "stream bed". The right-hand corner is filled with the slow-growing *Acorus*.

On the left, overhung by the *C. cordata*, is a thick wedge shaped rock, its frontal contour broken by clumps of Dwarf Sagittaria. The left-hand corner piece is a planting of *Macullamia rotundifolia*. Twisted Vallisneria edges the back right-hand side of the "stream bed", and the brilliant



green of the Dwarf Spatterdock set "off centre" adds another interesting highlight.

Although this tank is set up with Characins (Serpae and Lemon Tetras) it would go well with a group of colourful Barbs, or a *Rasbora* species.



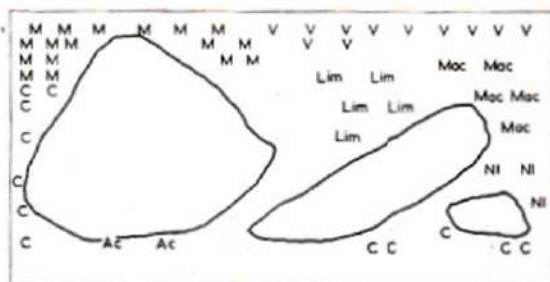
## A Mixed Collection of Interesting Tropicals

By Mrs. G. Skipper

**F**ROM a river in Devon came the rockwork and compost for this design. We collected dark brown rocks with white markings which would show the various colours of fish and plants to advantage. An orthodox wall of *Vallisneria spiralis* var. *torta* curtains the back of the tank with *Myriophyllum* and *Limnophila* (*Ambulia*) forming the wings of this stage-like set-up. The dark green of the *Cryptocoryne herteliana* spills over the large piece of rock on the left-hand side. The front edges of the rock are broken with small fans of *Acorus*.

From the back right corner in decreasing heights are *Macullamia* of olive green, delicate *Limnophila* (*Ambulia*), and pinkish Needle-leaf Ludwigia, stopping abruptly at the low rocks which are broken with low, spade-leafed *Cryptocoryne beckettii*.

Penguin Fish, Barbs, *Corynopoma rüsei*, *Hemigrammus*



*pulcher* and *Phenacogrammus interruptus* form the mixed group of fishes chosen for size and quality though unrelated. They make an effective foil to the eight varieties of plants.



## The Toad's Stone

How Mythology Gave a Macabre Value to this Friendly and Intelligent Amphibian

Common Toad

[Photograph by S. Crook

By David Gunston

FOR centuries, as is well known, the Common Toad was a much-maligned, undeservedly misunderstood and cruelly persecuted creature, associated with venomous mischief, witchcraft and almost all the superstitious follies of which our forefathers were capable; yet it is strange that, arising out of all this, toads should today still be rather misrepresented in a curious and interesting way, in some quarters at least. The old toad legends and superstitions went deeper than some present-day naturalists would have us believe.

The error seems to have originated in those much-quoted lines about the toad which Shakespeare puts into the mouth of the exiled Duke senior in "As You Like It", II, I, in his well-known little "sermons in stones" speech:

Sweet are the uses of adversity;  
Which, like the toad, ugly and venomous,  
Wears yet a precious jewel in his head;

This reference to the "precious jewel" in the toad's head, so some authorities tell us, is but the poet's fanciful and striking way of describing the creature's large and prominent eye, glinting ruby and gold with the fascinating ever-changing opalescence. "Jewel", it is naively averred, is wonderfully apt for the remarkable eyes a toad possesses and finds so useful when feeding off moving insects.

But Shakespeare, whatever his occasional shortcomings as a naturalist and falling here for the prevalent belief that toads were actually poisonous, was too good an observer of life to use any such ineffectual metaphor, and it is inexplicable why this explanation should be so widely accepted.

### Situated in the Head

The mention of a jewel was a direct reference to the toad's stone, the mythical precious gem-like stone almost universally believed to lurk, temptingly, inside every toad's head. It was no mere metaphor, this stone, but to most folk throughout the Middle Ages and for some time afterwards, a real jewel credited with supernatural medicinal and other powers, particularly in relieving snake-bite. Endowed with such powers, a toad-stone was indeed considered precious. Viewed against this allusion, Shakespeare's phrase, in its full context about the good in the bad in life, is clearly more powerful and striking than the eye explanation. From the evil and malignant toad comes the valuable elixir which cures personal ills.

The first reference to toad stones appears to be that of Bartholomew de Glanville, better known as Bartolemus Anglicus, a learned friar whose fame rests largely in his encyclopaedic volume, "De Proprietatibus Rerum", written in the middle of the thirteenth century. This work mentions the toad's stone as a jewel taken from a toad's head, and stresses its efficacy as an antidote for poisons in general, and snake venoms in particular. Quite a number of later writers refer to the stone in similar terms.

One of the secrets connected with it was the actual surgical removal of the stone, and there is no telling what ghastly crimes were committed against innocuous *Amphibia* down the ages in this connection. There were a number of ways of performing the operation, all considered correct at different times. Thomas Lupton, who wrote "A Thousand Notable Things of Sundry Sortes" (1579) was a firm believer in the medicinal properties of toad stones, and gives this method of obtaining one: "A good way to get the stone called *Crapaudina* out of the toad: put a great or overgrown toad (first bruised in divers places) into an earthen pot, and put the same in an ant's hillock, and cover the same with earth, which toad at length the ants will eat, so

(Continued next page.)

### Fish Philately

## Filamented Coral Fish



THIS stamp, value 10 centavos, is another in the magnificent fish series issued in 1951 by the Portuguese East African colony of Mozambique. On a background of pale blue, the Filamented Coral Fish is shown in its vivid natural colours—bright yellow rearparts, red strips along the back and flanks, and red, elongated, tube-like mouth. The black bar across the eye and eye-spot on the fins are characteristic of most *Chaetodontidae*, the large Family of Butterfly Fish.

The species depicted, *Chaetodon auriga*, owes its popular name to the long trailing filament extending from the posterior end of the dorsal fin. Berg now prefers to place this species in another Genus, *Linophora*, as *L. auriga*.

It is a fish of coastal waters and coral reefs, where its brilliant colouring and dazzling markings appear much less conspicuous. Butterfly Fish are widely distributed in tropical seas along with other Families, such as the Parrot Fishes (*Scaridae*) and Damsel Fishes (*Pomacentridae*), popularly grouped together under the name of Coral Fish.

John Wakefield

that the bones of the toad and the stone will be left in the pot".

The Rev. Edward Topsell, scholar of Christ's College, Cambridge, and one-time incumbent of St. Botolph's, Bishopsgate, preferred the more fantastic method described in his "Historie of Serpents" (1608): "There is a precious stone in the head of a toad, and there be many that wear these stones in rings, being verily persuaded that they keep them from all manner of gripings, and pains in the belly. But the art is in taking it out, for it must be taken out of the head alive, before the toad be dead, with a piece of cloth of the colour of red scarlet, wherewithal they are much delighted, so that while they stretch out themselves as it were in sport upon that cloth, they cast out the stone of their head, but instantly sup it up again, unless it be taken from them through some secret hole in the said cloth, whereby it falleth into a cistern of water, into which the toad dareth not enter, by reason of the coldness of the water."

But most often the creature must have been subjected to the direct physical removal of the stone in the way depicted with force in an illustration to the "Hortus Sanitatis" (1491), one of the first printed herbals. There, a determined-looking fellow is about to open up the head of a rather large-scale toad.

#### Substitutes Available

Almost as soon as the whole legend gained credence, false substitutes for genuine toad stones began to circulate. The real gem was extremely valuable and commanded a very high price when offered for sale, as it must occasionally have been. Consequently the sham stones became quite plentiful, but of course they had no supernatural powers. Lupton, in the work quoted, offered a fool-proof test for the genuine article: "You shall know whether the Toad stone called Crapaudine be the right and perfect stone or not: hold the stone before a toad, so that he may see it, and if it be a right and true stone, the toad will leap toward it, and

make as though he would snatch it from you; he envieth so much that a man should have that stone."

This belief in the efficacy of toad stones no doubt led in time to faith in the healing properties of other parts of these creatures. If the actual stone was hard to come by, why not try applications of live toads, toads' bones sewn into a linen bag and hung round the necks of children as a prophylactic against convulsions and other ills, powdered toad, and so on? The developments from this original notion of the mythical toad stone were many and varied, and some survived until the last century.

#### Tooth of a Fossil Fish

One other point in connection with toad stones should be mentioned. The somewhat later practice of wearing a so-called toad stone in a ring or amulet was perhaps a variant of the medieval idea, but these gems had no real connection with toads at all, although they are known as *Bufo* or *Crapaudina*.

Such a stone is really a palatal tooth of *Lepidotus*, a fossil fish, quite common in Wealden and Oolitic strata in many parts of England. Although once white, they are usually stained from the adjoining rocks and are mostly of a drab colour, with a convex polished surface when mounted. There was a strong belief in the therapeutic value of toad stone rings, and in the sixteenth and seventeenth centuries the rings were often made of gold and silver and worn freely in the hope that the stone would keep away disease.

Most collections of finger rings include a few, like those in the British Museum, and their use retained all the powerful old superstitious lore surrounding toads generally. In a letter to Sir Walter Scott, Joanna Baillie mentions such a ring owned by her mother which was frequently borrowed by her neighbours for the protection from illness of babies.

The trend away from the stones alleged to come from real toads to the unconnected carboniferous fossils was a fortunate one for these eminently useful, possibly ugly, but by no means venomous creatures, which have waited many centuries for the enlightened respect that is their due.

## First Spawning from Albino *Moenkhausias*

By S. J. Dadyburjor (Bombay)

SOME months ago I was fortunate enough to obtain pure albino specimens from a spawning of *Moenkhausia oligolepis* (p. 133, June 1956, issue). I had about a dozen spawning pairs of ordinary *Moenkhausias*, but it appeared that only one pair gave Albino young (about 25 per cent of the fry from that particular pair being Albinos). The other breeders produced normal coloured fry.

The albino fish has a beautiful, glistening white body with the base of the caudal fin showing two shining white blotches which, contrasting with the almost transparent caudal fin, make the fish outstandingly attractive. Albinos have red eyes and the upper half of the iris is rich scarlet.

When I had grown these Albino *Moenkhausias* to full size and when some of the females appeared to be full of spawn I decided to breed from them. Two males were used to one female. The fish spawn in the normal *Moenkhausia* fashion, the males violently chasing the female and the female occasionally entering the thicket of the plants with the male close behind her. Then in a flash they twirl round and round among the foliage during which time 20-30 small transparent eggs are scattered.

About 300-400 eggs are laid in one spawning which lasts for approximately 1½ hours. The eggs hatch in approxi-



Two of the Albino *Moenkhausias* belonging to Mr. Dadyburjor and bred from Albino parents. The upper iris of the eye is bright red and two white marks are present at the tail base.

mately 22 hours at an average temperature of 80 deg.F. A tank of about 20 gallons capacity was used for the Albino breeding and bunches of *Elodea* were introduced as the spawning plant.

To my surprise all the fry from the Albino parents have turned out to be pure Albinos. The rearing of the fry is the same as that of the ordinary *Moenkhausias* except that the Albino young are very delicate, are slow in growth and require very fine *Infusoria* for the first 10 days.

Are We Getting Nearer to

## All-black Guppies?

Asks W. G. Phillips

IT has long been the ambition of the enthusiastic Guppy breeder to produce an all-black Guppy but so far none has succeeded. We have gold, grey, red (Rubra), emerald green (Smaragd) and Albino fish but no blacks.

During the latter part of 1934 it was reported that an amateur breeder in Germany had produced a number of black Guppies from parents of unknown origin. This news intensified the interest and ambition of breeders in this country. However, nothing further was heard about these German youngsters.

Some years later, when the Guppy Breeders' Society was formed (1938), one of its members, the late Mr. H. Robson, reported that he had succeeded in obtaining a brood from mating a Mollie (*Mollienesia*) to a Guppy (*Lebistes*) and it was thought by many that this might, by careful selection and in-breeding on scientific lines, result in an all-black strain of Guppies being developed. Some months later I obtained some of these hybrid youngsters but they were

sterile. Many breeders have tried to cross-breed these two livebearers but very few have succeeded and then only to find that the progeny, as in the instance mentioned, are sterile.

Occasionally one still hears of a novice who has a brood of Guppies containing a number of black youngsters but one hears nothing further regarding these particular fish as they are what more experienced breeders call "shufflers"—weaklings which lack sufficient strength to swim and thus shuffle along on the bottom of the tank. These youngsters, when born of grey parents, are for some reason really black or very nearly so. They never swim and always die within a week, or ten days at a maximum.

### Report from Germany

More recently comes news from a well-known breeder in Germany that he has crossed the half-black German Guppy with the Paddlefin. I have no idea what this half-black fish is like, where the black starts or where it finishes, or whether this is a new fish or a descendent of a strain of Veiltails first introduced and shown by Charles E. Visel of Brooklyn, New York, in 1935 in which, according to reports, the males had long tails and developed an intense black extending up half-way along the body toward the head.

In any case, it does appear we are at least half-way and will go further if the black pectorals of the Paddlefin Guppy can be incorporated. For fanciers who like novelties the opportunity still exists and an all-black Guppy would certainly be a novelty, especially if it proved to breed true.

### Know Your Fishes

No. 47

## Dwarf Golden Barb (*Barbus gelius*)

THE *Barbus* Genus is possibly the most popular single group of aquarium-kept egg-layers. In fact even the veriest novice is unlikely to be without Barbs, as members of the Genus are popularly called. The qualities of most of them, their liveliness without pugnaciousness, their medium size and their accommodating nature, make them fishes which the average aquarist cannot overlook.

The Dwarf Golden Barb (*Barbus gelius*) is in a slightly different category, being somewhat smaller than most (males growing to 1½ in. and females to 1¼ in.), rather more delicate and certainly more difficult to breed.

The colourings of *B. gelius* are pleasing without approaching brilliance; basic body tint is brown-olive on the back, changing to silver on the underparts. The sides show a bronze shade which is a distinct gold in certain lights. Black marks are arranged behind the gills in the centre of the side beneath the dorsal fin, at the anal fin base, at the base of the fore-part of the dorsal fin running into the first few rays, at the tail fin base and on the body between the anal fin and caudal peduncle. Fins are yellowish.

The Dwarf Golden Barb has a slim

body and care must be taken to offer it supplies of nutritious food, otherwise it will not develop satisfactorily. Being shy, it might not get the best of proffered meals when in a community of larger and more boisterous fishes. It is fond of *Daphnia*, Brine Shrimps and White Worms but these should not be of too large a size as the species has a small mouth.

Breeding can be effected with reasonable ease but the parents are notorious egg-eaters and this seems to be a reason why more Dwarf Golden Barbs are not available. The

female is fuller bodied at maturity and other sex identifications that have been put forward are a rather more pointed dorsal fin and bolder black markings in the male. The fish is not fussy about high temperatures and, in fact, does best at 65-75 deg.F., with 75 deg. for breeding.

*B. gelius* is only occasionally imported and is unlikely to become over-popular because its colouring is comparatively unspectacular. Nevertheless it has a quiet distinction which warrants attention.

The species is native to North-eastern areas of India and East Pakistan. It is popularly known as the Spotted Barb on the Continent. Class: Pisces. Order: Ostariophysi. Family: Cyprinidae. Genus: *Barbus*. Species: *B. gelius*.





## Readers' Views

The Editor is not responsible for the opinions expressed by correspondents.

