

Koya

# Water Life

AND AQUARIA WORLD



DECEMBER, 1953—JANUARY, 1954

TWO SHILLINGS & SIXPENCE



# Water Life

AND AQUARIA WORLD

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### FRONT COVER: NEEDLE FISH.

Definitely an aquarium oddity, the slim, tapering Needle Fish (a species of *Farlowella*) is a member of the *Loricariidae* Family of Catfish. Like others of the Family it has a sucking-disk mouth, clearly visible in this ventral view. The Needle Fish is difficult to keep in aquariums but a vegetable diet, including soft Green algae, seems desirable.

[Photograph]

[New York Aquarium]

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## EDITORIAL

### Colour Control

OVER the years, methodical Goldfish breeders have appreciated the need for care in the selection of breeding pairs. Hard experience has made them choose their stock from strains known to possess the necessary characteristics, as the first essential step towards getting better colour. They have advanced beyond the haphazard stage of indiscriminate matings which do more to destroy improvements made previously than anything else. The progress attained has been slow and there is still much to be found out about the factors responsible for pigmentation before greater control over them can be exercised.

One of the first lessons that had to be learnt was that if it was relatively easy to breed for one thing, such as body shape, it was more difficult to try to get two improvements, as, for example, better body outline and bigger fin development, at the same time. It did not take long to realise that still more complex are the considerations to be made when retaining breeding stock with which it is hoped to make concurrently a triple advance. It is no easy matter to breed shapely specimens which, according to the variety, have finnage in proportion, as well as predetermined coloration.

The more Goldfish breeders specialise, the more they appreciate the difficulties with which they have to contend; and as time goes on the majority inevitably show sympathy towards the idea of limiting the number of accepted varieties.

#### Aim of Guppy Enthusiasts

It is no reflection to say that breeders of varieties of the Guppy are closely following the pattern set by their fellow aquarists on the coldwater side of the hobby. The little *Lebistes reticulatus* is almost too obliging in presenting fresh outlines to caudal and dorsal fins and is equally ready to produce new shades of colour. Within the accepted standards for shape and size, the leading aquarists who breed these wee gems of the tropical fish world are now wondering if they can fix coloration as a prelude to getting distinctive colour patterns.

That good colour in exhibition fishes is recognised as important is shown by the high percentage of points it earns under the existing show standards, although the number of the ideals so far published is limited to few tropical species, if we exclude those for Guppy varieties. We see no insurmountable reason why standards cannot be issued for all fishes regularly gracing our show benches, and, just as agreement can be reached on the desirable size and shape of body and fins, so should a definite guide be given on colour.

If—and these examples are taken at random—there were a lead given as to the required shade of colour in the barrings of Tiger Barbs, the lacing of Leeri Gouramies, or the pencil-like lines of the *Poecilibrycons*, we should have not only a guide but a decided incentive to breed for colour, as well as other features. Once the methods of breeding different species are known, the way is open by selection to improve, or at least modify, characteristics found in the wild state. Experimental matings to determine control over colour can open up a new field for the tropical fishkeeper.



# Culturing Dwarf White Worms

Useful Livefood for Fish in an Intermediate Stage of Development

By A. E. Falkus, B.Sc.(Eng.)

I HAVE long felt that the most critical period in the rearing of egg-laying fish is from three to eight weeks after spawning. I have found that by far the best food for this size of fish is the Dwarf White (Grindal) Worm, and as a result, I have over the last four years, given considerable time and thought to the culture of these worms. They are not so easy to grow in quantity as either Mikro- or White Worms. Nevertheless, two or three tins, 9 in. x 4 in., going reasonably well, are sufficient to supply all the needs of a spawning of 400 or 500 fry and to bring them up to a size where they can deal with full-sized White Worms.

After many experiments with various sized boxes, pots, jars and tins, I have finally settled on a small bread-baking tin as the ideal container. These are rectangular in shape, measuring 7½ in. x 3½ in. at the top and 2½ in. high. The sides slope in so that the bottom measures about 6½ in. x 3 in. They can be obtained at most multiple stores and large ironmongers.

In setting up a culture, I first pierce about 10 holes through the sides of the tin near the bottom for drainage and ventilation. These holes are made by pushing in a spike of about ½ in. diameter from the outside. Then the tin is filled about three-quarters full with compost. The compost is made by mixing 1 measure garden loam, 1 measure sand and 1 measure horticultural peat (by volume) and is used nearly dry. Level off the top of the compost and then make a central trough about 6 in. long, 1 in. wide and 1 in. deep. This is pushed in with a piece of wood. Along the bottom of the trough is placed some oatmeal porridge with a liberal supply of

Dwarf White Worms from another well-established culture around the edge. Next cover the surface of the compost with a piece of glass 6½ in. x 3 in. and cover this in turn with a piece of cellutex or thick cardboard. Keep the culture as near as possible at 75 deg. F. I stand mine on the top of the breeding tanks against the back wall.

The oatmeal porridge I make as follows. Put 1 cupful of medium oatmeal into an enamel saucepan and add 1 cupful of water. Stir with a wooden spoon until it is a smooth paste. Then add 2 further cupfuls of water, bring to the boil on the gas or hot plate, stirring all the time, and boil for 4 minutes. I use my wife's egg-timer as a check. After this pour the hot porridge straight from the saucepan into a screw-top glass jar and replace the top of the jar. Leave it to cool for some hours.

## Precautions Against Flies

It takes about four weeks for a newly-made up culture to reach full production. During this period it must be attended to every three or four days. As soon as all the porridge is eaten up some more porridge must be added. If the surface of the porridge shows signs of mould growth, stir it over with an old table-fork daily. This discourages the growth. As soon as the worms have multiplied sufficiently they will do this for themselves! Should the porridge become mouldy throughout but the worms still appear to be eating it, simply add a further layer of fresh porridge to cover the old completely and all will be well.

Always press the glass well down on to the surface of the compost after servicing the culture to prevent flies getting at the porridge. If, however, a few flies do get in it does not matter a great deal. Should a few flies hatch out let them escape at once.

There are various kinds of mites which can get into a culture, but I find that provided the worms are in the majority they cause no trouble. The whole secret seems to be to start off with plenty of worms when setting up the culture.

When the culture is well established, the underside of the glass will be found to be covered with worms each day, and to feed the fish one merely dips the cover glass into their tank. Before replacing on the culture, however, be very careful to clean the glass thoroughly to ensure that no Mikro-worms are introduced.

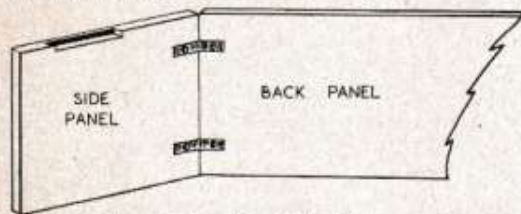
If the culture should become infected with Mikro it can, of course, still be used but efforts should be made to discourage the Mikro-worms as soon as possible, as there is a danger that they may monopolise the culture completely. If Mikro-worms appear in a culture the remedy is to get the culture as dry as possible. Leave the glass off for a time and cover the tin with muslin to keep out flies. Let all the porridge be eaten up and the surface become dry. Then add a little stiff porridge and put the glass back, but continue to keep the culture dry. The Mikro will then die out.