### VETERANS TOGETHER

SIR,—I should like to congratulate Croydon Aquarists' Society on their Silver Jubilee but would mention that the Bristol Aquarists' Society was founded on February 25, 1929, when "it was unanimously agreed to form a society entirely separate from the British Aquarists' Association and to call it the Bristol Aquarists' Society". So reads a portion of the minutes of that meeting.

On March 2, 1950, as President of the Bristol Society, I welcomed as the guest of honour to our "coming of age" dinner Mr. W. J. Page of WATER LIFE and the occasion was reported in this journal on page 85 of Vol. 5, No. 2.

I must add that while Bristol can prove a slight seniority over Croydon we do not claim to be the oldest aquarists' society. My feelings are that as long as the hobby enjoys the company of such active veterans it has little cause for anxiety about its future.

Bristol, 7.

H. C. B. THOMAS

### NEWS FROM SINGAPORE

SIR,—Things are going fairly well at the Van Kleef Aquarium, as the main problems are now overcome. The only difficulties we have at present are in the marine section, and these are slight so long as we maintain constant vigilance. There is no good seawater to be had in this area, so we have to improve it internally and check it continually in order to maintain a healthy stock.

We have a splendid show and visitors from America have even compared it favourably with the Steinhardt and the Shedd. But I am far from satisfied and am planning considerable improvements which, if they materialize, will make this Aquarium the finest in the world—not the largest, of course, but the finest technically and from the exhibition point of view.

A. FRASER-BRUNNER

(Curator, Van Kleef Aquarium)

### HOBBY IN RHODESIA

SIR,—I have just arrived up here in the Copperbelt from the Union and am busy setting up 20 tanks I had sent by road (five of these are 40- to 50-galls. capacity and all of them arrived safely). There appear to be over a dozen folks who are interested in the hobby around here, so things should go well once we can all get together.

Whilst waiting for my fish and plants to

be blown up from Johannesburg, I have had a look around the local rivers, the largest of which is the Kafue, one of the biggest tributaries of the Zambesi. I have counted some dozen pretty types of fish, all about 2 in. long, including attractive Barbs and Cichlids. I shall do a spot of collecting as soon as I am more settled. Plants, of which I am a keen collector, appear to be rather scarce.

Kitwe,

Northern Rhodesia.

A. A. TEAGUE

### GOLDFISH STANDARDS

SIR,—The main adverse criticism from the Goldfish Society of Gt. Britain on the F.B.A.S. Goldfish Standards situation was that Goldfish fanciers were not allowed to see the final draft before publication. We can understand Mr. Fraser-Brunner's anxiety to complete the drawings before leaving this country (mentioned on page 186 of the last issue) but surely one evening's discussion with some of the F.B.A.S. coldwater judges and fanciers would have been beneficial. If amendments to the pointing were then considered necessary and the other members of the Standards Committee were unable to deal with them we are sure there must be somebody in the F.B.A.S. who could have done the job.

We must comment on the "upper views" in the diagrams of the standard fish. Of what benefit is it to a judge or exhibitor to know how the body and caudal fins are moved when swimming? The information needed is concerned with the shapes of the fish. In spite of Mr. Fraser-Brunner's statement that "these diagrams were based upon accurate data obtained from living fish", we state categorically that no Goldfish in prime condition has the greatest width in the position shown.

Of course the illustrations in our society's booklet appear stiff. Members of a society such as ours are only interested in exact shapes and these can only be depicted when the body and fins are spread out. A butterfly pinned out in a museum collection looks woody in comparison with one flying, but—the viewer can see the shapes. To quote from our booklet, "It is somewhat difficult to compare living fishes with lifeless drawings. To overcome this difficulty as far as possible the drawings have been shaded but they are still diagrammatic representations of ideal fishes".

Mr. Fraser-Brunner suggests our standards have faults, inaccuracies and

peculiar shapes. We are always ready to learn and would be delighted if he would point out in detail where we have gone wrong.

The G.S.G.B. is a specialist group and its members have accumulated much more information on *C. auratus* than any other society. As mentioned in our statement (WATER LIFE, April 1956) we are pleased to know that some of our knowledge has been of use to the F.B.A.S. and hope we can be of service in the future.

GOLDFISH SOCIETY OF GREAT BRITAIN  
London, S.W.16

### A BOUQUET

SIR,—In this season of societies' annual shows I think it only fitting that due praise should be given to those gentlemen (and ladies) who do such an admirable job for us; the F.B.A.S. judges. It is especially the smaller clubs and societies, whose limited and often exasperatingly arranged classes make for judging difficulties, that benefit most from the painstaking care that is afforded by these highly skilled and experienced people. Their obvious pride in the work they are doing makes even the award of a prize card a highly valued objective.

At our own society's annual show held recently we were very gratified with the attention given to our exhibits by a man who must have seen some of the finest fish in the country. It would have been understandable if his judgment had been perfunctory, his eye cursory, for we had run far over our time schedule and he had been delayed in making a start, yet time and again he returned to the tanks to assure himself that the exhibits had done justice to themselves. It is this kind of treatment that makes a small society feel that its efforts mean something even for those who move among the best.

JOHN LONG  
Luton, Beds.

(Secretary, Dunstable A.S.)

### NEON DISEASE

SIR,—I have read with great interest Professor Worden's notes on the Porter and Vinall report, but cannot let pass unquestioned his comment that the identity of the causative organism is now presumably decided.

The Porter and Vinall report refers to a sporozoan infection of the *Haplosporidium* Genus, whereas the original disease introduced into this country with the fishes, and subsequently recognized by all practical aquarists and breeders by the distinctive colour "clouding", was due to a sporozoan infection of the Family *Nosematidae*—but there has been some doubt and controversy as to the Genus and species.

The symptoms described in the Porter and Vinall report do not accord with the specimens sent to me from a number of different sources, in which the spores displayed extruded polar filaments and well developed polar capsules, so it would appear that they have been studying another form of sporozoan infection in Neons.

Identification of Neon Disease has been attributed in America to a species of *Plistophora*, whilst on the Continent it has been attributed to species of *Nosema* or *Glugea*. It is not difficult to identify the Family characteristics of the organism, but it is by no means easy to be sure of the Genus, and even more difficult to tie down the species. For my own part, I recorded

## Readers's View—continued.

the disease as being due to a species of *Glugea*, agreeing in this with Schaperclaus that it was a microsporidian of the *Nosematidae* Family.

Mr. C. van Duijn, in his recent excellent book, "Diseases of Fishes", questions my identification purely on the basis of the absence of "knots and pimples", but one of the things I have learned from examining many thousands of fishes is the vast divergence of symptoms and especially of external manifestation of the presence of any particular parasite.

I am, therefore, still inclined to my original conclusion. It is to be admitted that Mr. van Duijn refers to a species of *Platiphora* confirmed by Prof. W. Schaperclaus, but at this stage I am unable to say whether or not this is subsequent to his publication of "Fischkrankheiten". The main point is, that all these organisms are *Nosematidae* and not *Haplosporidium*.

One other point that the Porter and Vinal report raises is when is an *Ichthyosporidium* not an *Ichthyosporidium*. The Genus described by them, and confirmed by Kudo in his "Protozoology", has little or nothing in common with the detailed observations of Nora G. Sproston in 1944, and the American observers Sinderman and Scattergood in 1954; all the latter being agreed that the organism is a *Chytridiaceae* fungus, and my own detailed observations and drawings over a number of years confirm this in preference to it being a sporozoan.

I believe this brings to light a confusion in nomenclature since the organism described by Sproston, Sinderman and Scattergood is that originally named *Ichthyophonus* by Hofer and subsequently described by Plehn and Mulsow and beautifully illustrated by Schaperclaus. How can *Ichthyosporidium* be a sporozoan and at the same time of the *Chytridiaceae*?

In any case, the two organisms bearing the same name are as different as chalk from cheese!

Kings Heath, W. H. COTTON, F.R.M.S. Birmingham, 14.

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Kings Heath, W. H. COTTON, F.R.M.S. Birmingham, 14.

From Continental Journals

By H. O. Munro

## Some Unusual Aquarium Fishes

IN the July issue of the DATZ, the well-known German aquarist and photographer, Jurgen Grobe, gives a most amusing account of his experiences with two Snakeheads of the species, *Channa obscura*. He bought them as small fishes, some 4 in. long, and introduced them to his large African community tank where they disappeared for some time. When they re-appeared, they showed a terrific appetite and swallowed whole bundles of *Tubifex* until they sank to the bottom of the tank. Over a period of time Grobe noticed that more and more fishes in his community tank disappeared until one day he watched one of the Snakeheads attack and swallow an *Aphyosemion cziraleum* almost its own size.

The Snakeheads were then given a tank of their own and fed on Earthworms, small fishes and tadpoles. They also accepted Sticklebacks without any harm to themselves, and their appetite was certainly astonishing. When, by accident, a glassful of Sticklebacks fell into the tank the two Snakeheads swallowed eight of these fishes within a few minutes. They grew well and reached a length of 12 in., becoming very tame. They came to the front of the tank as soon as a meal was expected, literally begging for food which they would swallow as soon as it entered the water.

When hunting, the Snakeheads prowl by gliding almost motionless toward the prey, then dash forward toward the victim, simultaneously pressing the water out through their gills. This produces a strong water current toward their huge mouth which drags prey and surrounding plants deep into the fish's mouth. Feeding the Snakeheads became quite an attraction and the fishes were even recorded for the German radio on which their noises were heard!

They finally outgrew their welcome and Grobe had to part with them. He still thinks they are the most interesting fishes he has ever kept though he almost lost a finger to one of them. I shall leave it to readers to decide whether Snakeheads are

the ideal pets or not. Grobe kept his in his bedroom which would certainly not appeal to me!

AND secondly some experiences with a Cichlid species *Crenicichla lepidota* which are described by H. Schroeder in the August DATZ. He obtained eight young fishes which soon grew on a diet of *Daphnia*, *Tubifex* and small fishes. When they had reached 4 in., they coloured up nicely and looked most attractive. The fishes have an elongated shape reminiscent of *Pelmatochromis*. On a brownish background runs a darker line from mouth to tail, right through the dark red eye. The body is strewn with golden spots and dorsal and tail fins have a red edge.

According to Schroeder the dorsal fin of the female is not so elongated as in the male and the colours in the female are more vivid than in the male. For more than six months Schroeder tried in vain to encourage his fishes to spawn. He used all the known tricks but the fishes just kept in their chosen area and attacked any others that dared to come near.

They were finally transferred to a huge tank which they shared with some other big Cichlids. Finally one pair separated and spawned in an upturned flower pot. All other fishes were chased away from the pot by the male fish whilst the female stayed inside the pot fanning the eggs. Schroeder had to remove all other fishes from the tank with the result that the male fish now furiously went for anybody who approached the tank.

About seven days after spawning the female appeared leading the fry close to the bottom of the tank, teaching them to find their food. Both parents were busy all the time keeping the youngsters together. At dinner time the fry were bundled off into their flower-pot home for a couple of hours rest. These Cichlids have an even higher standard of parental care than is usual. Schroeder found them the most interesting big fishes he had bred and recommends them to anybody who can spare a suitable tank.

## WATER LIFE Show

JANUARY 10-12, 1957

## Schedules Available Shortly

THE 1957 National Exhibition of Cage Birds and Aquaria will be staged in the National Hall, Olympia, London, W.14, from January 10-12.

Classification for the Aquaria Section will consist of five classes for furnished aquaria and four for breeders' teams of fishes.

## FURNISHED AQUARIA

Class

- A1 Interclub Tropical
- A2 Interclub Coldwater
- A3 Individual Tropical or Coldwater
- A4 Individual Tropical or Coldwater (lady exhibitors only)
- A5 Interschools Tropical or Coldwater

## BREEDERS' CLASSES

- A6 Tropical Egglayers (6 fish per entry)
- A7 Tropical Livebearers (6 fish per entry)
- A8 Singletail Goldfish (4 fish per entry)
- A9 Doubletail Goldfish (4 fish per entry)

Schedules (giving full details) and entry forms will be distributed in October to societies and known exhibitors. Anyone not in receipt of a copy by November 1 should make application to the Section Organiser, WATER LIFE Display, Dorset House, Stamford Street, London, S.E.1. Closing date for entries is Tuesday, December 4, but they should be sent at the earliest time as accommodation is limited.

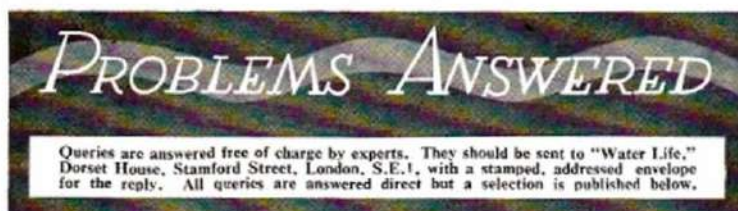
Federation of British Aquatic Societies judges will officiate in all classes and the Star Scheme of the F.B.A.S. will operate in classes A1-A7.

A number of special features are also planned and it is hoped that these will include attractive displays by the British Herpetological Society, the Federation of British Aquatic Societies, the Guppy Federation and the Goldfish Society of Gt. Britain.

## STEWARDS REQUIRED

Experienced aquarists in the London area will be welcomed to act as stewards when the show is open to the public and as helpers whilst the section is being erected and dismantled. The period when assistance will be needed is from Monday, January 7 to Sunday morning, January 13, inclusive. Out-of-pocket expenses on the usual scale will be paid. The Section Organiser will be pleased to hear from fishkeepers able to help in this way.

Further details for visitors will be given in the December issue, but meantime exhibitors are asked to make their entries as early as possible after schedules are received but, in any case, no later than December 4.



#### Caravan Tank

*I am living temporarily in a caravan and would like to keep a small "tropical" aquarium although no mains electricity is available. I should like to know what "tropical" fish and plants I could keep in the unheated tank at normal living room temperatures.—(R.S.H., Newquay, Cornwall.)*

There are not many of the so-called tropical varieties of fish which will live happily in a normal room temperature both Summer and Winter. There are, however, two species, both of which are small, peaceful and colourful, which do exist under these conditions. These are the White Cloud Mountain Minnows and the Zebra Fish. We would advise you to start your tank with a shoal of White Cloud Mountain Minnows which will form an extremely decorative picture in a small tank and live very happily together at low temperatures. Suitable plants would be *Vallisneria spiralis* var. *torta*, *Sagittaria*, *Myriophyllum* and *Ludwigia*.

#### Dried Daphnia

*Is there any way of treating dried Daphnia to make it sink in the water?—(C.B., Barbourne, Worcs.)*

It is rather difficult to know why you require the *Daphnia* (dried) to sink to the bottom. It is best for this food to float on the surface where every particle can be seen by the fishes and eaten rather than to have it drop to the bottom of the tank where it might lie uneaten and foul the water. If you still require it to sink, all that is required is for the day's feed to be placed in an eggcup and soaked in warm water overnight. This, however, tends to soak out some of the food value of the *Daphnia*.

#### Foreign News

*Can you give me information on Alpine and Italian Newts or any small hardy type, other than British species? How many could I put in a 24 x 12 x 12 in. aquarium?—(Miss F.F.M., Broadstone, Dorset.)*

The Alpine Newt (*Triturus alpestris*) is a European species found widespread over the Continent. It is about the size of our Smooth Newt, dark in colour and with an orange, unspotted belly. Its habits are similar. The so-called Italian Newt is usually the S. European form of our Crested Newt (*Triturus cristatus*). Here again, the size and habits are similar.