Provided fresh porridge is added regularly, but not too much of it at a time, and the culture does not become too wet it can continue to thrive almost indefinitely. I have some that has been in use for 18 months and they are still flourishing. There is a tendency, however, for a culture to become rather too wet in time should the drainage not be good enough. If there are signs of the compost becoming waterlogged first clear the holes around the bottom and then push holes down through the compost to assist the moisture to get away. If the compost becomes very wet the worms will leave it in search of air and it is best to transfer them to a new tin made up with fresh dry compost.

## Readers' Hints and Tips

### Saving Electricity

I HAVE used the following method of heat conservation for a tank in an unheated room and have found that I can effect an appreciable saving of electricity. The insulating material for the tank consists of three sheets of fibreboard ("Tentest" can be purchased from a builder's merchant and is very reasonable in price), one sheet for each side and one for the back. In size, the panels measure exactly the same as the overall measurements of the tank sides they are to cover. The three sides are hinged together with strips of rexine and paper "push-through" clips. I have found that Tower Binders are best for this purpose. The hinges will not operate successfully unless they are fixed on the inside. Any handyman can improvise clips to fasten the fibreboard to the tank, and it is exceedingly simple to fix on or remove as necessary. The fibreboard can be painted both inside and out to fit in with the colour scheme. A small portion cut out of the top edge of each side panel will enable it to fit snugly to the side of the tank, whilst taking in any striplight overhang.—R. A. Whittle, Fulwood, Preston.



(10s. 6d. is paid for all published hints and tips.)



# Amphibians and Reptiles of the British Isles



Photograph] [L. E. Day  
The frequently-found Grass Snake (*Natrix natrix*).

**I**N the present series of articles I am attempting to give a general picture of the fourteen species of animals which make up the list of reptiles and amphibians native to Britain. We now come to the snakes. Whenever this subject is raised the immediate reaction seems to be either one of interest, even pleasure, or of revulsion and, in many cases, a distinct fear. There are no half-way measures—one either likes or hates the serpents.

When challenged, the person who dislikes them usually finds it difficult to supply a tangible reason. Some kinds of fear may be psychological and difficult to explain. Fear on religious grounds, because of what we read in the Bible, can be ruled out. In some parts of the world the deadliest snakes are held as sacred, and even worshipped. Certain people fear snakes because some are venomous, and "sting with their tongues". This puts them in the same class as toadstools; because one or two happen to be killers all are treated with suspicion. It even applies to our own timid and inoffensive little Adder, which will only bite in self-defence. The fear of Adders is grossly exaggerated and deaths from their bite in this country are rare. In England and Wales during the last fifty or so years less than a dozen humans have died from its bite.

### Fear Through Ignorance or Wrong Instruction

Probably the greatest contribution towards the fear of serpents in Britain, is ignorance and wrong instruction. It is certainly not instinctive, for young children in the care of adults who experience no fear may be taught to love and fondle a snake, as much as they would a kitten or puppy. For such enlightened times as the present it is very surprising what curious beliefs and superstitions still survive, with a result that snakes are so often killed on sight, and generally so persecuted that it is remarkable how they manage to survive. People who understand and have a regard for them are concerned about this annual slaughter, and are quick to defend them. What is needed is a few more champions, like the naturalist Hudson, to uphold the much despised and lowly serpent.

I have written in this vein at some length because as vivarium subjects the snakes have a fascination quite out of the ordinary. Many will tame readily, being quite harmless, and they have a number of strange things to teach us.

One of our harmless native species is the well-known Grass or Ringed Snake (*Natrix natrix*). It also has a wide distribution on the Continent. Many of the Grass Snakes sold in the pet shops come over from S. Europe. The species is recognised by its olive brown colouring, its slender,

## 6. Harmless Grass and Smooth Snakes and the Shy but Venomous Adder

— By Alfred Leutscher, B.Sc. —

tapering body and the yellowish "collar" behind its head. The creature's movements are quick when it is disturbed and it will dart away into the undergrowth or dive into the nearest water, this species being an excellent swimmer. When caught it puts up a fine display of bluff. It will hiss and dart its head, behaving in a most venomous fashion and also void an evil smelling fluid. Sometimes it appears to feign death, going into a curious trance by turning upon its back and opening its mouth. This has often happened with specimens I have caught, but I have never received a bite.

### Taming the Grass Snake

Careful and frequent handling will soon tame the Grass Snake into a docile pet which may in time become so tame that it will take food from one's fingers. The main diet in Nature is frogs and toads (some specimens prefer one, some the other), newts, fish and, occasionally, small mammals and nestlings. A pet snake will often take food freshly killed.

In captivity Grass Snakes frequently mate and even lay eggs, which have then been successfully hatched by a number of owners. The time of laying is late June or July and females then seek out damp, warm places in rubbish dumps, haystacks, manure piles and pockets of leaves in ditches and hollows. Incubation lasts about ten weeks and in September the young hatch out as pretty little creatures with bright markings. Whether or not they feed before they hibernate I have never been able to discover, but their starvation until the following March would not appear to harm them. Little is yet known about the natural foods of our baby British snakes. The Grass Snake occurs in Britain



Photograph] [L. E. Day

A species of limited distribution, the Smooth Snake (*Coronella austriaca*). The dark marks on its back are separate and do not form an uninterrupted zig-zag line as in the Adder.





[Photograph]

[S. Crook

The Adder (*Viper berus*), Britain's only poisonous snake.

from the south coast to the Scottish border, becoming scarcer as one goes northwards. It seems to be absent from Scotland as well as Ireland.

Our rarest serpent is the Smooth Snake (*Coronella austriaca*), which is now confined to a few heathland areas in the south of England, especially in Hampshire, Dorset and Surrey. Only an occasional record is given each year. In 1949 I had the good fortune to find a specimen on a Dorset heath which is still in my collection, enjoying good health and feeding regularly. Whereas Grass Snakes frequently grow to three feet or more, the Smooth Snake rarely exceeds two feet in Britain. In habits it is rather sluggish, but quick to bite the hand that holds it. This bite is usually quite harmless, apart from making a scratch, since the teeth are small and non-venomous. This snake gets its name from the silky texture of its skin. The scales are quite smooth and have no keels on them. At first it may be confused with the Adder. The colour is a kind of grey or reddish mahogany with a series of darker, but separate, markings along the back. In the Adder the zig-zag pattern is continuous. There is also a dark strip through each eye. Like the Adder it has living young (ovoviviparous). The Smooth Snake's favourite food is the Common Lizard, and it was once called the Lizard Snake. When swallowing a meal it will often hold its prey in constrictor fashion to stifle its struggles.