Occasional species come over from N. America. One of these which it is possible to keep quite successfully is the Spotted Newt (*Triturus viridescens*). Then there is the pretty little newt from Japan, the Fire-bellied Newt (*Triturus pyrrhogaster*), which is almost black with a crimson belly. It used to be quite easy to obtain at one time.

A 24 x 12 x 12 in. tank should take about six to eight newts comfortably, if they are

the size of the Smooth Newt, and three or four if the size of the Crested Newt. An island will be required and this can be made by placing a piece of slate on an upturned flower pot, so that it is just clear of the water. A curved piece of bark on the slate makes a roofed shelter.

#### Winter Precautions

*I have an irregularly shaped pond approximately 14 ft. x 10 ft. and 4 ft. deep. Last year the water froze over for a considerable time and I lost the majority of the fish. Is it best to help the ice to thaw by standing a watering-can containing hot water on the frozen surface or is there a preferable method?—(A.H., London, S.E.9.)*

You are correct in not breaking the ice and in making a hole in it by means of hot water in a container. You can prevent a small area of the water from freezing over by inserting an electric aquarium heater just below the surface; 100-watt capacity should be effective. Your pond is a good depth for the fish to get to the bottom for their Winter rest. The fact that the fish died last year suggests they were affected by polluting gases from decayed vegetation and your best plan would be to empty the pond and remove some of the soft humus which accumulates and which has to be removed from small bodies of water if the fishes are to survive freezing over in the Winter.

#### Gas Heating

*The aquariums in my fishhouse are at present heated individually by electricity, but I should like some details of a fool-proof system using gas.—(A.H., Lincoln.)*

Gas heating is a very efficient and economical system to use for a fishhouse.

Small size gas jets should be used and a single jet is sufficient for a 24 in. tank or smaller, with an increase in the number of jets according to the size of the tank. Under no circumstances should the gas jets be allowed to play directly on the bottom of a glass tank, but should have a metal or asbestos baffle placed about 1 in. under the aquarium. An easy baffle can be made from a length of 2 in. round galvanized guttering suspended under your tanks.

One of the main points to guard against is condensation of moisture contained in the gas, which will collect in the pipe and cause a stoppage in supply in cold weather due to freezing. In order to counteract this a supply pipe should be dropped to a low point and a drainage tap placed there so that the water can be drawn off periodically. It is strongly recommended that advice should be sought from the local gas authority.

A very efficient system of gas heating is described in an article by Mr. W. F. Moore, A.M.I.H.V.E., Assoc. Inst. Gas. E., entitled "Gas-fired Boiler Provides Efficient Heating System", on page 15 of the February 1953 issue of WATER LIFE.

#### No Success with Zebras

*We have some Zebra Fish (Brachydanio rerio) in a partitioned, 24-in. aquarium for breeding. There is one definite female and four or five males. The female has dropped eggs several times but nothing has become of them. There are two layers of marbles on the bottom of the tank and no plants.—(A.S., London, S.W.17.)*

We feel that your trouble with the Zebra Fish is probably that you have too many male fish present. Zebra Fish are very partial to their own eggs, and whilst one or two of the males may be driving the female it is probable that the others have been eating the eggs before they have reached the bottom of the tank. A very good method of breeding Zebra Fish is to float a small tank about 10 x 6 x 8 in. in the main aquarium. The small tank has the two layers of marbles. Two males and a female, fully conditioned, can be placed in it and removed as soon as the female has dropped her spawn. The fry will hatch in two to five days. The advantage of this method is that the eggs on the bottom of the tank are kept at the same temperature

## WATER ANALYSIS

Samples should be sent [NOT delivered by hand] in a clean pint bottle, well packed, to Water Life Analyst, 12, Featherbed Lane, Addington, Surrey, together with a fee of 5s. per sample. Name and address of the sender and details of prevailing conditions should accompany each sample sent. Post-mortem examinations of fishes cannot be undertaken under this service and corpses must not be sent to our Analyst with samples of water.

*Sample received from A.J.E.L., Ewelme, Oxon. Taken from a pool 30 ft. long by 6 ft. wide and with a depth varying from 6 in. to 4 ft. The pond was surrounded by long grass. Aquatic and marginal plants did not seem to grow well. For some time the water had taken on a brownish colour. A stream running through the garden filled the pool and it was believed that the stream water had a great deal of lime in it.*

*Test for impurities: Appearance: Clear with a little deposit. Colour: faintly yellowish. Odour: none. Reaction, pH:*

8.0. Chemical examination (parts per million): Total alkalinity, expressed as calcium carbonate ( $\text{CaCO}_3$ ): 70.0. Free ammonia: 0.040. Albuminoid ammonia: 0.080. Chlorine as sodium chloride ( $\text{NaCl}$ ): 16.0. Poisonous metals: Lead: none detected. Copper: none detected. Zinc: none detected. Additional tests: none.

*Interpretation:* The results obtained from the chemical analysis of this sample of pond water show that it is contaminated by organic matter of vegetable origin. This would suggest that there is a good deal of decomposing vegetation on the bottom of the pool. The pond should be cleaned out as far as circumstances permit and the incoming supply of water screened with a fine mesh filter. A low wall built round the pool would prevent an excess of muddy drainage water from gaining access. The water is quite suitable for both fish and plant life and general appearance may be improved by stocking with two or three fair sized Tench which will feed off the bottom debris.

# In and Around the Aquaria World

— By L. W. Ashdown —



Roy Skipper photograph of officials, etc., at this year's Portsmouth A.C. Show which attracted an entry of over 400. Left to right—Mr. W. Ryder, Mr. E. Bishop (secretary), Mr. C. Smith (chief steward), Mr. J. Errington (magazine editor), Mr. C. J. Saunders, B.Sc. (F.B.A.S. judge), Mr. A. Taylor, Mr. B. H. Nunn (treasurer), Mrs. F. King, Mr. J. Stillwell (assistant secretary), Mr. G. Elverson (show secretary), and Mr. F. King.

## Unorthodox Introduction

A DUTCH George Washington unwittingly started Mr. E. T. Farrance (Croydon A.S. secretary) on the road to fishkeeping. It was just after the war that the ten-year-old Continental boy arrived at the Farrances' home for a few months stay. A firewood chopper proved irresistible to him and a tree in the garden suffered in youthful bursts of energy—so much so in fact that, with the Dutch boy's return to his native land, the tree had to be felled and the surrounding land, denuded of fertility by the tree's hungry roots, presented an arid patch. Mr. Farrance's eldest son then had the stimulating idea of transforming the area into a pond. Mr. Farrance says, "I cheerfully supported the scheme and, within a few weeks, had fashioned in concrete something which, as I have since learned, has all the inconveniences that ever a pond could have, both from a decorative and fishkeeping point of view".

But the interest was nurtured and Mr. Farrance is now the A.S.L.A.S. treasurer and a well-known fishkeeping figure in South London suburbia. He records his early aquatic history in *Mac Matters*, house journal of Mac Fisheries, and provides a deal of useful fishkeeping information which could result in others to whom fish on the slab means a livelihood becoming converted to fish in an aquarium for pleasure.

## January Exhibition

ON page 237 details of the Aquaria Section at the next National Exhibition of Cage Birds and Aquaria are given. It will be seen that the classification has been broadened somewhat to include four breeders' classes apart from five classes in the furnished aquaria section.

We should view this exhibition in its correct perspective. It provides a unique publicity venture for the hobby in that approaching 30,000 persons visit the show. The majority are non-fishkeepers and our prime aim must be to provide a shop window for the aquarium hobby. It is for this reason that furnished aquaria have always been the main feature. Nevertheless, an effort is made to cater for

the serious breeder of fishes and to this end the breeders' classes are included.

Each year the cost of staging this charity event rises; there was a small loss from the 1956 show and further increased costs have to be allowed for in the plans for 1957. Our Section is a significant item in the outlay but, by staging it, we have under one roof in January the world's greatest bird show and also the largest display of competitive furnished aquaria in the country. In addition some of Britain's finest home-bred fishes will be on view in 1957. Few people interested in livestock will wish to miss such attractions.

## Shubunkin Centre

BRISTOL Aquarists' Society moved to a new venue for its annual show this year. It was the beautifully designed Wills' Recreation Hall, Bedminster Bridge. Bristol's shows are always well staged and the Hall set off the layout well. Banks of flowers and several foreign birds (all supplied by Bristol and Clifton Zoological Society) in front of the stage gave colourful tone to the event where, although entries were rather fewer than last year, quality appeared at a high level. A full report will appear in the next issue.

## That Giant Hygrophila

THE new tropical aquarium plant, Siamese Giant Hygrophila (*H. stricta*), is not so recent from a botanical point of view. A search among some of the volumes in the Royal Horticultural Society's library revealed a reference to it way back in 1844. Browsing through this and rather later books where the species was referred to under various names including *Nomophila stricta* and *Nomophila corymbosa*, it was noticed that one writer apparently mentioned a height of one metre for it. This would explain the vigorous growth of the subject and its inclination to throw its growing point well above the water surface, noticed by not a few of us.

Such a characteristic should not cause us to condemn the species; rather the reverse. Its vigorous growth, plus a glorious abandon in throwing out side shoots which root remarkably quickly,

make it possible to replace the large and rather coarse plants after a few months with a selection of freshly rooted shoots. *H. stricta*'s ability to hold on to the green colour in its leaves right down to the base is another point in its favour. I believe it is a plant which we shall not allow to be lost from our aquariums, although aquarists in some districts report difficulty in getting it established.

## Designed to Appeal

AFTER a day with the Portsmouth club during their annual show an evening call was made at the Chelsea society's display on the return journey. I had been told that the theme would be "fishkeeping in the home and garden" and right well the club worked to achieve novelty and attraction. A large room in the Old Chelsea Police Station—now a community centre—had been fully utilised by Chelsea A.S. and the local cage bird society. Focal points of the fish display were two cross-sections of rooms, the one a lounge, the other a nursery. Helping in the display was the community centre's dramatic group. In the nursery one aquarium had a toy fort surround, whilst another was encased in a doll's house. The panelled lounge had an aquarium in a radio cabinet and another individual tank.

The entrance to the display was ornamentally done with a garden pool as the central feature. The whole set-up gave first-class publicity to the hobby and, of course, Chelsea A.S. It showed visiting folk how fishes and furnishings can be complementary to each other. Other features included ten furnished aquaria behind fascias, and five special display tanks containing the weird and the wonderful, such as Sea-horses, Axolotls, Rock Wrasse and Blue Devils.

A highlight was a press-button wall map on which the habitats of many tropical fishes showed up at the touch of



Photograph by R. G. Mealand  
Giant Hygrophila flowering in Mr. R. G. Mealand's fishhouse. It was from this plant that Kew were able to identify the species as *H. stricta*. Flowers are in some leaf axils.



### In the Aquaria World (Continued from previous page.)



Photograph [W. Hoppe]  
Barbus schwanefeldi, a species seen frequently on the show bench in 1956.

a button. This is by no means a new idea but the craftsmanship in preparing this particular model was exemplary. The only competitive class was one for kiddies' Goldfish—won by Philip Strelley—son of the Chelsea society member and trader, Stan Strelley.

Incidentally, the show's venue is also the place where an informal F.B.A.S. meeting will be held in mid-October to hear views on how enthusiasm in societies can be nurtured—where the outlook has been wrong in the past and how it can be improved to avoid recessions in the future.

#### Show Season Impressions

OUT of the encouragingly large numbers of entries at the many shows visited this year one or two interesting trends appear. Firstly, the proud showing of coldwater fish at many exhibitions, some of them not generally regarded as centres of coldwater enthusiasm. Particularly pleasing to my eye was the apparent improvement and renewed popularity of Moors. Brassy fish are an exception this year and many of the entries show the full velvety black colouring we like to expect, but much less frequently see. The vast majority have Fantail finnage and the number of Veiltail Moors still seems small.

Marbled Cichlids (*Astronotus ocellatus*) have taken best-in-show awards in the tropical sections of several exhibitions, including the Midland, Walthamstow and Leyton events. Black Sharks have turned up in the A.O.S. classes at practically every show—big fish most of them and generally retaining their black colour well. Red-tailed Sharks are having to take second place to their larger and more sombre brethren in 1956. A pleasant surprise was to see a *Badis badis* taking highest honours at the Romford event. It was a lovely fish and well deserved its win. A team of *Badis* also took second in the breeders' class at the Midland Show.

#### New Barb Spawned

BARB classes have tended to be particularly large with the leading fish of high quality. *Barbus schwanefeldi* has often been represented. It is a large fish and, in good condition and colour, it takes some beating. In a general way it is rather like the Pomeranian Bream, with a deep and

laterally compressed body but its fin colouring differs. In *Schwanefeldi* the caudal, dorsal, anal and pelvics are rich red with the dorsal having a smattering of black in addition. The contrast with the glinting silver body is most effective.

Mr. A. J. Linford, the Bethnal Green club's secretary, has had the species spawn in the typical Barb manner but the eggs did not hatch. Large aquariums will no doubt be needed to get reasonable fertility. *B. schwanefeldi* was first described by Bleeker in 1854 under the name of *Puntius Schwanefeldii* although *B. schwanefeldi* is now more correct. Its habitat is Sumatra.

#### Interesting Plant Forms

THE Association of South London Aquarist Societies' show was of particular interest to me for the several unusual fish and plants that were entered. One tropical furnished aquarium staged by Surrey A.C. had three distinctive plants from Mr. R. G. Fowler in it—the so-called Water Nasturtium, a plant with segmented leaves and especially attractive growth habit which seems to put it in the "specimen plant" category. Water Wistaria and *Samolus*, a light green subject of apparently free growth.

I believe that *Samolus* has the popular name of Water Pimpernel and a very well grown specimen won an award for Mr. R. G. Mealand in one of the classes. Mr. Mealand also took third in the same class with *Saururus*, a plant which has a certain superficial resemblance to the *Philodendron* house plant in its rigid growth, leaf shape and dark green colouring.

#### Another Livefood?

HENRY A. NICHOLS, whose entertaining screeds on fishkeeping arrive regularly at this office and help to keep us in touch with the American fish-keeping scene, tells of some news he has had from C. Basil Jordan, Carrizo Springs, Texas. Mr. Jordan has found some creatures "much like the Brine Shrimp" but the eggs hatch out very well in ordinary tap water. Some of the eggs are being sent to New York for a check and in Mr. Jordan's own words "maybe we've really got something here".

#### Water Wistaria Naming

RETURNING from Birmingham after enjoying hospitality at the Midland show a brief call was made at Shirley Aquatics to see the new tropical house, an impressive structure housing a large number of aquariums and an indoor decorative pool. We imagine its threshold will be well trodden with club parties during forthcoming months.

Incidentally the scientific name of Water Wistaria, originally distributed by Shirley Aquatics, has now been ascertained from Kew. It is *Synnema triflorum* with *Ruellia triflora*, *Cardanthera triflora* and *Adenosma triflorum* as rather less correct alternatives.

#### Albino Mørnkhausias

ALONG with the photograph accompanying Sam J. Dadyburjor's article on page 234 came a colour transparency of the albino variation of *Mørnkhausia oligolepis*. From this it was possible to see just how effectively the brilliant red upper iris of the eye does contrast with the white body of the fish. The white marks on the caudal fin base appear to be in exactly the position as the black mark

of normal *Mørnkhausias* (i.e., at the extremity of the peduncle and just running into the fin itself) although the greatest white intensity seems to show dorsally and ventrally, hence the fair description of two white spots. We look forward to seeing the fish when they come to Britain, as we certainly hope they will.