Its history is a little puzzling. *Coronella austriaca* was not scientifically recorded in Britain until 1859 and then by Dr. Gray of the Natural History Museum. Dr. Gray's specimen, caught at Bournemouth, is still in the Museum's collection. This publicity soon resulted in many further records, indicating that the species was quite abundant in the south only a century ago. To-day it may be considered rare.

The Adder or Viper (*Viper berus*) is our third and only venomous snake, one of the five species of this Genus found in Europe, and properly called the Northern Viper. It has been discovered within the Arctic Circle, and extends right down to the southern mountain ranges, and from the Atlantic seaboard, across Europe, well into Asia. In Britain it may be said to turn up from Land's End to John o' Groats, and is our most widespread and probably commonest snake. Whereas Grass Snakes prefer ditches, field borders, damper woods, and edges of ponds, lakes and rivers, the Adder is a lover of

more dry situations in woods, on heaths and hill-sides. It is much shorter in length, a two-foot specimen being large, and then it is usually a female. Colour varies a good deal, from the brighter specimens, usually males, to the more brownish females. So-called red and black Adders are also known. The two most reliable recognition features are the thick-set body, and the darker pattern which runs down the back in a wavy or zig-zag line. The fairly characteristic V behind the head is unreliable.

#### A Lover of Sunny Situations

The Adder is by nature a sun lover, and often stays still when accidentally discovered. If teased by the intruder it will coil on the defensive and strike, but will not deliberately attack. People who meddle with Adders and get bitten have only themselves to blame, and there is certainly no need to kill them always, as so often happens. It is, of course, another matter if children, dogs or cattle frequent their localities. Then the Adders ought to be removed. An adult can usually withstand the bite, even without treatment, but a child runs a grave risk, and prompt first-aid is important to save life.

Adders stalk and kill their prey, often after dark, and this includes small mammals, nestlings and lizards including Slow-worms. It is in late summer that the babies are "born", hence the name of Viper (from the Latin *vivus*—living and *pario*—to appear). Adder comes from the old English "nædre", later "nether", meaning low down. From "a nædre" we get "a nadder" or an Adder.

The risk of losing a captive Adder makes it a potential danger as a vivarium specimen. Apart from this is makes a poor subject unless given space in the outdoor reptiliary, as it usually refuses food in the vivarium and, being restless, can soon die of starvation.

When I kept Adders in a garden enclosure I had plenty of opportunity to observe their habits. One of the most impressive sights was the so-called "dance of the Adders", in which individuals reared up and struck at each other in mock combat. At one time this was thought to be a kind of mating dance. It is now known that only males take part, and that this is really a "fight" for possession of certain territory by rival males.



[Photograph]

[S. Crook

Black Adder, a somewhat rare colour variation.



[Photograph]

[L. E. Day

A typical situation where Grass Snakes might be found.



## Notes for Novices (12)

## Useful Foods and Some Carnivores

THE feeding of fish is neither so simple nor so distasteful as some would have us believe. That fish need variety in their food and that a proportion of it should be "live" or freshly-killed is of real importance. For all that, fish can be kept without their owner having to prepare worms for them, but even this operation can be done efficiently by the most squeamish, using one of the proprietary worm shredders. In any case there are now many other livefoods available and types of worms are nicely graded to suit the size of fish! Mikro-worms (approx. 1 mm. long) are suitable for really young fish, Dwarf White Worms ( $\frac{1}{2}$  in.) for medium-sized ones and White Worms ( $\frac{1}{2}$  in.) for adult fish.

One point must be made. It concerns the division of livefoods into two main groups, one consisting of the aquatic forms (*Daphnia*, *Cyclops*, *Glassworms*, *Tubifex*, etc.)

and the other, the non-aquatic types (White Worms, Mikro-worms and Earthworms, etc.). With the latter there is virtually no risk of introducing disease or predators, the only danger being that the water may become polluted either by excessive feeding or through lack of care in failing to clean the culture medium from the creatures before feeding. Using the aquatic forms there must always be an element of risk but, provided all suspicious looking creatures are removed, the chances of introducing anything harmful are reasonably small. In any case, generally speaking, the risk is worth taking so that the fish can have variety in their diet. It is quite

surprising how a feed of *Daphnia* in the Spring seems to perk up the stock after they have existed during the winter months on White Worms and Earthworms. Nevertheless, if the aquarist does wish to adopt "safety first" tactics his fish will not suffer as there seems to be little nutritional difference between the aquatic and non-aquatic forms.

**WHITE WORMS.** These worms form an excellent stand-by. They can be cultured with comparative ease and are particularly useful in the winter months when other livefoods are scarce. During the summer high temperatures tend to keep down the numbers produced. A temperature between 55-65 deg. F. throughout the year should be aimed for. A suitable container for the breeding of these worms is a wooden box containing leaf-mould or fibrous loam. The medium should be dampened and kept moist, though not actually wet. Small depressions are made in the surface and into these are dropped pellets of food. Stiff oatmeal porridge seems one of the best but soaked bread, cooked potatoes and the remains of breakfast cereals are all suitable. The starter-cultures of the worms can be placed in depressions. Cover the box with a piece of glass to prevent flies gaining access and place a piece of sacking over the glass.

Give more food as each supply is used up and allow two to four weeks for the culture to become established before removing any worms for feeding to the fish.

**DWARF WHITE WORMS** are a little more difficult to culture than the ordinary White Worms although the method used is somewhat similar. Full details appear on page 306 of this issue.

**MIKRO-WORMS.** For the culture of these smallest members of the worm group use cooked fine oatmeal of a fluid pasty consistency. Enamel containers are suitable and the addition of a little yeast seems desirable. If the dish is covered with a sheet of glass the worms will tend to crawl on to it but they have an affinity for wood and narrow strips laid on the culture medium will soon become covered with the creatures. The pieces of wood can be washed into a jar of water when the worms will sink to the bottom ready for feeding to the fish. Special containers are manufactured for Mikro-worm culture and they generally have recesses into which matchsticks are inserted. The worms climb up the matches and are then ready for feeding to the fish. As soon as a culture starts to deteriorate prepare a fresh one using worms from the original culture to start it off. A temperature between 70-75 deg. F. is recommended.

**EARTHWORMS** form one of the finest conditioning foods for fish. They are particularly useful for coldwater specimens and the larger tropicals.

Small worms are best and, unless the fish are very large, the worms should be chopped with a razor blade or you can make good use of a worm shredder. After the worms have been collected they should, if possible, be placed for a time in a box containing leaves or moss when they will free themselves of adhering soil. The yellow-striped Brandling Worms found in manure piles will be rejected by the fish.

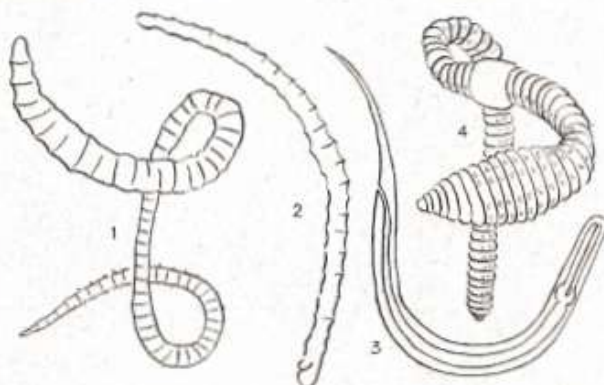
**BRINE SHRIMPS.** Phials of Brine Shrimp eggs are readily available and the newly-hatched shrimps form an excellent livefood for the smaller types of fish.

A small quantity of the eggs is sprinkled into a saline solution made by dissolving 4-5 ounces of salt (preferably Tidman's Sea Salt) in a gallon of water. The eggs hatch in 2-3 days at a temperature of 70-80 deg. F. Some difficulty may be experienced in separating the shrimps from the eggs but the former are attracted by light and, if the floating eggs are drawn to one end of the container and a bright light is shone over the other, the shrimps will gather beneath it and can be removed by means of a pipette.

**Freshwater Livefoods**

When collecting livefoods from natural ponds or rivers keep a sharp look-out for predators. In case of doubt remove all creatures which cannot be identified. This is particularly important with beetles, leeches, etc. Among real enemies are the Great Diving Beetle (*Dytiscus marginalis*) with its larva called—"Water Tiger", Water Boatman and its relatives, Dragonfly larva and *Hydra*, a jelly-like creature usually about  $\frac{1}{2}$  in. long which resembles a primitive sea anemone.

**DAPHNIA AND CYCLOPS.** "Water Fleas", as these creatures are called, are an invaluable source of livefood. They can often be collected from stagnant ponds, particularly during the Spring, Summer and Autumn, or they may be



1, White Worm, a food for adult fish. 2, Dwarf White Worm, for feeding to fish when they are beyond the Mikro-worm stage. 3, Mikro-worm, a small Nematode suitable for young fish. 4, Earthworm, a fine conditioning food for all types of fish.



purchased. If a spare pond or water butt is available an attempt may be made to culture them. The creatures feed on many organic materials including unicellular algae. Food can be provided for them by introducing to their culture container pure dried blood or very modest amounts of manure. Full details of suitable culture media appeared on page 140 of the June, 1953, issue of WATER LIFE.

**GLASSWORMS.** These creatures are found throughout the year and are larvæ of the Harlequin midge (*Chironomus*). Bloodworms are found on or in the bottom mud of a pond and adopt a "figure-of-eight" movement when swimming.

**BLOODWORMS.** Like Glassworms, they are not strictly worms at all, but are larvæ of the Harlequin Midge (*Chironomus*). Bloodworms are found on or in the bottom mud of a pond and adopt a "figure-of-eight" movement when swimming.



Photograph] [J. Clegg  
Mosquito larvæ at the  
water surface ( $\times 8$ ).

they are present in quantity. Collecting is a messy business but the worms are generally in good supply from aquarists' dealers. If a large number is required, and collecting is contemplated, difficulty may be experienced in separating the creatures from the mud and other unwanted material. The following procedure is suggested. Place the mixture in a linen bag and run water through until the mud washes away. Then suspend the bag at the water surface of a pail and the worms, free from deleterious material, will work through and fall to the bottom. Due to their sewage location it has frequently been suggested that *Tubifex* are parasitic on fish. This is untrue although it is not yet certain whether the worms are hosts to small creatures which might act as internal parasites on fish. For this reason the following precautions are necessary. Do not feed *Tubifex* until 24 hours after they have been collected and have been well washed in running water. This allows any sewage-contaminated material to work through them. Chop the worms before feeding and, as an added precaution, wash them after chopping. The latter suggestion is not universally accepted as some of the nutritional value is no doubt lost. Nevertheless, it is a measure which will make almost certain that no harmful influences are introduced to the fish. *Tubifex* should always be kept in running water, a dripping tap is ideal. Attempts to culture them are rarely made and are only occasionally successful.

There are many groups of fish, particularly tropical, which require a reasonably high vegetable content in their

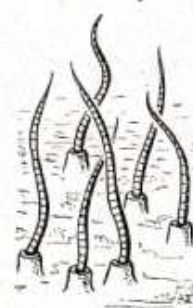
diet. Chief among them are the livebearers and they appreciate a good supply of soft Green algae on which they can browse. In its absence chopped lettuce or chopped boiled spinach should be given periodically. Duckweed is often taken by coldwater fish (including Goldfish) and some large tropicals. Whilst soft Green algae is invaluable, the coarse blanket-weed and Blue-green algae are quite useless. The latter is a dark blue-green, has an offensive earthy odour and frequently results in an oily scum forming on the water surface. It is difficult to discourage without removing the fish prior to treatment of the tank.

Many brands of excellent quality dried food are on the market and they can form the basic diet for all but the strictly carnivorous fish.

Nevertheless, variety is important, and livefood should be offered whenever available. It is important that the correct grade of dried food should be used for the size of fish. Dust-fine foods will be ignored by fish of any appreciable size and coarse grades will be quite useless for the smaller tropicals.

It is desirable to feed tropical fish two or three times daily, if possible, but many fishkeepers give just one feed each day to adult fish and get good results. Only sufficient dried food should be given that will be eaten within ten minutes. Livefood should be cleared up in half an hour.

With coldwater fish the frequency of feeding can be less. If tanks are kept in a living room where the atmospheric temperature is reasonably high throughout the year a single feed each day will suffice for fish approaching maturity.



Tubifex worms in  
a muddy situation.

If the aquariums are in an unheated room the feeding should be reduced to once or twice a week in really cold weather with extra nourishing food given in the autumn. In conclusion, let us list some of the tit-bits, occasionally available, which are appreciated by fish. A shelled shrimp or prawn, lightly scored and suspended in the aquarium for an hour or two, will receive full attention. Similarly, finely chopped raw liver, fish or crab will all be appreciated, but with some foods the fish may take a little while to develop a taste for them. In any case none mentioned in this paragraph is a staple diet in itself but just an appetizer for occasional use. When working in the garden, ants eggs may be dug up. These "live" eggs are greatly relished. Live or freshly-killed flies and mosquitos will be eagerly taken by larger fish but do not offer them if they have been contaminated by insecticide spray.



Photograph] [J. Clegg  
*Cyclops, magnif.*  $\times$   
approx. 61.



Photographs] [J. Clegg and L. E. Day  
Three predators. Left: Dragonfly larva. Centre: magnified photograph of Hydra which preys on fry. Right: Water Boatman.