#### Space Man Looks Down

NESTLING under an artistic sky of space ships and celestial bodies in the National Hall, Olympia, London, from August 28 to September 8, was a well arranged display of fishes staged by the National Aquarists' Society. The occasion was the first Hulton's Boys' and Girls' Exhibition where youngsters could be coached at cricket by leading county players, work up a speed of 50 m.p.h. on a stationary bicycle, watch the most ornate layouts of model electric trains or—look at the fish, thanks to the pleasing arrangement put on by the N.A.S. There were 40 aquariums (non-competitive) each containing a different type of fish and well decorated with plants. Floral decorations and a small pool provided the finishing touches to a display well patronized by the visiting youngsters.

#### News in Brief

SEEDS of the giant *Victoria regia* Waterlily have been germinated by Shirley Aquatics, Birmingham . . . Bristol Coldwater Breeders' Group has been formed. Meetings are held at the Old Duke, Queen Charlotte Street, Bristol, on the first Friday of each month, commencing 7.30 p.m. . . . The Federation of British



Officials of the National Aquarists' Society at the display arranged for this Summer's Olympia Boys' and Girls' Exhibition.

Aquatic Societies has a Products Endorsement Plan. Products, approved after tests, will receive certificates and seals. . . . Jack Lester, Curator of Reptiles at London Zoo, died in August at the early age of 47. He was a good friend of our hobby and very often helped aquarium exhibitions by providing herpetological specimens. He will be missed by all those who knew him as a man of charm and a born naturalist, and our sympathies are extended to his relatives.

## Current Research

## Breeding Behaviour of the Tilapia Fishes

By Alastair N. Worden, M.A., B.Sc., F.R.I.C., M.I.Biol.

VARIOUS Cichlid fishes have been used for aquarium studies on breeding behaviour, among them several species of *Tilapia*. According to differences in the pattern of their behaviour, species of *Tilapia* may be divided into three groups, as follows:

(1) "GUARDERS", which do not brood the eggs and young in the mouth, but in which both parents guard the eggs and young and carry them from one temporary nest to another.

(2) "MALE MOUTH-BROODERS", in which the male broods the eggs and young in his mouth.

(3) "FEMALE MOUTH-BROODERS", in which the eggs and young are brooded in the mouth of the female.

There are many other associated behaviour differences between the three groups. Of the known species of *Tilapia*, four are "guarders", and only two are "male mouth-brooders". The majority (including some 16 East and Central African species) are "female mouth-brooders".

## Studies in Natural Waters

In the current issue of *Behaviour*, R. H. Lowe of the East African Fisheries Research Organization, reports on studies of two *Tilapia* species in their natural waters. The two species in question are *T. karomo* Poll and *T. variabilis* Boulenger, both "female mouth-brooders". To observe fish spawning in the field it is necessary to select species which breed in clear, shallow water where the surface is not disturbed by wind.

Many *Tilapia*s are phytoplankton feeders living in turbid waters, but both *T. karomo* and *T. variabilis* spawn under conditions that are very favourable for observation. Polaroid glasses were used to overcome reflections from the water surface. Photographs of nests were taken, at a distance of 2-3 yards.

Breeding males of *T. karomo* were found to congregate on the spawning grounds, where each male establishes a territory in which he prepares a nest. The males were seen to have a brightly coloured breeding dress, including a long (10-15 cm.) genital tassel, and to be slightly larger (25-30 cm.) than the less brilliantly tinted females (18-25 cm.).

## Colour Pattern

The general body colour of immature and non-breeding *T. karomo* is greenish-brown dotted with black, the centres of the scales on the back, sides and head being black. When guarding the nest, however, the breeding male is predominantly a bright blue and orange fish. The edges of the dorsal fin, the posterior margin of the caudal fin and the genital tassel are all bright orange. The general body colour is blue grey, and the head, bluish-green. The lips are peacock blue and the fins partly covered by blue stripes when the mouth is open. The characteristically broad bands of the teeth appear pinkish.

The breeding females are much less colourful, although they possess an orange end to the dorsal fin, peacock blue lips and a violet opercular spot. Some have a very

short (0.5 cm.) orange-red tassel behind the genital opening. The body of the ripe female bulges considerably, giving the fish a very characteristic shape. Among the males, differences in size, colour, length of tassel and behaviour made it possible for Lowe to recognize individual fish.

The nests are plaques of clean sand, often raised on mounds, and nest cleaning is done by "mouthing", "nosing", and "fanning". The males do not leave their territory to feed and their intestines at this time contain very little food.

## Pairing Behaviour

Females cruise over the spawning grounds singly or in small shoals. The male swims out to meet them as they enter his territory, turns and leads one back to his nest. While the female "mouths" the nest, the male faces her and "nose-wags" for about 30 seconds. He then starts to drag his genital tassel across the nest plaque.

After a time the female enters the nest and spawns. Sometimes she lays her eggs in batches and the whole performance may be repeated two, three or more times before she leaves the nest. While the female is

## For Your Bookshelf

## Coelacanth Story\*

DR. J. L. B. SMITH'S account of the Coelacanth discovery, told in his book "Old Fourlegs," is not the coldly scientific tome we might expect. The author has produced a volume enthralling as only the writings of a man devoted to his task can be, and liberally laced with emotion, frustration and, finally, absolute achievement. This is a book which the reader will be unable to leave, each new situation in which the author finds himself becomes very nearly a personal concern and we can feel almost honoured at the end of the 260-odd pages that we have been brought into a drama extending over 1½ decades.

The last month of 1938 saw the beginning of Dr. Smith's exciting enterprise when a 5-ft.-long fish was given to Miss M. Courtenay-Latimer, E. London Museum, S. Africa. Understandably, for none knew at the time that it was the first non-fossilised Coelacanth to become available to science, the taxi-owner at the quayside was reluctant to have the 127-lb. creature in his car, but eventually relented. Miss Latimer wrote to Dr. Smith and thus began a period of torment, for it was not until mid-February that Dr. Smith could see the creature for himself. Meanwhile, the municipal rubbish cart had carried away the fish's entrails from the taxidermist's premises.

And so, for 14 years, a propaganda campaign among the natives of areas where Dr. Smith believed the creature lived, was conducted. Leaflets offered £100 for a Coelacanth handed over undamaged. In the Cormoires another was eventually reported.

Since that time further specimens have been found—but Dr. Smith's account pulsates with human drama and friendly

laying the male chases off all fish intruders, including species which it might ignore at other times, by rushing at them and then he races back to the female at the nest.

The male may make fertilizing movements after the female lays her eggs, the female mouthing the nest each time he does so. The eggs are picked up immediately they are laid, so fertilization of most of them must take place in the female's mouth. Several spawning acts by the male may increase the amount of milt to be picked up and the chances of fertilization.

## Eggs Picked Up

After picking up the eggs and the milt, the female "mumbles" the eggs in her mouth for a minute or so and then shoots away, generally pursued by the male, who returns to the nest from the boundary of the territory. He immediately starts courting other females. The females stay among the water plants while brooding, but it was not ascertained for how long the young are brooded.

The breeding behaviour of *T. variabilis* was found to be very similar. Many of the nests are simple clearings in the mud made by sweeps of the pectoral fins. This species exists in two forms, one regarded as the "normal" and the other described as piebald-and-orange. Among the latter, none of the males were seen in breeding condition. The normal breeding females do not differ appreciably in appearance from non-breeding fish.

touches; how the creature's rough scales had been used by the natives to roughen cycle tubes when mending punctures, how Prime Minister Malan put a plane at Dr. Smith's disposal for the 1952 discovery, how a motley collection of letters arrived after the first Coelacanth was found in 1938 including one from a lady who had heard that Dr. Smith was interested in old things and she wanted to know whether he could tell her if an elderly violin she possessed was valuable!

Out of all this interesting detail emerges the basic fact that Coelacanths, which were believed to have been extinct for at least fifty million years, are still alive. The pelvic and pectoral fins show clearly that they could be used as limbs. Ancestral Coelacanths could probably crawl on to land. That is the majesty of Dr. Smith's discoveries and investigations.

He writes as a man engrossed in his work yet fully conscious that the lot of a professional ichthyologist can be tedious. In one place he says: "For ten years at least you must be prepared to do laborious donkey-work . . . monotonous routine, like counting scales on hundreds and thousands of small fish, probably more deadly than counting pennies in a bank, and those at least don't smell." He goes on: "Most turn sadly away, but the few takers have made good."

Dr. Smith is unashamed of putting his own views fearlessly where his work takes him into the worlds of politics, international relations and the like. In these directions we may disagree with him, but that can only add further savour to our reading of "Old Fourlegs," a book worthy of every fishkeeper's perusal.

\* "Old Fourlegs"—the story of the Coelacanth, by J. L. B. Smith. 260 pages, 7 white page black-and-white plates plus text diagrams. London, Green & Co., 21s.

## Around the Shows

## Four-Hundred Entry at Portsmouth

A HIGHLY representative entry of coldwater and tropical fish and furnished aquarium exhibits was out on for PORTSMOUTH AQUARISTS CLUB'S fifth annual open show in mid-August. About 160 of the 400-odd entries were coldwater. Pride of place in this section went to Mr. C. Whitehead's Bristol Shubunkin, with a good tail and first-class colouring which took the WATER LIFE Diploma for the best coldwater fish with 80 points. Mr. Fisher's *Aplocheilichthys lineatus*, best fish in show (WATER LIFE Diploma) and best tropical with 93 points, was overlooked when entries were being staged and officials found a vacuum flask complete with *A. lineatus* under the staging after exhibitors had left. A kindhearted show secretary benched it and the fish went on to take premier honours next day.

The inter-club tropical furnished aquaria were led by Hendon A.S. (Taylor Challenge Cup), who sent down a strong team of entries, with a well designed *Rabiosa* tank having heavy rock-work effectively displayed with bold planting. Second were Portsmouth. There was the same order in the club coldwater class.

Mr. B. Nunn (Laurie Wilson Cup) won the individual tropical furnished aquarium class with an aquarium having a pleasing bottom layer, except that gravel showed on the front panel, and clean, well grown plants. Mr. A. Taylor was second. The planting tended to be rather shallow in Mr. F. Lush's coldwater tank (E. Knight Cup) which was followed by Mr. E. Knight's exhibit.

The Common Goldfish class was well supported with a well conditioned fish of nice shape first. Mr. J. Smith took first and second prizes. London Shubunkins were headed by Mr. G. Elverson's elderly fish of very good London shape but rather pale colouring. Mr. G. Threadingham was runner-up. A strong-bodied Calico of large size led for Mr. C. Whitehead in the Fantails, followed by Mr. W. Angell's exhibit. In the Veiltails class Mr. T. Sykes' fish was first (Veiltail Trophy) with Mr. Whitehead second and third. The leader was large and well developed but seemed to show some Fantail characteristics. Mr. Sykes also won the Telescopic-eyed class, followed by Mr. W. Angell. Moors were headed by Mr. C. Whitehead's well developed and coloured fish. Mr. W. Angell was second. In the A.O.V. Class Mr. Whitehead took first three places with a Lionhead, an Oranda and a Bubble-eye. A well sized Orfe won for Mr. J. Stillwell in the pond and river fish.

In the tropical classes the male Guppies were



Photograph [C. Fry]  
General view of Portsmouth Show with the ornamental pond and trophies in the foreground.

led by Mr. D. Edmonds' nicely coloured Veil. Mr. W. Lock-Bower was second. Mr. A. Taylor's lovely buttercup-yellow female Guppy won its class followed by Mr. R. Westgarth's Coloured female. Swordtails were headed by Mr. J. Ryder's Red-eyed Red, well sized but falling a little on colour. Mr. M. Clark's Green was second. Strong colour and excellent department helped Mr. R. Carlon's Red Platy to win its class and take the Suregrow Cup, followed by Mr. J. Morgan's fish. The leading Mollie was Mr. J. Ryder's black of good shape.

Mr. R. Keeping won the Dwarf Cichlids with Mr. A. Baldock second and third. Mr. J. Stillwell's *B. filamentosa* with quite exceptional colour for its size led the Barbs and won the Stoodley Challenge Cup with Mrs. B. Robertshaw's Cherry, second. Black Sharks won first and second prizes for Messrs. R. Westgarth and C. Carroll. Mr. H. Rundle's well conditioned *Metymnis* led the Characins followed by Mr. W. Gauntlett's fine Beacon. Mr. H. Barrett's boldly coloured Texas Cichlid was first in the Cichlids with Mr. S. Cooper's Angel, second.

A Red Fighter, nicely shaped and well developed finnage, led its class for Mr. W. Dockrell. Mr. H. Rundle's Red was second. A very fine Kissing Gourami (Mr. C. Carroll) was first (Nunn Senior Challenge Cup) in the A.O.S. Labyrinths with Mr. B. Nunn's Combatail, second. Following Mr. Fisher's almost faultless *A. lineatus* in the A.O.S. Egglayer class was Mr. R. Westgarth's Scat.

Breeders' entries were of generally high quality with Mr. C. Whitehead's Moors (Taylor Trophy) first in the coldwater (the same exhibitor's team of Veils were second). Mrs. B. Robertshaw's well matched Angels (Taylor Trophy) were first in the tropical egg-layers (Mr. R. Keeping, second) and Mr. W. Lock-Bowers' Black Mollies of even development led in the livebearers (Mr. F. Lush, second). A Catfish won for Mr. C. Yetman in the novice coldwater and a Gourami, the same honours for Mrs. B. Nunn in the tropics. Mr. R. Skipper's Amazon Sword was first in the plants, followed by Mr. A. Taylor's *Naphar*.

The juvenile furnished classes were judged by a local youth worker and, according to accepted show standards, the second and third in the tropical classes could have been reversed. First here was P. Woolford's very promising effort (C. & A. Smith Cup) followed by L. Hill and M. Lush's exhibits. Miss M. Poor won the coldwater class and Miss H. Poor was second.

Other trophy winners were Mr. C. Whitehead (highest points for single coldwater fish), Taylor Trophy; Mr. A. Taylor (ditto tropical), Taylor Trophy; Mr. J. Smith (highest pointed members' coldwater fish), Henry Lull Trophy; and Mr. H. Barrett (ditto tropical), Wm. Taylor & Son Trophy.

The show was well staged in the R.A. Drill Hall. Its focal point was an ornamental pond surrounded by the show trophies. A herpetological section and display by the Guppy Federation's Portsmouth section added to the interest. Judges were Messrs. C. W. G. Creed and C. J. Saunders, B.Sc., with Mr. G. Elverson as show secretary.

## Clown Barb Best at Dagenham

THE well-supported aquatic section of DAGENHAM TOWN SHOW was this year staged by three societies, Thameside, Romford and Thurrock. This was Thurrock's first participation and they made their mark by winning the inter-club furnished aquaria competition. Judging the classes were Messrs. C. W. G. Creed and R. G. Mealand.

Best fish in show (WATER LIFE Diploma) was Mr. W. Gawler's Clown Barb of good colour and shape. The best individual furnished tank was Mr. F. Ahrens' tropical exhibit with healthy, well-arranged plants but slightly artificial bottom layer (WATER LIFE Diploma). Best coldwater tank was shown by Mr. L. Land. The remaining three open classes, for breeders' entries, were won by Mr. R. Alley (Livebearers), Mr. F.

Ahrens (Egglayers) and Mr. L. Land (Coldwater).

A telescopic-eyed Scaled Fantail of good size and colour won the Goldfish class for Mr. W. Gawler. Mr. R. Alley took the first two places in the Guppy class and Mr. W. Gawler won the Platy and Swordtail class with a Green Swordtail of very nice colouring. Best Mollie was a very fine Sailfin, well developed and with sparkling colour, shown by Mr. F. Ahrens, who also took premier award in the large Cichlid and the Dwarf Cichlid classes. A nicely shaped Pearl Danio won the A.O.S. Cyprinid class for Mr. W. Gawler. Mr. F. Ahrens' well conditioned *Metymnis* led the Characins and the other first prizes taken by this exhibitor were in the Fishbowl with a well developed Red, the A.O.S. Labyrinth with a nicely grown *Trichogaster microlepis*, the Toothcarps, with a Lineatus in good colour, the Catfish, with a large *Plecostomus*, the A.O.S. Tropical Fish class, with a large Black Shark which was holding its colour density very well, and the Plant class, where a *Cryptocoryne* won.

The exhibition, pleasantly staged, was in part of a marquee and was under the efficient control of the aquarist section secretary, Mr. L. Land.

## Marquee Display

THE HUDDERSFIELD A.S. held their first big show of the season when they had over 30 entries and a dozen furnished aquaria as well as other displays at the large marquee in Greenhead Park, in connection with the special features of the Huddersfield Summer Entertainments.

Among the displays was one of "friends and foes in the fish world", by Mr. Leslie Lockwood of Longwood. A particular attraction were the three baby alligators belonging to Mr. Henry P. Lansborough, the chairman of the society. Unusual fish included the Sucker catfish.

Mr. L. Lockwood won the furnished aquaria; Messrs. Luce and Lansborough, the livebearers, the Barbs, the Characins and the A.O.S.; Mr. J. Thornton, the Labyrinths, and Mr. J. Pickersgill, the Cichlids.

## Win for Thurrock

FIFTH annual show of GRAVESEND A.S. was staged during July when the winner of the interclub furnished aquaria competition was Thurrock A.C. Second and third were the Invicta F.B.C. and Gravesend A.S., respectively. Entries were judged by Mr. C. W. G. Creed.

## Romford's One-day Show

IN August, the same month that ROMFORD A.S. held its annual show, the society had its 200th fortnightly meeting. A proud achievement. The exhibition was a one-day event with some 200 entries (all tropical), judged by Mr. C. W. G. Creed, and attended by about 1,500 people. The venue was ideally situated at the market head where passers-by were encouraged to enter by the effective use of loudspeaker equipment.

Best fish in show (WATER LIFE Diploma) was Mr. C. H. Brightman's *Budis budis*—an unusual honour for the species. Second to the *Budis* in the A.O.S. Tropical class was Mr. F. Ahrens' Black Shark—remarkably good colour for size and winner of the Pilditch Cup (best members' fish). This was Mr. Ahrens' third successive win of the Pilditch and he has now won it outright.

Best furnished aquarium (WATER LIFE Diploma) was shown by the promoting society. It had an attractive white-grey bottom layer and a shoal of Neons and Rosy Tetras. Mr. A. J. Wilson (Salmon Cup) was first and second in the individual furnished class. The leader had a pleasing design but plants tended to be a little short for the tank depth. Mr. R. Alley won first in both the male and female Guppy classes, with a Veiltail in the first and coloured female in the second. A very nice Spheonops gave Mr. V. Owen a first in the Mollies, whilst the Platies were headed by Mr. A. L. Stebbing's Red female of good colour and body depth. Mr. C. E. Berkley showed the best Sword, a particularly well developed fish but it could have had richer colour.

First and second went to Mr. R. Adamson in the strong Barb class; the leader was a *B. schwanefeldi* in very good colour and of full size. A robust, well-coloured Harlequin won its

class for Mr. J. Wilson. The Micham exhibitor, Mr. C. H. Brightman, showed *Metynnis* to win the Characin section.

Mr. F. Ahrens took first three places in the Fighter class, a first in the Dwarf Cichlids and leading place in the plant class with a flowering *Aponogeton*. A Moonlight Gourami (*Trichogaster microlepis*) of clear colour and well conditioned won first in the A.O.S. Labyrinth for Mr. L. F. Clements. Mr. C. H. Brightman took another first in the A.O.S. Cichlids with a Severum. Winner in the Catfish class was Mr. R. Morgans with a Talker.

The leading fish in the Egglaying Tooth-carp were of particularly high quality. First was Mr. C. E. Berkley's beautifully coloured Lincatus and second a Playfairii of full colour owned by Mr. A. J. Wilson. Mr. C. H. Brightman took the first three places in the breeders' egg-layers. His premier entry of Angels were well matched and had lovely finnage. Red Platies, of even growth and good colour, were first in the breeders' livebearers for Mr. R. Alley. Miss P. Berkley won the Salmon Cup for best junior furnished aquarium and Smith Cup for best junior member's entry.

#### Good Standard

ANOTHER society's exhibition with Mr. C. W. G. Creed officiating was the ninth competitive show of Guildford A.C. The judge praised the standard of the exhibits which he thought was higher than that attained at the last show four years ago. Burgoyne Cup for highest number of points was won by Mr. H. J. Aylott who also took the Roden Cup for the most points in the tropical section. Jennings Cup for the best club coldwater aquarium went to Guildford A.C., as did the Chessington Zoo Cup for the best club tropical tank. The most successful coldwater section exhibitor was Mrs. C. C. Patrick, who was awarded the Bird Fancy Cup. Mrs. Patrick also showed a display of pond life (excluding fish), which was awarded the Clegg Cup. WATER LIFE Diploma winner for the best tropical entry was Mr. Aylott with a 88-point Brown Acara.

Class winners were: Mr. Patrick (Common Goldfish), Mr. Cox (Shubunkin), Mr. Patrick (A.O.V. coldwater fish), Mrs. Patrick (individual coldwater aquaria), Mr. E. Madder (Characins), Mr. Coveney (Barbs), Mr. Aylott (A.O.S. Cyprinid), Mr. Coveney (Guppies), Mr. J. Ryder (Swordtails), Mr. Way (Platies), Mr. Ryder (A.O.S. Livebearer), Mr. Aylott (Cichlids), Mr. Aylott (Angels), Mr. T. T. Taylor (Fighters), Mr. Aylott (A.O.S. Labyrinth), Mr. Bassell (Catfish), Mr. Aylott (A.O.S. Tropicals), Mr. Coveney (breeders' livebearers), Mr. Way (breeders' egg-layers), Mr. Coveney (individual tropical aquariums) and Mr. Aylott (Vivaria).

#### Postponed Show

THE MACCLESFIELD A.S. exhibition had to be postponed from July 13-14 to August 24-25 due to a local polio outbreak. Despite this, a successful exhibition is reported by the show secretary, Mr. H. F. Cox. Best fish in show was Mr. S. B. Cass's Tiger Scar, which was awarded 97 points by Mr. K. R. Owen, the F.N.A.S. judge.

#### Inclement Weather for Leyton

THIS year had hardly been an ideal one for marquee shows; thunderstorms, chilly winds and mud are not what we, in our optimism, expect from our Summers. Among the tent fish exhibitions was that of LEYTON A. & P.S. in mid-August and it received rather more than its allocation of thundery showers during its two-day duration. Nevertheless, entries including some from the Southend society, were there in good numbers—179 in the tropical section and 40 in the coldwater. Bethnal Green won the club tropical furnished tank class with an effective, though orthodox, design. The rocks were well arranged. Walthamstow were second as they were in the club coldwater class headed by Stoke Newington whose exhibit had originality and the left-hand side of the tank was particularly pleasing.

Well-grown Black Widows led for Mr. C. K. Home in the breeders' tropical egg-layers and Mrs. R. Franklin's nicely shaped black Mollies were first in the breeders' livebearers. The Barb



Photograph]

Mr. J. H. Gloyn beside some of the furnished aquaria at Walthamstow's well-staged event.

[D. E. Goodbody

class was well supported and the leading fish were of high quality. Mr. H. C. Hoghen's Rosy Barb was first. The same exhibitor's fish led the Fighters. Another class where the leading fish were of top quality was the Characins. A Hatchet, scoring for size and condition, led (Mr. W. H. Snaith) with a well-grown Knife Fish, second.

The Cichlid class winner, a Marbled of good size and colour, shown by Mr. L. C. Coombes, took the WATER LIFE Diploma for the best tropical fish—similar honours to last year. The same exhibitor took first in the Labyrinths. White Clouds were first in the A.O.S. Cyprinids for Mr. G. E. Tansley whose Australian Rainbow fish, of reasonable size and good colour, led the A.O.S. tropical class. Mr. Tansley took first in all three Guppy classes. A nicely-sized Sunset of good colour won the Platy class for Mr. R. Eshden. A Green Sword of good development led the Swordtails for Mr. J. Correll, whilst Mr. T. V. Hill took a first in the Mollies with a Black of correct shape and colour. A Talking Catfish, well-grown and conditioned, headed its class for Mr. S. C. Halsey. Cryptocorynes won first and second in the plant class for Mr. D. E. Goodbody. Mr. S. C. Halsey's Siamese Giant Hygrophila was third.

Coldwater section winners were Mr. J. D. Chuyer (Shubunkin), Mr. D. E. Goodbody (Scaled Fantail of good colour and size over a large entry), and Mr. H. Tisbury who took the best coldwater fish in show award (WATER LIFE Diploma) with a 90-point Moor and firsts with an Oranda and a team of Moors in the breeders' class. The show was judged by Mr. and Mrs. B. Meadows.

#### Walthamstow's Well Designed Layout

THE sixth annual show of WALTHAMSTOW A.S. on August 31 and September 1 was staged with considerable imagination and the entry of over 270 provided satisfaction to the promoters who had obviously put a good deal of thought into the layout and decoration. Mr. Coombes' Marbled Cichlid, the same fish that won at Leyton a few weeks earlier, was the best tropical entry and won a WATER LIFE Diploma. The best coldwater fish, with similar recognition, was Mr. W. R. Carne's Fantail.

A clever planting effect was achieved by Stoke Newington A.S. to win the club tropical furnished class, followed by Leyton's entry. Best individual furnished tank was Mr. A. R. Chandler's plain but neat set-up. There were 20 entries in the Guppy class where Mr. G. E. Tansley's full-coloured exhibit was first. Mr. W. Welgoid's Red of fair colour but first-class carriage led the Swordtails and Mr. H. Tisbury's Red Wagtail of magnificent size and body depth, the Platy entries. A well-shaped Black of good colour density was first for Mr. A. G. Walker in the Mollies.

A Blue won the Fighter class for Mr. H. G. Holben. There was a strong entry in the A.O.S. Labyrinths, where Mr. L. G. Coombes' magnificently-coloured Giant Gourami won. Mr. W. H. Snaith's Hatchet was a worthy first in the Characins. Heading the 26 Barbs was Mr. J. R. Halsey's strong Spanner Barb. This was another show where a Black Shark took first in the A.O.S. Cyprinids. The fish was of very good colour for its size and was shown by Mr. T. V. Hill. There was an interesting entry of 33 in the A.O.S. Tropicals where the best-in-show fish

was the leader. Lyretails were first for Mr. D. E. Goodbody in the Breeders' egg-layers and well developed Sailfins led for Mr. J. Morrice in the livebearer breeders.

Mr. P. Franklin's beautiful layout, where full use was made of the tank depth, won him a first in the individual coldwater furnished tanks. The same exhibitor took first three places in the class for Bristol Shus. Mr. A. H. Pringle's Common Goldfish led a small class. The Moors, lovely fish some of them, were disqualified as coming outside the present F.B.A.S. Goldfish standards which specify a Veiltail development whereas these were Fantails. Mr. H. Tisbury's Oranda, with a well developed head, was first in the A.O.V. Goldfish.

Mr. D. E. Goodbody took first and second awards in the Coarse Fish class with two very fine Golden Orfe. The six entries in the coldwater breeders were remarkable for their diversity—each entry being a different Goldfish variety. A well-deserved first went to Mr. H. Tisbury's even team of Moors.

Judging the tropical entries were Messrs. C. W. G. Creed and J. H. Gloyn. Mr. C. J. Saunders, B.Sc., placed the coldwater exhibits.

#### Midland's Thirteenth

THE fact that this year's annual aquarium exhibition of MIDLAND A. & P.S. was the thirteenth did not mean that the Committee approached the event with any less of the enthusiasm and enterprise it had shown for previous exhibitions. In fact, the 1956 show ran for four days, from August 22-25, in contrast with the three-days duration of previous shows.

Some 370 entries were received for 47 classes and this excluded the well-supported classes staged by the West Midlands section of the F.G.B.S. and placed by their own judges. The show committee responsible for the event included Mr. Colin D. Roe, as chairman, and Mr. T. L. Dodge, as secretary. Spaciously staged, the show presented a pleasing picture for visitors, the numbers of whom were undoubtedly increased by television publicity. Once again, trade support was excellent.

#### Coldwater Classes

Raven Cup for best Common Goldfish went to Mrs. A. E. Wood's shapely fish. The second Common was owned by Mr. F. L. Wood. Percy Smith Cup for the best coldwater breeders' team went to Mr. C. D. Roe's exceptionally well-grown and coloured team of Veils, in the 1956 Twintail class. The same exhibitor took second prize. Mr. E. A. Mason won first in the 1956 Singletail class. There were 19 exhibits in the 5 in. limit Bristol Shu. class where the Taylor Cup and first prize went to Mr. S. E. Amos' fish of very good shape. The same exhibitor was second.

Calico Veils were strong in numbers and quality and the Graham-Keys Cup and first prize went to a well-developed fish from Mr. W. Butler. Second was Mr. C. D. Roe with a fish of not quite the colouring. 1956 Bristol Shus. were led by Mr. E. A. Mason's promising exhibit which took the Rowatt Cup. Runner-up was Mr. W. H. Ellis.

Scaled Veils, few in number, were led by Mr. E. A. Mason with a fish of nice body shape but rather deeply forked caudal. Mr. W. E. Barrett

was second. 1956 Moors were headed by Mr. C. D. Roe with Mr. T. L. Dodge second and third. Members' 1956 Bristol Shus, were led by Mr. E. A. Mason with an exhibit of good all-round quality. Mr. Mason also took second. 1956 Calico Veils had a fish of excellent development in the lead. It took the Keeling Cup for Mr. C. D. Roe, who was also second. Mr. E. A. Mason won the competition for Shubunkin pairs with Mr. T. W. Pegg as runner-up. Mr. Mason also led the Orandas with a first-class fish of good hood development and strong colour. It won the Eversden Cup for best coldwater entry. Mr. C. D. Roe's second prizewinner had a slightly faulty dorsal.

A class for Goldfish without dorsal fins attracted Lionheads, Bubble-eyes and Celestials. Mr. Roe took first and second prizes. The Moors were a good lot with Mr. J. Graham-Keys taking the first and Butler Cup and Mr. T. L. Dodge second, third and fourth. Cadby Cup for best members' Bristol Shus, went to Mr. F. T. Rooke with Mr. T. W. Pegg the runner-up. Fantails were led by Mr. M. Welch's Calico followed by Mr. F. T. Rooke's Scaled. The A.O.V. Class for Goldfish was won by Mr. T. L. Dodge's Calico Nymph; second was Mr. C. D. Roe.

The two coldwater furnished aquarium classes had just a pair of entries each. Mr. M. Welch leading (WATER LIFE Cup) that for individuals (Miss D. Dobson, runner-up) and North Birmingham P. & A.S. (Society Shield) that for clubs (M.A.P.S., runner-up). Novice Bristol Shus, had Mr. J. R. Amos in the first two places and as winner of the Webb Cup. Novice Veils had just one entry from Miss M. Hill.