# Propagating Penguin Fish

Spawnings at Night Following Strange Procedure  
— Fry Small but Rapid Growth After Two Weeks

By S. J. Dadiburjor  
(Bombay, India)

**T**HIS very attractive and peculiar member of the Characin Family is a comparative recent introduction to aquarists. The fish is particularly pleasing under artificial light when its silvery colour, with the broad black lateral band curving into the lower lobe of the caudal fin, is seen to best advantage. It is the curvature of the black band which has given the fish popular names like Hockey-stick Fish, Penguin Fish, etc. The upper half of the body is a delicate transparent silver while the lower half beneath the lateral band has a brilliant whitish sheen. It is always very active in the aquarium, suddenly coming to a standstill in a peculiar oblique position. It makes a very good community fish and is an ideal occupant for a tank containing different types of Characins.

The sexes are easily distinguished—the female being more bulky in the body than the male. Attempts at breeding this fish in an aquarium have frequently met with failure. I believe this has been mainly due to the peculiar spawning habits which some aquarists may not fully understand. From my experience I find that Penguin Fish are easily bred provided one is very observant and devotes some time to watching the pair from which it is hoped to breed. I will now relate how I successfully bred this fish and succeeded in rearing a large number of young from a single spawning.

## Six Adult Specimens Received

Some time back I received some Penguin Fish (*Thayeria obliqua*), direct from the United Kingdom. They were fully-grown fish and there were four females and two males. On arrival the fish were placed in a large, well-established aquarium and were kept in excellent condition on a mixed diet of live *Daphnia*, mosquito larvae, scrambled egg, etc. on which they did well. A month later the females were loaded with spawn so I was tempted to breed from them. I set up a tank of about 20 gallons capacity, the bottom of which was layered with sterilized river sand. Filtered water was used and the tank was thickly planted with *Elodea*, as this serves as an excellent medium for trapping the eggs of the adhesive egg-layers. When everything had settled down a day or two later, I introduced a pair of fish into the breeding tank, only one male being used.

## No Spawning During the First Week

The fish did not show any interest in each other and no spawning took place though they remained in the same tank for more than a week. As this was the third week in November, the temperature of the water in the breeding aquarium remained about 75 deg. F. I gradually raised the temperature of the water to 80 deg. and maintained it at that level but no spawning took place for a further two days. On the third day the fish were observed to spawn. This was noticed quite by chance. It was about 8 p.m. when it occurred, and the *Thayeria* tank was in total darkness except for a light from the adjoining room which threw a dull glow on the tank containing the fish. In the very dim light I happened to glance at the aquarium and to my great surprise I found unusual activity in it, so I looked more closely.

A low-power light was switched on which made viewing possible but I did not turn on the bright lights as I feared

*Penguin Fish, believed to be Thayeria sanctae-mariae. This species differs from T. obliqua in having a less elongated lower caudal fin lobe and slightly greater size.*



[Photograph by G. J. M. Timmerman]

the fish would be disturbed. The male had become unusually active and was making rapid dashes at the female. There was no coaxing and courting by the male but his attitude seemed to be very aggressive. After several dashes the female entered the plants, the male suddenly brushed past her, they contacted their bellies, quivered, and separated rapidly and, at that instant, about 20 very tiny eggs were released by the female. I could not judge the colour of the eggs as the light was very dim. Some of the eggs adhered to the plants but the majority of them fell on the bottom. The spawning went on for about two hours, punctuated by short periods of rest. Towards the end the female appeared very slim and I removed both her and her male.

I then turned on the powerful electric light and very carefully observed the eggs. I removed a few by means of a dip tube to study them carefully. The eggs were of the same size as those of the Flame Fish (*Hyphessobrycon flammeus*) but were of a deep reddish-brown colour. The next morning I could see everything quite distinctly. A few eggs were again removed and viewed under a lens. The colour of the eggs had intensified and they now appeared to be a very dark brown. The embryo within the eggs was well developed and at about 11 a.m. most of the eggs hatched.

## Dark Colour of the Yolk Sacs

The minute young had yolk sacs which were almost black. Fry could be seen corkscrewing from the bottom up to the surface. The eggs had hatched in about 14-15 hours at an average temperature of 80 deg. F. Several spawnings from different females have since been made and, to my very great surprise, they have always occurred in the night irrespective of the location of the aquarium. I do not understand the reason for this but I can definitely say that it appears to be a habit of Penguin Fish as it has been systematically repeated on several occasions with different female fish.

The young were free-swimming on the third day after hatching. They were extremely tiny and remained hidden in the foliage. During the first week they were fed on green water and very fine Infusoria, as they were too small to take the larger infusorians. Their growth was very slow for the first two weeks. When they were about 15 days old they were fed on Mikro-worms and, at the age of three weeks, on newly-hatched Brine Shrimps. On this type of food their growth was extremely rapid and a week later they were taking sifted *Daphnia*. At seven weeks the young fish showed their adult shape and colouring, and, in a shoal, appeared very striking.



and valuable study for any keen student, or school-class, equipped with adequate means of relating the fluctuations of plant and animal life to the quantities of plant nutrients in the water and substratum. Such work as has been done in this field has been carried out on lakes and it would be particularly valuable if it could be repeated on smaller sheets of water.

#### Daily Variations

In addition to the seasonal cycle of a pond, there are also fluctuations through the day which will well repay study. Many aquarists who have collected *Daphnia*, will be aware that they do not find this livefood at the same level of the water on every visit to the pond. Some days the crustaceans will be forming a brownish or reddish patch at the surface (the colour depending largely on the state of the oxygenation of the water, the red blood pigment, haemoglobin, is developed in response to lack of oxygen in the water), while at other times they will be much deeper in the pond. This matter has been investigated and it has been found that there is a daily migration of some members of the plankton community, such as *Daphnia* and *Cyclops*. At noon they may be present some distance down in the water but, as the day advances, they move towards the surface, reaching their maximum numbers there about midnight, after which they start the return journey. The cause of this movement is not known with certainty and it would be a valuable piece of investigation to find out how great this diurnal migration is in any particular pond, and to discover whether the creatures dependent on the crustaceans for food also move with their food supply.



The Planarian, *Dendrocoelum lacteum* (enlarged)



Many aquatic creatures retire under stones during the daytime and a search beneath them will often prove fruitful.

There is undoubtedly great need for more careful investigations into the movements of pond animals throughout the 24 hours, and some of the findings will not be unrelated to fish culture. Have not many aquarists at some time lost valuable fish eggs through overlooking the fact that Planarians lie dormant under stones during the day but come out in hordes at night and wreak havoc in the aquarium? The activities of other creatures, such as leeches which retire under stones during the day, would well repay study. There is, too, some evidence that there is much more activity among the pond creatures during the hours of darkness than during the day. A nocturnal pond-hunt, with a torch shining on an area of water which is being netted, seems to result in bigger catches of some aquatic insects, such as beetles and bugs, than would be the case during the day.

Perhaps enough has been said to serve as a reminder that, in making a pond survey, both time of year and time of day are important and to stress that a series of collecting expeditions at different times of day and year will be necessary to yield a full picture of the pond's natural history.