Overall, the coldwater section gave strong evidence of intelligent breeding. The Twintail classes were of particularly high quality. Judging in the fish classes was by Mr. E. R. Blunsden and Mr. V. E. Jones of the Bristol Coldwater panel, according to F.B.A.S. standards where available, except the Shubunkins which were to the Bristol ideal. Mr. W. L. Mandeville placed the furnished tanks.

Highlight of the tropical section was undoubtedly Mr. Roy Skipper's first showing of home-bred Pompadour Fish. Unfortunately a confusion with the dates meant that these fish, together with other Hendon entries, arrived too late for judging but the Midland society presented Mr. Skipper with a special plaque in commemoration of his achievement. Best tropical fish in show was Mr. C. D. Roe's magnificent Marbled Cichlid of outstanding colour and condition. It won the Gilbert Cup and Capener Cup. Judging in the section was by Mrs. Sturmer, W. V. Jones and W. L. Mandeville.

The Dodge Cup went to Mr. G. M. Davis (Cherry, Checker and Cuming Barbs) with 79-point Checkers of superb colouring. Second were Mr. H. Webb's Cumings. Niggers won their class for Mr. H. Webb with Mr. R. W. Smith's Tigers as runners-up. A very good pair of Rosy Barbs led the A.O.S. for Mr. Wainwright, closely followed by Mr. J. Bennett's Clowns. The Brachydanos and White Clouds were headed by Mr. W. Richardson's Zebras—nice lines but rather pale in body colour. Second was Mr. V. J. Teale. One of the Characin classes was led by Mr. G. Adams' well-shaped and sized Heterorhabdus (Mr. W. Richardson, second), another by Mr. A. T. Smith's well matched Penguins (Mr. M. Beech, second), and a third by Mr. J. Bennett's *Metynnis schreibtmulleri* in excellent condition. These 79-point fish won the W. V. Jones Cup for best Characins.

Fighters had Mr. C. E. Jenkins' Red with nicely grown finnage leading. Mr. H. Webb being second. There was strong competition in the A.O.S. Anabantids where the Mrs. Gilbert Cup and first prize went to an 81-point Combtail of beautiful colour from Mr. H. Webb. Second was a very good Kissing Gourami from the same exhibitor. *Pelmatochromis kiribensis* headed the Dwarf Cichlid class from Mr. F. Holloway with Mr. C. E. Jenkins' *Apistogramma pterense*, second. Second to Mr. Roe's best-in-show fish in the A.O.S. Cichlids was a well coloured Texas from Mr. H. Webb. First in the male Guppies was a Veil from Mr. S. Prior, showing a black caudal and the same colour running well into the peduncle. Mr. W. Richardson was second and took the T. G. Sutton Cup. Mr. H. Webb's Veliferas were first in the Molliis with Mr. D. Thomas, second.

Very nicely coloured Variatus from Mr. C. E.

Jenkins led the Platies with Mr. S. Prior's Sunsets, second. Red-eyed Reds, good size and deportment but male's dorsal a little ragged headed the Swordtails for Mr. J. Bennett and won the Coleman Cup. Mr. C. E. Jenkins was second. One of the largest Black Sharks seen on public exhibition won the A.O.S. Trop. class for Mr. H. Webb whilst Mrs. J. Dobson's well-sized Clown Loach was second.

Breeders' class winners were:—1. Mr. L. Naylor (Lyretails, 74 points); 2. Mr. D. Thomas (Buds, 72); in the egg-layers and 1. Mr. F. T. Rooke (Moon Platies, 73 points); 2. Mr. L. W. Ball (Molliis, 72 points) in the livebearers. Nice but smallish *M. ougolepis* led for Miss M. Hill and won a Tankard in the novice Characins followed by Mr. A. T. Smith's Beacons. Novice Danios, etc., were headed by Mr. L. W. Bull's Zebras (second, Mr. R. L. Brown). Novice Barbs had Mr. L. W. Ball's Tigers in the lead followed by Mr. T. Smith's fish of the same species. Of the 11 entries in novice Livebearers Mrs. C. E. Field's Black Molliis of good colour and body were first (second, Mr. A. E. Allsopp) and in the novice Anabantids Mr. R. W. Smith's good Kissing Gourami of moderate size was first with Miss M. Hill second.

Individual tropical aquariums had Mr. T. A. Mear as their leader with a particularly fine set-up. Bold rockwork and fine-leaved plants were used to remarkably good effect. Mr. A. E. Allsopp was second. The first prizewinning tropical club tank (Society Shield) was most arresting. Maximum contrast was achieved from the dark background, bold design, green plants and the fish which were Red-eyed Reds and Molliis. Congratulations, Stourbridge A.S. Second were the Walsall club. The Championship Cup (open to M.A.P.S. members) was won by Mr. C. D. Roe.

#### Horbury's First Show

FIRST annual show of HORBURY A.S. was held from September 6 to 8. It proved successful. There were 16 furnished aquaria with Mr. L. Prest the senior first prizewinner and Roger Moulson leader of the junior entries. On the Saturday there was an open competition for children's Goldfish when Irene Hunter won first prize. The exhibition was staged in conjunction with a local cage birds society and rabbit keepers' club.

#### A.S.L.A.S. Tops the 400 Mark

OVER 450 entries were received for the 1956 four-day exhibition of the ASSOCIATION OF SOUTH LONDON AQUARIUM SOCIETIES staged in the beautifully appointed Sutton Adult School. Affiliated societies were made responsible for the various aspects of the exhibition and the Sutton & Cheam club did well with its decoration of the stage which formed an effective focal point. The exhibits generally were of quality and considerable interest was evoked by several unusual fish and plants. A helpful feature of the A.S.L.A.S. exhibitions is that each competitor receives a slip showing the detailed pointings of his particular entry.

Eighteen entries were received for the club tropical furnished aquaria where the Study A. & P.C. gained a first and the Bentalls Cup with a tank containing quality plants and Harlequins and of orthodox design. Runners-up were Surrey A.C. with a well arranged exhibit incorporating some interesting plants. Surrey took first in the club coldwater class (Coronation Cup) where two large Common Goldfish were in a well contrasted tank. Second here were the L.T.E. society, which group also took the A.S.L.A.S. Challenge Shield for most points (104) gained over the show. Mr. H. Groves was first (J. E. Edwards Cup) in the individual tropical furnished with a tank of Cryptocorynes and Rasboras. Second was Mr. D. W. Huggett. Mr. C. R. Parlow won the individual coldwater furnished with a set-up that had a good impression of depth. Second was Mr. L. E. Lane.

Mr. F. J. Henson's very well-coloured Common Goldfish headed its 24-entry class with Mr. W. Leach runner-up. First in the Bristol Shus, was Mr. W. F. Walters' fish with lovely spread of finnage, but rather pale in colour. Second was Miss D. Morris. Mr. S. J. Freeman's very fine Scaled Fantail won the Ron Gregory Cup for the

best coldwater fish. Runner-up to it in the Fantails were Messrs. Minnette and Nichols. Mr. C. Rosewarra took first and second in the Veiltail class. London Shus, took first two places in the A.O.V. Goldfish:—1. S. J. Freeman; 2. E. T. Farrance. A smallish Peacock Bass won the A.O.S. coldwater fish for Messrs. Minnette and Nichols. Second was Mr. R. Mayersbeth.

Mr. P. Pavitt took a first and two seconds in the male Guppy classes, the other first prizewinner being Mr. L. Stevens. A pleasingly coloured female won the Female class for Messrs. K. Fawcett and L. R. Somers was second. Harry Seombe won the Platy class and Wimbledon Trophy for best pair of livebearers with two beautifully coloured and sized Variatus Platies. Variatus, not quite so large, were second for Mr. A. Kimber. Swordtail and A.O.S. Livebearer classes were amalgamated. Mr. G. Gale's Sailfins with brilliant spangling and strong dorsal development won the class and the Alf Sayle Cup. Second were Mr. W. A. Dickenson's Sailfins and third Mr. R. Yexley's very nice Wiesbaden Swords (WATER LIFE Diploma for best Swordtails).

Mr. K. Fawcett led the Fighters gaining points for matching over second prizewinner H. Groves, where the female was not so good as the excellent male. Mr. R. G. Walford won first three places in the Dwarf Gourami, etc., class. A beautifully developed pair of Leeri Gouramis led the A.O.S. Labyrinth for Mr. R. G. Walford. The same species was second for Mr. R. H. Silvertown. Two magnificently sized Angels were first in the Cichlids for Mr. R. G. Walford. Mr. L. Ayres' gorgeously coloured Ramirezis were second.

An unusual first prizewinner in the Catfish were *C. brevirostris* shown by Mr. K. Fawcett (Billings Cup) followed by two of the finest Upside-down Catfish (Mr. W. J. Morrish) it has been our pleasure to see. One Barb class was led by Mr. K. Fawcett's Cherries (second were Mr. F. C. Orson's Checkers) and the other by Mr. C. P. Stoker's *B. schwanenfeldi* (WATER LIFE Diploma) of quite exceptional body depth and condition (second were Mr. F. C. Orson's *B. hexazona*).

Mr. G. Stringer took first and second places in the A.S. *Hypophessobrycon* and *Hemigrammus* and it was in the other Characin class that Mr. H. G. Rundle entered the best fish in show (Barry M. Austin Cup), a pair of *Anostomus anostomus*, followed by Mr. F. C. Brasley's Knife Tetras. Mr. S. Stretley's magnificently grown *Rasbora einthoveni* were first in their class, with Mr. C. Stoker, second.

Mr. and Mrs. W. Hall's Flying Foxes led the A.O.S. Tropicals. They were in good colour and condition. Mr. R. G. Fowler's *Pachypanchax playfairii* were second—lovely fish but one had a damaged dorsal. Mr. R. Yexley's Wiesbaden Swords were the best in the Livebearers' breeders and best Tropical breeders' entry (Breeders' Circle Cup) with Mr. Lawrence's Moon Platies, second. The Cichlid and Labyrinth breeders' class was won by Mr. R. G. Walford's well developed Leeris, with Mr. L. Ayres team of *A. ramirezi* close up. Nicely matched and well coloured Checker Barbs led the A.O.S. Tropicals for Mr. F. C. Orson with Mr. J. Collinson's White Clouds, second.

Singletail Goldfish breeders had Miss D. Morris' fish in first three places and Twintail breeders had Mr. C. Rosewarra's entries in the positions one to three. Mr. R. G. Mealand won the *Vallis* or *Sag* plant class with C. R. Parlow, second. The remaining plant class was really interesting with Mr. H. Groves' *C. haerleiana* in first place—a truly magnificent specimen and well-deserved winner of the Peter Hewitt Plant Cup. Second was a clean *C. cordata* from Mr. N. Hill. In third and h.c. positions were Mr. R. G. Mealand's *Samolus* and his *Saururus*.

Show secretary of the well run event was Mr. A. W. G. Sayle, with Mr. W. Walters as his assistant.

#### Wide Entry for Corby

THERE were 275 entries in the 19 classes staged by CORBY A.S. for its 1956 show. Support was received from Hendon, Bedford, Kettering, Northampton, Peterborough and Nottingham. The society reports a successful event staged by show manager, Mr. Harold Thompson. Mr. and Mrs. B. Meadows were the

judges and they considered the standard so high that 11 entries were worthy of F.B.A.S. gold stars. The Perpetual Challenge Trophy went to Corby with 95 points. Mr. A. Baldock of Hendon showed the best furnished aquarium and won a WATER LIFE Diploma. Mrs. M. Dicks' *Cichlasoma severum* was the best fish in show and received similar recognition.

Members' trophies were awarded as follows: Noble Trophy (highest points), Mr. W. Hailstone; Churchill Cup (best Swordtail), Mr. D. Coulter; Brett Cup (best Guppy), Mr. D. Brett; "Friends" Cup (best breeders), Mr. J. Kryzenek; Cook Trophy (best members' tank), Mr. W. Hailstone. The first prizewinners were: Mr. A. Baldock (tropical furnished aquaria); Mr. W. Snedker (coldwater furnished aquaria); Mrs. B. Robertshaw (breeders' egg-layers); Mr. J. Kryzenek (breeders' livebearers); Mr. W. Hailstone (breeders' coldwater); Mr. D. Brett (Guppies); Mr. D. Coulter (Swordtails); Mrs. B. Robertshaw (Platies); Mr. E. Love (A.O.S. Livebearer); Mr. Lloyd Bell (Characins); Mr. R. Taylor (Barbs); Mr. Wainwright (Catfish); Mr. D. Coulter (Labyrinths); Mrs. M. Dicks (Cichlids); Mr. D. E. Jones (A.O.S. Tropical Egg-layer); Mr. T. Atkinson (Common Goldfish); Mr. H. H. Ede (Fans, Veils, or Moors); Mr. R. R. Pope (Shubunkins) and Mr. W. Hailstone (A.O.S. Coldwater).

#### Metynnis at Urmston

ANNUAL show of URMSTON A.S. was held in conjunction with Urmston Horticultural Show on August Bank Holiday. The Founders' Cup and WATER LIFE Diploma for best furnished aquarium was won by Mrs. C. Gordon with a coldwater exhibit. This was the first time a coldwater entry has triumphed over a tropical at Urmston show. In the individual fish classes the premier award (Gordon Trophy) went to Dr. J. Scott Clark with his *Metynnis roosevelti*. First prize in the tropical aquaria was awarded to Mr. T. Barker.

#### Chairman Wins Trophy

BAD weather was experienced for the show put on by NUNEATON A.S. as part of a local annual horticultural exhibition. The judging was performed by Messrs. Stock, Senr. and Junr., of the Midland A.A.S. Messrs. Ball and Jones won the WATER LIFE Diploma with their tropical furnished aquarium, and Master E. Jenkins took first in the coldwater furnished entry. Messrs. Ball and Jones also headed the classes for Characins, Livebearers, Anabantids, Barbs, A.O.S. Egg-layer and Breeders.

An *Apistogramma reitzigi* led the Cichlid class for the chairman, Mr. Charles Jenkins. Classes for Common and Fancy Goldfishes were won by Mr. R. J. Matthews. Mr. Jenkins received the cup for the best Cichlid and Messrs. Ball and Jones the cup for best fish in show and the breeders' shield.

#### Guppy Section at Bath

THIS year's open show of BATH A.S. was held in St. Mary's Church Hall, Grove Street, Bath, from August 30 to September 1. The event included a Guppy section staged by the Bristol and Bath group of the F.G.B.S. Judging the coldwater entries was Mr. Zenas Webb, the tropics, Mrs. W. M. Meadows, and the F.G.B.S. exhibits, Mr. F. Cox.

Trophy winners were Bath A.S. (Sydney Cup), Mr. E. Challenger (Mrs. Gurney Cup), Mr. D. Paul (Mrs. Gurney Cup), Mr. W. Webb (Robert Member Tropical Trophy), Mr. G. H. Beeching (Campion Breeders' Trophy), Mr. O. Roote (H. C. Gurney Cup), Mr. G. H. Beeching (A. C. Gurney Cup), Mr. G. Stone (B. W. Moore's Trophy), Mr. R. King (Hindson Cup), Mr. Simmons (Bath A.S. Cup), Mr. C. D. Roe (Primo Cup), Mr. D. Paul (B. W. Moore's Trophy), Mr. L. G. Emery (Mrs. V. W. Gardener's Trophy), Mr. C. D. Roe (Hindson Cup), Mr. Simmons (Harper Cup), Mr. H. Stone (Arthur Mortimer Trophy), Mr. E. Challenger (plaque for best plants) and Mr. W. Webb (plaque for best Fighter). Mr. C. D. Roe also won a WATER LIFE Diploma for the best coldwater fish in show and Mr. H. Webb a Diploma for the best tropical.

First prizewinners were: Bath A.S. (club furnished aquaria); Mr. Challenger (individual

tropical furnished), Mr. D. Paul (individual coldwater furnished), Mr. R. King (Longtail Guppies), Mr. Beeching (Shorttail Guppies), Mr. Webb (Swordtails), Mr. Smith (Mollies), Mr. Littleton (Platies), Miss M. Hill (Danios, etc.), Mr. Webb (Barbs), Mr. Webb (Labyrinths), Mr. G. Stone (Characins), Mr. Webb (Cichlids), Mr. Webb (Male Fighters), Mr. Webb (loaches, etc.), Mr. Webb (A.O.S. Tropical), Mr. Beeching (breeders' livebearers), Mrs. O. Roote (breeders' egg-layers), Mr. Smith (Common Goldfish); Mr. H. Stone (5 in. Shubunkins), Mr. Paul (3 in. Shubunkins), Mr. Paul (Fantails), Mr. Roe (Veiltails), Mr. Roe (Moors), Mr. Roe (A.O.V. Goldfish), Mr. Emery (A.O.S. coldwater), Mr. Emery (breeders' Shubunkins), Mr. Roe (breeders' Fancy Goldfish), Mr. Roe (breeders' Fancy Goldfish, single fish) and Mr. Challenger (plants). First prizewinners in the Guppy section were Messrs. R. Janes, R. F. Sharrock, J. Martin (4), E. Challenger, G. Body and R. Bryant.

#### Large Barb Wins Bonner Cup

WELL supported BETHNAL GREEN A.S. Exhibition, running from September 7-8, was this year an open event. Well over 300 entries were received and the judges, Messrs. S. Harker, F. Looker and R. G. Mealand, were impressed

#### PLACING THE AWARDS

Mr. and Mrs. B. Meadows judging the exhibits at the Corby A.S. Exhibition where there were 275 entries received from a wide area. A high standard was attained and 11 exhibits received F.B.A.S. gold stars, as indicated that they were awarded over 90 points. Best fish in show was a *Cichlasoma severum*.

Photograph [R. G. Luxton



with the quality. The event was pleasantly staged in the Bethnal Green Men's Institute. The now-famous London Fighter Championship, staged in conjunction with this show, attracted just over 20 entries. Mr. M. Challenger beat all the old-stagers here to win the Silver Cup this year. The Shubunkin entry was not all that was hoped for with the Harvey Cup up for competition but Mr. P. Franklin repeated his success at Walthamstow the week previously by taking first three places and the trophy.

The Bonner Cup, to be won outright, brought a Barb entry of almost 40. The leader was Mr. D. Horrox's *B. schwanenfeldti* which went on to take the WATER LIFE Diploma for best fish in show and the challenge cup for best member's fish. Perry Cup for the Best Mollie was awarded to Mrs. P. Franklin's Sailfin of full colour and nice development.

Tottenham A.S. won the club tropical furnished class with a well arranged tank containing good quality plants and fish. Bethnal Green were second. There seemed little separating the first and second in the Club Coldwater Furnished, both from Stoke Newington, although the lower planting in the leading tank was better. Well developed Red Fighters of good size were first for Mr. Tegmer in the breeders' egg-layers and Mr. Hone's Black Swords of good colour and deportment led the livebearers. Mr. H. Tisbury was first in the breeders' coldwater. A well coloured Black, with good sword development and good carriage, was first in the Swords for Mr. C. London whilst Mrs. P. Franklin's Variatus of quality won the Platies.

Mr. G. S. Rutt was first in the Guppies and won a Shield. Mr. H. G. Rundle's *Metynnis schrettmulleri* was first over 25 Characins with Mr. Elbourn's well coloured Black Widow, second. Mr. C. A. Mills came second in the Barb class to Mr. Horrox's best-in-show winner with a Nigger of excellent size and colouring. Colouring was also first-class in the Pearl Danio

that won its class for Mr. W. H. Smith. Show secretary L. G. Coombs' Marbled Cichlid, a famous winner in the area, led the Cichlids with Mr. G. A. Mills' magnificent Ramirez second. Mr. L. F. Clements' well coloured Combtail won the 25-strong A.O.S. Labyrinth class and Mr. G. A. Mills' well-developed Leeri was second.

An *Aplocheilichthys lineatus* from Mr. J. E. Brand had lovely colouring, particularly in the finnage, and won the A.O.S. Tropicals, with Mr. D. Horrox's Flying Fox second. Mr. F. T. Barry's large Veiltail led the Fancy Goldfish. A well sized *Hoplosternum* (?) owned by Mr. H. Gilham led the Catfish with Mr. P. D. Malster's Whiptail second. Bethnal Green's treasurer, Mrs. P. Penton, won the members' furnished aquarium class with a pleasing set-up having a good impression of depth.

#### Profit for Plymouth

AT the recent Live Hobbies Exhibition sponsored by the Plymouth Council of Social Services PLYMOUTH A.S. staged its annual show. The event proved successful with a profit of £16 being made. Best fish in show was Mr. T. Easterbrook's Texas Cichlid, which was awarded the Annette Trophy. The Guppy Shield went to

Miss J. Coslett for her Veiltail Guppy, whilst Mr. P. Berry won two Radmore Trophies for the best livebearer and best egg-layer. The judges were Messrs. J. Nicholls and F. Berry.

First prizewinners were: Mr. H. Rundle (Barbs); Mr. M. J. Menzies (Pencils or White Clouds); Mr. H. Rundle (Neons, Glowlights, Serp or Rosaceus); Mr. W. J. Menzies (Beacons, Widows or Flames); Mr. L. Telling (A.O.S. Characin); Mr. A. T. Coslett (Danios); Mr. A. T. Coslett (Rasboras); Mr. W. L. Martin (Fighters); Mr. T. Easterbrook (Gouramies); Mr. T. Easterbrook (Cichlids); Miss J. Coslett (Guppies); Mr. T. Easterbrook (Platies); Mr. R. Kenny (Swordtails); Mr. S. J. Ryder (Mollies); Mr. R. J. Kenny (Catfish); Mr. W. L. Martin (A.O.S. tropical); Mr. T. Easterbrook (A.O.S. egg-layer); Mr. P. Berry (A.O.S. livebearer); Mr. A. T. Coslett (Goldfish) and Mr. W. Vicary (A.O.S. coldwater).

#### Willesden's Leader a Blue Gularis

A BLUE GULARIS shown by Mr. Ainsworth took premier honours in the aquaria section, staged by WILLESDEN A.C., as part of Willesden Borough Show in early September. The two-day marquee event was more fortunate than most outdoor fixtures this Summer, its opening day being sunny and rain-free. Placing the exhibits were Mrs. W. M. Meadows and Messrs. A. Boarder, C. W. G. Cread, H. R. Holland and B. Meadows. There was a special class for club teams of four matched Mollies or Platies. The winner, Surrey A.C., with a very good team of Sphenops, took the F.B.A.S. Challenge Trophy. Runners-up were Independent A.S., with well coloured Red Platies.

Winners of the club coldwater furnished (WATER LIFE Diploma) were Harrow A.C. with a well staged exhibit, containing nice Scaled Fantails. It failed a little on the bottom layer.

(Continued next page.)

### Around the Shows

(Continued from previous page.)

W. Middlesex were second. Hendon were first in the club tropical furnished class with a tank of quality plants and fish. Arnold A.S. were second. Winner of the Individual Coldwater tank class and the Brookes Shield was Mr. S. Wingrove with an effectively planted exhibit allowing ample swim space. Mrs. B. Robertshaw (WATER LIFE Diploma) won the equivalent tropical class where bold use of rockwork and Cryptocorynes was made in a smallish aquarium.

Mr. S. Wingrove won the Common Goldfish class and 12-year-old Miss B. Gerken, the Shubunkin competition with a London. The Willesden club gave this young enthusiast a year's membership in recognition. There was lovely plating and good conditioning evident in the Mirror Carp which led the native fishes for Mr. F. Keen. Mr. W. Adams' nicely shaped Oranda won the Fancy Goldfish class.

Leading honours in the two Guppy classes went to Mr. W. G. Phillips (1st and 3rd) and Mr. P. Edwards (two 2nds). A Sailfin of sparkling colour and strong development won the Mollie class for Mr. Flintham, whilst Mr. Richardson's female fish of superb colour and size headed the Platies. A large Red-eyed Red headed the Swordtails for Mr. Flintham.

Mr. Taylor's Nigger Barb won the Barb class; it was well sized and its finnage colour was particularly good. A Knife Fish, magnificently sized and conditioned, and shown by Mr. D. Aikins, was a worthy winner of the Characins. Mr. Oliver was first in the Labyrinths with Mr. Landau in second and third place.

An extremely fine Texas Cichlid won its class for Mr. L. Coatman with Mr. Landau's Marbled in second position. Mr. Coatman also took first in the Catfish class with a well sized and conditioned *Pimelodella*. Runner-up to Mr. Ainsworth best-in-show Blue Gularis in the A.O.S. Tropicals was Mr. Franklin's very large and nicely conditioned Scat.

rains which filled the Lancashire sand dunes between Formby and Ainsdale with lakes of water, it would have been a very good season for the Sand Lizards which there have one of their greatest strongholds in Britain. Both Common and Sand lizards may usually be found on the dunes north and south of the road from Ainsdale electric station to the beach. As with the Natterjack Toads, Sand Lizards haunt the less heathy parts, and Common Lizards and Common Toads, the more heathy hollows.

Mr. S. H. Clarke, a veteran Lytham St. Annes naturalist, who is doing some colour photographic studies of the Ainsdale Sand Lizards, had an interesting experience this Autumn. Visiting the dunes on one of the few fine days early in September, he soon found a female specimen among the dwarf creeping willows near the Lido, its richly contrasted banding being very distinct from the Common Lizards which inhabit the few surviving dunes at St. Annes. Then some children appeared with a fine male Sand Lizard in a jar, which was quite a bright green even at that date. The children had brought it back from home, having found that it would not feed. After photography, it was liberated. Mr. Clarke mentioned that the only time he had had them at the roadside previously was in another wet Summer—1954.

In his photography of lizards he has been struck by the great variation of colour according to the angle of light. The same Common Lizard would be greenish-grey from one side, where it reflected more light, and a nice warm brown from the other. He says the best way to find lizards is to sit down and wait in known haunts. Two Summers ago, at St. Annes, there was a compact colony of Common Lizards which came out on to the concrete curb by the main roadside opposite King Edward school, but none has appeared there since, although they have elsewhere.

A male Slow-worm of the "southern", blue-spotted, variety was caught by three Preston naturalists in May, near Chipping, at the foot of the Pennines. The problem is whether or not this was an escaped pet, or whether this variety occurs further north than is often supposed. Slow-worms are common enough in Lancashire, especially on railway banks, and some live on the dunes; but they are not so often seen because they are nocturnal.

Mr. D. Richardson, secretary of the Vivarium Society, which meets at Hale, Cheshire, finds attendances falling, due to travelling difficulties; but he tells me he is keen to form a purely correspondence society for amateur amphibian and reptile keepers—no chairman, no members' subscription fees, only a secretary and a filing system to put hobbyists all over the country in touch with one another, especially on a particular subject or species. 1 Hatton Street, Macclesfield, is his address.

Schoolboys at the Wirral Grammar School (Cheshire) are fortunate to have in their biology master, Mr. Wildman, an enthusiast for fishes, for this has meant that they have not only enjoyed fishing trips to the River Dee and the River Severn at Welshpool, but a cup is offered them as a prize for the best Chub they catch.

### News from the North-west

## Effect of Weather on Local Fauna

EVEN an aquarist could hardly have welcomed so much water in the worst holiday season the North-west has experienced since records began in 1867 at the Cheshire Tidal Institute and Observatory at Bidston. The Rivers Dee, Severn, Ribble and Lune have generally been running so fast and deep that anglers could not fish them, and resorted to the canals instead. In the fields, aquarists and anglers could hardly sort out the ponds and canals from the miles of flooded meadows. And yet, through all this, the scarcity of frogs, widespread even into North Wales, was really the aftermath of last year's drought.

The 68th Annual Report of the famous marine aquarium and biological station at Port Erin, Isle of Man (Liverpool University Press), kindly sent me by the Director, is a stimulating record of research. Few aquarists visit the island without seeing the Port Erin Aquarium, and one hopes that in the near future a similar treat will be afforded by Bangor University College at their Menai Bridge biological station. The Report covering 1955, shows that 38,488 people paid for admission to the Port Erin Aquarium which did not open until after Whitsun week-end. In addition 16 schools and several private research-workers came from England and Wales to use the laboratories, while several parties of school-children from the island and the mainland were admitted free.

### Sand-Eels

Among investigations being made at Port Erin are those into the life histories and habits of sand-eels by Miss Jane Cameron (who has already located five species along the Manx shores). Dr. D. I. Williamson has been working with Dr. Pike (of the Millport Marine Biological Station) on the larvae and adults of hermit crabs, and Dr. I. A. Aravindakshan, an Indian biologist, has shown that the Little Queen Scallop has breeding seasons curiously unlike the common Great Scallop, of which Manx fishermen supply the majority sold on London's Billingsgate market. Over 2,000,000 plaice eggs were collected in March and April and hatched in the aquarium hatchery, the larvae (92.8 per cent success) being released in the sea. Berrid lobsters were collected between May 25 and August 24 (their weights ranged from 1 lb. 2 oz. to 3 lb. 5 oz.), and hatched an average of 920 larvae per lobster. Many readers will have seen the film of the lobster's life made at the Aquarium some years ago.

Dr. A. J. Southward (now at the Plymouth marine laboratory and aquarium) details his study of the population balance between limpets, seaweeds and the waves on the Port Mary shore. To the seashore collector, this shows (as did J. R. Lewis of Aberystwyth University College the other year in his studies on the rocky shore seaweeds and their fauna around Anglesey) that the waves of the sea are an important factor in distribution. Dr. Southward showed that denser

populations of limpets and barnacles are found in wave-beaten places than in shelter, and there is competition between these animals and seaweeds for rock-space. Dr. A. J. Southward's studies of the relations between animals and marine algae living on wave-exposed rocks at Port St. Mary show that, despite the waves, it is the limpet, browsing on the seaweed and other algae which is often the more important controlling factor. When limpets were removed from wave-washed rocks, seaweeds grew over them by two years afterwards; but later more limpets came and ate the seaweeds.

In contrast, the 4th Annual Report of the Mersey River Board, paints not only a gloomy picture of pollution, but a lack of public protest in South Lancashire. "Where rivers have been badly polluted for years there have been few complaints", it states. Since 1951-52 unsatisfactory sewage effluents have increased from 25 to 44 per cent (11 per cent in the past year), largely because of overloaded sewage works where housing and industrial building have outstripped their capacity, and the Treasury has not made the grants necessary.

The position with trade effluents, however, has improved. Mr. A. H. Jolliffe, O.B.E., M.C., the Clerk and Solicitor to the Board, is a Chester man and a staunch supporter of clean waters, and he is interested in all forms of water life. We do not seem to hear enough from aquarist clubs supporting angling clubs and the river boards in their protests against freshwater pollution, which destroys our collecting haunts for aquatic plants, fishes, microscopic pond life, *Daphnia* feed, etc.

If it had not been for the July and August

### South-west Viewpoint

#### Bath's 1956 Venue

I MUST congratulate Bath A.S. on overcoming the many difficulties that faced them prior to their show. Their new venue did not at first sight look as attractive as the Pump Room but the result was a compact and easily-seen exhibition.