## — Know Your Fishes —

### No. 30

## Round-mouthed Characin

(*Anostomus anostomus*)



Photograph]

[G. J. M. Timmerman

The Round-mouthed Characin (*Anostomus anostomus*) has a superficial resemblance to a large and heavily-built *Paezilobrycon*. Closer viewing will soon dispel this impression for whilst some Pencil Fish adopt a tail-down attitude *A. anostomus* tends to swim in a nose-down position.

The colouring is quite impressive. Basically it is olive on the back and greenish or golden yellow on the sides. A broad black stripe runs from the snout, along the centre of the side to the caudal fin base. The edges

of this stripe are a pronounced gold. Two narrower dark stripes are also present along the side, one above and one below the broad central one. A further thin dark line runs along the back. All the fins, except the pectorals, have varying amounts of red in them. In the dorsal this is primarily confined to the forward half whilst the caudal root is deep red with the colour extending some way up into its forks. The pelvic and anal fins are red at the base and the adipose is also reddish. When young *A. anostomus* is markedly similar in appearance to a species of *Leporinus*—*L. arcus*.

Sexing is not easy although it has been suggested that the female is a little less colourful. Size rarely exceeds 4 in. *Anostomus anostomus* is generally inoffensive but if fin nipping occurs, particularly of fish with filamentous pelvics such as the Gouramies and Angels, this species can be suspected. Generally it is not too lively.

Practically any food will be taken, either live or prepared. A recommended temperature is 75 deg. F.

There seems to be no record of it having been bred in aquariums but one authority suggests that the procedure might be similar to that of *Nannostomus anomalus*, i.e., the eggs are laid among rootlets and groups of fine-leaved plants. If a spawning is attempted a temperature slightly in excess of 80 deg. F. might be tried.

The species is common in Guiana. Specimens have occasionally been found in the Amazon. Class: Pisces. Order: Ostariophysii. Family: Characidae. Genus: *Anostomus*. Species: *A. anostomus*.



# Electrical Safety Measures

Suggested Methods of Ensuring that  
Aquaria Apparatus is Well Earthed

By C. W. Thomas

**T**HIS article is based in principle on the handbook "Regulations for the Electrical Equipment of Buildings," issued by The Institution of Electrical Engineers. It applies only to the heating, filament lighting and aeration of aquaria by electrical means where the current rating of the final point of supply does not exceed 15 amps. Acknowledgement is made to The British Electrical Development Association, a body largely concerned with the promotion of the safe and efficient use of electricity, for their assistance in preparing the article.

The purpose and value of safety precautions can be better realised if the main characteristics of electricity as supplied are understood and these will be briefly discussed before proceeding with the main topic.

**VOLTAGE.** Voltage is the measure of electrical pressure just as pounds per square inch is the measure of water pressure.

A common misconception is revealed by phrases such as "a cable with 11,000 volts going through it". It would, however, be correct to refer to "a cable with 200 amps. going through it".

**CURRENT.** This is the rate of flow of electricity, its unit being the ampere. The hydraulic analogy is cubic feet per minute.

**POWER.** The power used by an electric lamp or heater is the rate at which it consumes energy and is measured in watts, the wattage being obtained by multiplying volts with amps. Thus a heater using 100 watts on 250 volts supply would pass  $\frac{1}{2}$ th of an amp. The watt is the same kind of unit as the horse-power and in fact 1 h.p. is equal to 746 watts.

**D.C.** Direct current is a form of supply, now passing out of general use for supply to the public, in which electricity flows steadily in the circuit under the influence of a constant voltage existing in the live lead of the supply, returning via the other or "common return" lead which is at "earth potential", i.e., zero voltage.

**A.C.** In the case of alternating current the electricity flows back and forth in the circuit, the voltage of the live lead rapidly alternating between equal positive and negative values and that of the other or "neutral" lead normally remaining at earth level.

## Types of Risk

Three points arising from these considerations serve to classify the dangers to be avoided:—

(1) As far as the severity of electric shock is concerned, the current and power used by an appliance are irrelevant; under equivalent conditions, the shock from the live side of an electric fire element is indistinguishable from that administered by a faulty plug since the supply voltage is the same. An electric shock results from simultaneous bodily contact with conducting surfaces at widely differing voltages and the common case is that in which the metal

frame of an appliance, raised to mains voltage by failure of the insulation, is grasped by the hand while contact with earth is established via the shoes and a concrete floor. Factors affecting the severity of the shock are:—the voltage of the supply, the efficiency of contact and the area of contact. An unfortunate conjunction of circumstances is provided by the high efficiency of a wet contact, the large contact area resulting from the immersion of hands in water in a metal sink and the excellence of water piping as an earth connection. Shocks received under these conditions are normally severe. Aquarium water may be expected to be a relatively good conductor because it contains dissolved mineral salts.

(2) Current, however, is of the greatest importance in the matter of fire risk because conductors overloaded with it produce heat. Warmth, desirable from the heater and

inevitable from lamps, is a serious warning at any other point of the installation. *If it occurs consult a competent electrician immediately.*

(3) The safety of fish is not the first concern of this contribution, but the prevention of faulty working and supply failure is essential to the aquarist with tropical aquariums. Switching is critical on D.C. because of arcing; consequently a thermostat on D.C. will handle only a fraction (usually 10 to 20 per cent) of its A.C. load capacity.

Whatever precautions are taken in wiring, the following rules should always be observed. (1) Never adjust or connect the current-carrying parts of an appliance which is plugged in *even if it is switched off.* (2) Avoid putting your hands in aquarium water while the aerator, heater or light circuit is plugged in *even if it is switched off.* (3) Never touch a switch or plug with wet hands.

## Earthing

Earthing constitutes the most useful general precaution against shock but need not be adopted under certain conditions. Only two types of situation provide immunity from shock and these are:—

(a) A situation in which *all* exposed surfaces are effectively insulated from earth. This type of situation is called "earth-free".

(b) A situation in which all non-current-carrying metal parts of electrical equipment and any conducting material likely to become live are effectively connected to earth.

An aquarium installed in an earth-free situation need not be earthed, but in deciding whether or not this condition obtains the following considerations must be borne in mind.

## Non-earth-free Rooms

Non-earth-free situations include rooms containing water or gas pipes within normal reach, concrete or tiled floors, damp areas and badly insulated earth connections to radio receivers. An earth-free room is immediately removed

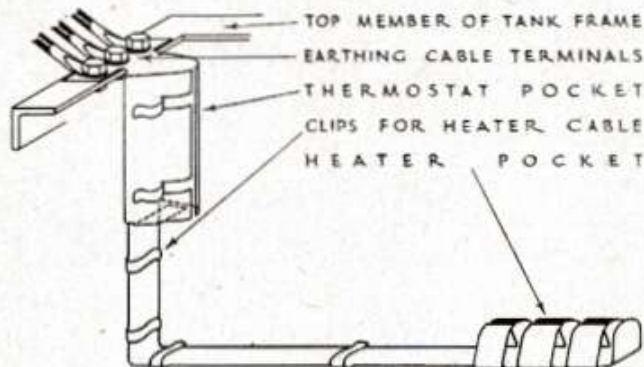


Fig. 1. How to encase the heating equipment in an earthed electrode.



from this category by the introduction of water through a hose. (Fish-houses are not usually earth-free and even if they are apparently so it is advised that a fully earthed system be used.)