Also on the credit side was the first show staged by the Bristol and Bath Section of the F.G.B.S. Great interest was shown when a visitor produced an almost perfect Speartail male for inspection by those in charge of the stand. Apparently this fish had "turned up" in a brood of otherwise ordinary fish.

There were some good-quality coldwater fish on show and several Bristol Shubunkins that could well have been among the cards.

Bristol A.S. and British Tropical Fish Club staged exhibitions of aquarium plants at the civic horticultural show on the Downs. I found many visitors asking questions.

Gloucester and Cheltenham are holding their limited entry show at the Bennington Hall in Cheltenham on October 18, 19 and 20.

Bristol A.S. are now meeting at the Assize Courts Hotel in Small Street; the meetings are, as before, on the second Monday of the month.

H. C. B. Thomas

### Lecture Offer

ONE or two clubs in the Association of South London Aquarist Societies have arranged successful aquatic lectures for local organizations normally having no connection with fishkeeping. In order to spread interest in the hobby the Association is offering to supply speakers and film shows to any group in the South London area. Forest Hill A.S. has been doing this for about two years and has found youth clubs especially receptive to the idea. A.S.L.A.S. is staging its table show competition early in 1957 at Sutton Adult School, Benhill Avenue, Sutton Surrey. A social event is being arranged for the same evening.

## Club Notes and News

The Editor invites clubs to send brief reports of meetings and announcements of forthcoming events. News items for the next issue should reach this office no later than November 19.

F.B.A.S. lecturer, Mr. C. E. C. Cole, spoke at the September 4 meeting of Dunstable A.S. There was also a table show for Common Goldfish, Neons and Harlequins. The August fixture had a Twenty Questions session on the programme.

UPPINGHAM HOTEL, Leicester, is the venue for the Guppy Federation's East Midlands Section's annual show on October 6. A dinner has been arranged for the same evening. First prizewinners at the August table show were Messrs. W. Burwell, J. Rudkin and Taylor. Over 50 members and friends went on the first annual outing to Dudley Zoo.

MANCHESTER Flower Show had a display put on by the Northenden Community Association Avarist Club this year.

THE GUILDFORD A.C. staged an exhibition in conjunction with an Onslow Village Garden Club show during July. Nine furnished aquaria and one vivarium were set up. Barbs and Labyrinths were shown at the September 12 table show and Characins and Swordtails are the species catered for at the October 10 table display judged by Mr. G. Kellett.

MR. A. CRISP, President of Reading A.S., was recently presented with a barometer by the society in recognition of the service he had given since the club's inception.

ANNUAL table show of Yeovil A.S. took place on August 18 when the judges were Mr. and Mrs. Meadows. A WATER LIFE Diploma was won by Mr. M. Endicott. Furnished aquaria were displayed at the Yeovil Agricultural Show on September 13.

BEST tropical furnished aquarium at the Nuneaton A.S. annual show on August 6 was shown by Messrs. L. Ball and H. Jones. It received 87 points and was awarded a WATER LIFE Diploma.

THE Lichfield A.S. has now amalgamated with the Tamworth society to form the Tamworth & Lichfield Avarist Society. The secretary is L. Barber, 22 Bittercote Lane, Tamworth, Staffs.

BEST breeders' entry at the Bedford A.S. exhibition held on August 4 was shown by Mr. J. Kryzenek (Red Wiesbaden Swords). Messrs. G. W. Kingston and S. R. Moore were the judges. The show resolved itself into a close struggle between Bedford and Corby clubs. Corby took eight first prizes and Bedford seven, but Bedford won the club challenge cup by 109 points to 88.

WILLCOCKS CHALLENGE CUP and first prize went to the secretary, Mr. D. R. Miller, in the home aquarium competition of Bexhill A.S. There were 20 entrants in a miniature aquaria competition, where the exhibitors used standard show jars and set them with plants, rock and fish. First prizewinner was Mr. Good. The August table show was for Labyrinths when Mr. C. W. G. Creed put Mr. D. Jolliffe's Leeri Gouramies in first and second places. It was estimated that over 14,000 people visited the society's show in the De La Warr Pavilion during the last weeks of August. Mr. and Mrs. E. H. Riddle visited the event and Mr. Riddle judged the aquariums with Mr. T. Quickenden of Hastings A.S. The challenge shield was won by Mr. D. Barfoot. First prizewinner in an A.O.S. table show was Mrs. E. Good, who received a challenge cup for her *Pelmatochromis kribensis*.

WATER LIFE Diploma winner at the Coventry P. & A.S. exhibition was Mr. G. Glover whose coldwater furnished aquarium gained 76

points. Judging was by Mr. W. L. Mandeville. The event was Coventry's fourth annual show and it ran from September 12-15.

MEMBERS of Basingstoke A.S. took 10 awards at the recent Portsmouth annual show, including a first by Mr. W. H. Lock-Bowers in the livebearer breeders' class.

ON September 22 Amersham Grove A.S. participated in a local flower show when excellent specimens of Siamese Giant Hygrophila were on view and also an unidentified tropical fish.

ALDERMAN P. S. SMITH has been appointed President of Llantwit Major A.S. Mr. H. V. Jenkins took the cup for best coldwater fish with a Moor at the Welsh Aquarists' Show and also won the breeders' class with fish of the same

### End-of-Season

● OCTOBER	
6	East Midland Section of Guppy Federation (Leicester)
6	North Birmingham P. & A.S.
6-7	British Aquarists' Festival (Manchester)
18-20	Gloucester & Cheltenham A.S. (Cheltenham)
19-20	Pontypool A.S.
19-20	Tottenham A.S.
26-28	Blackpool A.S.
● NOVEMBER	
29-30	Weston-super-Mare A.S.
29-Dec. 1	Scottish A.S. (Glasgow)
● JANUARY	
10-12	National Exhibition of Cage Birds and Aquaria (Olympia, London)

### Fish Shows

variety. In the inter-society class, Llantwit Major's furnished tank won the cup. A WATER LIFE quiz provided an interesting evening for the September meeting. The club is increasing its membership and has applied for affiliation to the F.B.A.S.

MR. A. LEUTSCHER, B.Sc., lectured on "Reptiles and their Habits" at the September 10 meeting of Ilford A. & P.S. Mr. Leutscher brought along toads, lizards, terrapins, salamanders and a snake to illustrate his talk. There will be a showing of epidiroscope pictures at the October fixture. Persons in the Ilford area interested in fishkeeping are invited to contact Mr. V. Essex, 1a Horace Road, Barkingside, Ilford, Essex.

TWO Aylesbury A.A. activities during September were a table show judged by Mr. Daere on the 12th and a visit to London Zoo on the 16th.

ACCRINGTON members visited the September meeting of Blackburn A.S. for a quiz. Nearby societies were invited to a film show on October 2. Considerable interest was shown in the society's exhibition at the Blackburn Show on August 3 and 4.

NEWLY-FORMED Mansfield & District N.A. varist Society heard lectures from Messrs. H. Walker and L. Kirchin of Nottingham at the society's August 16 meeting. The annual outing was to Shirley Aquatics, Birmingham, on September 9.

THERE have been table shows for Characins, Carps, Minnows, Cichlids and Fighters at recent meetings of Riverside A.S. (Hammer-smith). Future events include table shows for novices, a Guppy shield, selling classes and breeders' entries.

MR. E. H. RIDDLE, immediate past-chairman of the F.B.A.S., spoke at a Summer meeting of Hampstead A.S. on "Plant Life." He also judged a table show for plants won by Mr. W. Adams with a *Cryptocoryne*. The society's fifth annual show was staged on September 15 when Mr. L. Coatman's *Pimelodella* was best fish in show. A full report will appear in our next issue.

SIXTH annual show of N. Birmingham P. & A.S. will be staged at Birchfield Road Schools, Birmingham on October 6. Two WATER LIFE Diplomas are up for competition.

THIRD annual show of the Dublin Society of Aquarists was held on September 29, when a WATER LIFE Diploma went to the best fish in show.

AN inter-club show is being arranged by Tottenham A.S. for October 19-20. The other societies participating are Bethnal Green, Stoke Newington and Hornsey, although there are two fully open classes for furnished aquaria. A WATER LIFE Diploma will go to the best set-up tank in the open classes and another will be awarded for the best fish in the inter-club section. The show is being held in the Tottenham Gas Club premises.

THE Powers-Samas Organisation has an aquarist section meeting on the first and third Tuesdays of each month. Its secretary is Mr. J. Cook, 12 Kidderminster Road, W. Croydon, Surrey.

A BRAINS trust was formed by Messrs. Lane, Easterbook, Ryder and Summers at a recent meeting of Plymouth A. & P.S. Visitors to the Plymouth society's recent exhibition were invited to contribute towards the maintenance and installation of aquaria in local hospitals. Sufficient funds were received for this good work to continue.

THE Glasgow Eastern A.S. is planning an open table show to encourage interest in its area. A WATER LIFE Diploma will be competed for.

A BLUE Gularis shown by Mr. C. Bennett was best fish in show at the Oldham A.S. exhibition judged by Mr. J. Dodsworth.

THE secretary of Sheppey A.S. reports that a WATER LIFE Quiz session was highly successful at one of his club's recent meetings.

A GROUP of established aquarists in Lewisham have formed the Brockley Breeders' Circle. Membership is by invitation only and there will be no competition with existing societies in the area. Aims of the group are to encourage the study of all aspects of fishkeeping and to assist the growth of the organised hobby. To this end an aquaria exhibit was staged at the Catford Stadium open cage bird show on September 25 and 26. Another forthcoming activity is a lecture and film show for a local youth club. It has been agreed that the group will form a quiz team and a panel of speakers to give short talks to other societies.

(Continued next page.)

### New Club Secretaries

Emanuel School A.S.—Mr. E. J. Hitch, 30 Holmbush Road, Putney, London, S.W.15.

Feltham A.S.—Mr. L. Bowd, 15 Welwyn Avenue, Bedford, Middx.

Gloucester & Cheltenham A.S.—Mr. J. H. L. Rendell, 41 Oldbury Road, Hestersway, Cheltenham, Glos.

Medway A.S.—Mr. H. J. Lamming, 50 Vale Drive, Davies Estate, Rochester, Kent.

Sutton & Cheam A.S.—Mr. R. W. Kelsey, 70 Shanklin Road, Belmont, Sutton, Surrey.

Welsh National A.S.—Mr. L. Reeve, 50 Avondale Crescent, Grangetown, Cardiff.



## Club Notes and News—Contd.

**WHILST** Mr. F. Holloway was addressing members of Derwent A.C. on "Setting up a Tropical Aquarium" at a recent meeting he was awarded two prizes in a table show being judged by Messrs. T. A. Mear and D. W. G. Fretwell. The chairman of the Derwent club, Mr. G. Hodgkinson, demonstrated setting up from an empty tank to a fully furnished aquarium as Mr. Holloway spoke.

**THE** August 2 meeting of Belle Vue (Manchester) A.S. marked the 20th Anniversary of the society. The programme included an animal, vegetable or mineral quiz. Refreshments were served and the Belle Vue Aquarium was open for inspection.

**IN** the Guppy Federation's Liverpool Section's exhibition at Liverpool Show Mr. F. Court won a WATER LIFE Diploma for his Gold Female Guppies.

**MEMBERS** of Middlesbrough A.S. were invited to a recent meeting of Sunderland A.C. to hear a talk by Mr. Hutchinson on "Water." A table show followed and the first prizewinners were Mr. A. Brunton and Mr. R. Cantes. There was a presentation to the Sunderland vice-chairman, Mr. J. Neill, on his departure from the club due to his leaving the town.

**BEST** tropical fish out of 134 entries at the Southampton A.S. exhibition was a Red Platy shown by Mr. F. G. Lush. The best coldwater fish was Mr. D. Paul's Shubunkin.

**MR. H. N. ALLIES**, the L.C.C. instructor of Bethnal Green A.S. for a number of years, has recently received an engraved clock from the club's members as a token of appreciation for his services. Mr. Allies will continue in his present position. The society's September show (fully reported on page 245) resulted in a small loss.

**MEMBERS** of Rochdale A.S. have paid a visit to the Belle Vue society to hear a talk on "Running a Public Aquarium" by Mr. Hazelwood and to participate in an inter-club table show.

**THE** Merseyside A.S. put on an exhibition at Liverpool Flower Show and the winner of a WATER LIFE Diploma was Mr. Barrie with his Nacreous Singletail Goldfish. WATER LIFE Quiz questions were used as the basis of the programme of October 4.

**MR. KINGSTON** is due to speak to Peterborough A.S. members at their October meeting. Mr. H. Richards was the judge for a Goldfish table show on September 10. The society's fourth annual exhibition took place on September 19-22 and was judged by Mr. and Mrs. B. Meadows.

**TWO** outings have been enjoyed by Nottingham A.S. members recently. One was to Shirley Aquatics (Birmingham) on September 2 and the other to Pan's Gardens (Ashover) and Matlock on September 16. Speaker at the August general meeting was Mr. W. L. Mandeville.

## Hendon's Film Congress

**ON** October 20, commencing at 7 p.m., the Hendon A.S. will show a three-hour programme of aquatic films in colour. These have been brought to Britain by Messrs. Carels and Wante, two Belgian aquarists of renown. Titles of the films include "Black Fighters," "A Betta Fight," "Fishes of the Congo," "Black Angels," "How to Raise Your Fry," "Parasites," "Microscopy and Feeding," "Puffer Fish," "Coral Fish" and "How to Run a Marine Aquarium." The showing, which will be of exceptional interest to all aquarists, will be in the Grand Hall of Whitefields Secondary School, Claremont Road, Hendon, N.W. Seating in the hall is for 1,000 only. There is ample parking space for cars and coaches. Tickets are available at 1/- each on phoning Edgware 4431 or Edgware 5482.

## Goldfish Society's A.G.M.

**MR. R. J. AFFLECK**, M.Sc., President of the Goldfish Society, gave news at the A.G.M. that the proposed new standards would shortly be ready for distribution. He said it was up to the interested members to show what they could do during the next three or four years when the standards could be finalised.

It was agreed that an entry fee of 10/- should be made for new members and in return such persons would receive the G.S.G.B. standards and a booklet on breeding Goldfish. Mr. C. J. Saunders, B.Sc., was unanimously re-elected secretary, and Mr. A. W. Sumbler, a lay member of the committee.

## German Guppy Federation

**IT** is reported in the Bulletin of the Federation of Guppy Breeders' Societies that the German Guppy Federation is making rapid progress. It has produced a six-page News-letter in which Dr. E. Schmidt of Hamburg tells of a visit he paid to Guppy breeders in this country.

Mr. H. S. White, who has done first-class work over five years in producing the F.G.B.S. Bulletin, has retired. The post of Bulletin Editor is now held by Mr. R. Forest-Jones, B.Sc., of 5 Park Lane, Old Basing, Basingstoke, Hants. As we go to press we learn that the British breeders had a number of successes at the Berlin International Guppy Show.

## First B.A.S.S. Meeting

**THE** first annual meeting of the British Aquarists' Study Society takes place at 42 Berrylands Road, Surbiton, Surrey, on Sunday, November 4. Members of the advisory panel will be coming from Southampton, Folkestone, Sheffield, North and South London, and Sussex. It is hoped to draw up a constitution to carry out the club's policy until 1960, and to arrange for a national conference somewhere in London at some future date. It is intended to have an annual conference in a different part of the country every year. Membership now totals 50.

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