An earth-free situation is safe because contact with live metal does not result in a current to earth through the body. It is therefore possible for a fault to remain undetected for a considerable time. With an earthed system, however, a fault immediately allows a current to flow which is normally large enough to blow a fuse, so that no exposed metal is made live. The earthed system gives the more positive protection since no situation is perfectly earth-free—the extent to which it is so being indeterminate—but it must be noted that touching the live current-carrying parts of an appliance is much more dangerous in the presence of an earthed system. If the rules given above are observed this should never arise.

The two systems are obviously mutually exclusive and it would be foolish to allow the use of an unearthened electric iron, for example, in the proximity of an earthed aquarium tank.

The means to be employed in earthing a tank may be illustrated by considering a normal domestic installation consisting of a metal-framed glass tank, immersion heater and outside-adjusting thermostat in glass tubes, aerator, light canopy and metal stand. A basic incongruity exists in the use of all-insulated heaters and thermostats with a metal-framed tank. This is aggravated by the nature of the water, which is neither insulating nor sufficiently conducting to allow it to be earthed as a whole by the immersion of an electrode.

The solution of the problem lies in the use of an earthed electrode which is in contact with the water immediately surrounding the heater, cable and thermostat, so that in the event of any leakage the current from the fault may be led off to earth without affecting the main mass of water. Such a device, simply formed from stainless steel sheet and incorporating clips for heater and thermostat, is shown in Fig. 1. All rough edges must be smoothed down or the fish—and heater cable—may suffer. Aluminium sheet is probably suitable as an alternative, but toxic metals such as zinc and copper must be avoided. The heater pocket must allow free water flow past the heater. If aluminium is used it can be perforated for this purpose.

The upper end of the electrode is bolted tightly to the tank frame (after cleaning down the latter to the bright metal) preferably with rustless steel bolts of about  $\frac{3}{16}$  in. to  $\frac{1}{4}$  in. diameter cut to the required length. If three such bolts are used they serve as terminals for the earth cable and for earth connections to the canopy and stand. These connections should also terminate on bolts which make a metal-to-metal

contact with the surface to be earthed. Earthing cables should terminate at earthing points with a lug or washer of the Ross-Courtney type (this latter consists, essentially, of a brass washer with perpendicular saw-teeth on its inner and outer edges, the cable being finished by forming a loop with the bare end, placing it on the washer and securing it by bending the teeth down across it). After fixing the electrode to the frame and making the necessary connections, the whole joint should be given several coats of water-proof bitumen paint. This joint should be periodically inspected and kept free from rust. The stand and canopy must be individually earthed; mere contact with the earthed tank is not enough.

One of the most frequently seen examples of disregard for safety in the hobby concerns the light canopy and especially the permitted formation of condensation inside the canopy and on electric lamps and lampholders. A cover-glass will prevent this, particularly when used in conjunction with a small Perspex corner cut to accommodate thermostat and heater cable. This should be arranged in such a way that the heater cable is not in contact with the tank frame or sharp edges of the cover-glass or Perspex. The canopy should not enclose the thermostat.

#### The Circuit

A diagram incorporating many desirable features is given in Fig. 2. A 5 amp. three-pin socket outlet is used as a 220/250v. supply, although it is not always wise to assume that such a socket necessarily carries an earth connection. An electrician can check this if required. It is assumed that the current will be less than 5 amps. In fact, an installation of this type will normally take about one amp. at 220/250V. as an approximate estimate.

Where a separate earth is needed, this can be obtained by utilising a water pipe if your electricity authority agrees to the method which is to be adopted.

Pipes which must not be used for earthing include hot water pipes or cold water pipes fed from a cistern, sprinkler or drencher systems and pipes containing gas or any inflammable liquid. Note that in the scheme suggested, loose connections are short and do not have to carry the weight of line connectors, adaptors, etc., and that no

soldered joints are used, all joints being accomplished by mechanical means and no joints exposed.

The provision of a small distribution board adjacent to the tank has many advantages. A small insulated junction box mounted at the back serves to divide the circuit and this part of the wiring is safely concealed and protected. Heater and thermostat are rendered individually replaceable by plugs, their 5 amp. sockets being wired in series. Three-pin shuttered sockets are used for added safety, the third pin, which operates the shutter, not being used in this case in

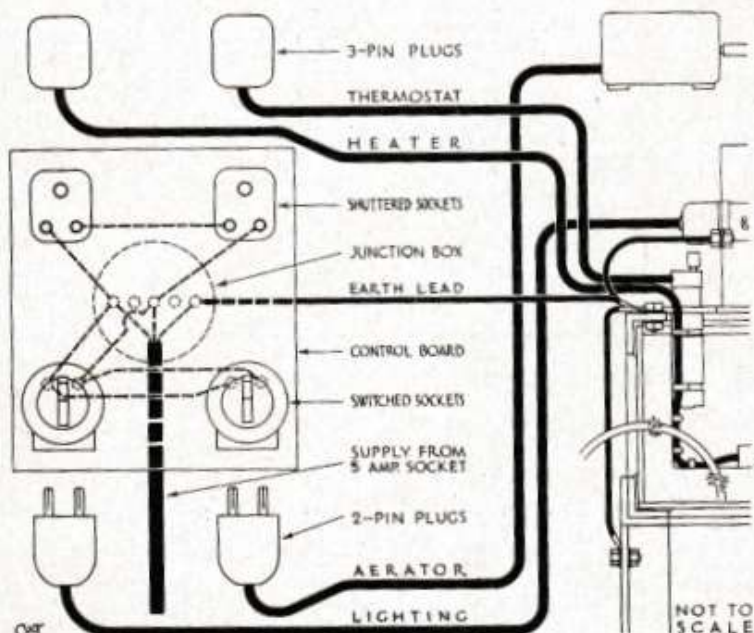


Fig. 2. Suggested set-up for ensuring that all equipment is adequately earthed.



SOCKET OUTLET	FLEXIBLE CORD: 2- & 3-CORE CIRCULAR		FIXED WIRING	
	Rating (Amps.)	Size (Ins.)	Rating (Amps.)	Size (Ins.)
5 Amp. OR 15 Amp. with 5 Amp. Fuse	40/.0076	7	1/.044	5
			3/.029	5
13 Amp.	70/.0076	13	7/.029	15
15 Amp.	110/.0076	18	7/.029	15

Fig. 3 shows the flexible cord and distribution board wiring sizes.

its primary capacity as an earth connection. Lights and aerator are provided with 5 amp. two-pin switched outlets in preference to switches mounted on the canopy or inserted in the cables. These sockets, if fitted at the side of the switch, as in the type shown, should face downwards. If the aerator is of insulated pattern no earth connection need be made to it but, if it requires to be earthed, it will usually be supplied with a 3-core cable, in which case a three-pin plug and switched socket, preferably shuttered, should be substituted for the two-pin type shown and the earth pin of the socket connected to the earth terminal in the junction box.

The circuit, as described but without earth connections, is suitable for a non-earthed installation. If an aerator with three-core cable is used in a non-earthed system the earth (green) core should be turned back without being bared and sealed off with insulating tape before fitting the plug. Remarks concerning the earthing of aerators apply also to outside thermostats.

The terminals of plugs, sockets, etc., are marked "L" for live, "N" for neutral and "E" for earth connections and these should be connected to the red, black and green cores of flexible cables, respectively. Single-pole switches should be wired so that the live side of the circuit is broken; where reversible connections occur (for example, when a reversible two-pin plug and socket is used as a supply), double-pole switches are the rule in the circuit beyond that point. Unless these provisions are observed (they are, of course, invalidated by incorrect house wiring), the current-carrying parts of an appliance remain live when it is switched off. D.C. socket-outlets should be controlled by an adjacent switch.

#### When a 15 Amp. Socket is Used

If a 15 amp. socket is used as a supply the plug should be of the "fused" type, but carrying only a 5 amp. fuse, unless it is known with absolute certainty that all cables and wiring (including the leads supplied with heater etc.) are of 15 amp. rating, together with all components such as switches and sockets. Otherwise, in the event of a short circuit, the wiring may suffer damage before the fuse protecting the 15 amp. plug clears the fault. This constitutes an example of a principle which should always be followed in this type of work and must be adhered to when setting up more ambitious installations.

A table of flexible cord and distribution board wiring sizes is given (Fig. 3). The former should be "tough rubber sheathed" and the latter single core p.v.c.—or v.i.r.—insulated. It must not be assumed that these ratings apply to conditions other than those pertaining here. Single-core earthing cables should be flexible and the conductor size not less than 0.0045 square inches (110/.0076=0.0048 sq. in.). If a sheathed single-core cable is not procurable 3-core 40/.0076 may be used, all three cores being connected together at the ends. The board itself may consist of a

recessed wooden block or built-up box. There should be no sharp bends in the wiring. No cables (including thermostat and heater leads) should be enclosed by, or adjacent to, a lighting canopy which becomes hot, the maximum permissible temperature being 135 deg. F., unless special heat-resisting cables are used.

Generally speaking, the shuttered type of socket is very much to be recommended, especially where the point is within the reach of children. Accessories must not be loaded beyond their rated capacity—a condition brought about by thoughtless extension or multiplication of circuits, often by means of multi-way adaptors. Bayonet-cap (lighting) fittings should be avoided when connectors are necessary and never used as a point of supply. In the use of connectors of the pin and contact-tube variety, the half carrying the pins should be connected to the appliance and that containing the tubes connected to the supply.

While this article sets out to be an exhaustive enquiry into the conditions necessary for safety in a typical installation and a detailed consideration of one of the ways in which they may be implemented, there may well be readers, unversed in technical matters, who would prefer the adjective "exhausting"! To these I would offer the comforting reflection that the domestic aquarium is often installed in an earth-free situation, in which case the complexities of earthing may be disregarded. I would, however, make the following recommendations:—Do not put an unearthed tank near an earthed wireless or any kind of metal pipework, nor allow the use of any earthed appliance such as an iron in its vicinity. In particular, do not provide a two-way adaptor so that your wife can use a vacuum cleaner with an earth connection from the point which supplies an unearthed aquarium.

Use only suitable materials and see that they are of the best quality; eschew the signature of some amateur electricians—the twisted joint wrapped with insulating tape.

Observe the rules given on page 315 under precautions against shock and, finally, if in doubt, consult your local supply authority, a professional electrician, one of the bodies to whom acknowledgement is made at the beginning of this article or (and the greatest discrimination must be used in this) the friend whose knowledge of such matters is *reliable*. No aquarist, at any rate, need go short of advice.

### The Late Duke of Bedford



Photograph]

[R. L. Gardner

A FAMILIAR scene for many livestock societies who visited the late Duke of Bedford's estate at Woburn Abbey, Beds. The lake is one in which there are numerous Hi-go! Carp, some of large size. They fed from the Duke's hand as he was demonstrating in this photograph. He was a vice-president of the Goldfish Society of Great Britain until his untimely and lamented death in October. Appreciation of the late Duke's interest in our hobby is given on page 336.



# Fishes of the Genus *Mollienesia* (2)

By Alwyne C. Wheeler  
and Raymond W. Ingle

**I**N the wild, *M. sphenops* is abundant in brackish and freshwater pools and rivers where it reaches some considerable size. Upland forms are generally smaller than those of the lowlands. Collectors have reported that at dusk the fish come to lay inshore along the banks, and can be caught in a net by stupefying them with a flash-light played upon the water. The tails of captured male fish often appear mutilated, which suggests much fighting between rivals.

It seems that all members of the Genus are omnivorous—with a strong tendency to herbivorous habits. They have been observed to feed upon algae and tender shoots of plants. Their diet also includes insect larvae and, in a few instances, crustaceans. The stomach contents of many wild fishes show that they eat large quantities of mud and sand.

### Mollies as Food

The flesh of *M. sphenops* is relished by the natives in areas where the fishes are abundant and the little "Pescaditos", as they are called, are caught in large numbers by a simple but unusual method. This was described by Seth Meek, in 1908, who wrote:—"The absence of better fish, or the presence of no fish at all, and the ease with which they can be taken in large numbers, largely explains why so many are used for food by the residents about the lakes. These fishes are captured by the small-mesh throw-nets used so extensively in Spanish American countries. In order to make their capture more certain and easy, the fishermen build nearly circular basins along the margins of the lake. These basins are formed by placing rocks around the margin, enclosing areas of shallow water usually about one or two feet deep and from 5 to 15 or 20 feet in diameter. These are often built in the shade of an overhanging bush or they may or may not be covered with brush. On the side towards the lake a narrow opening is left through which these small fishes enter the basin. In a short time the 'Pescaditos' enter these basins in large numbers. After they have become accustomed to these places, the fisherman removes the brush and the fishes continue to enter the enclosures the same as before. When the net is thrown into the centre of the enclosure, the fish become frightened and swim in all directions. By the time the net strikes the water they have gone to the edge of the basin, and not being able to escape swim towards the opposite side and thus many are caught under the net. A few throws take most of the fish out of the basin."

### Factors Influencing Brood Production

All members of the *Paciliidae* are ovoviviparous and the reproduction of the Genus *Mollienesia* differs little from that of *Lebistes* or *Xiphophorus*. There is, however, quite a variation of brood production within the Family and many factors influence the frequency with which broods are produced. Light, temperature, and food supply accelerate or retard the development of the ova or embryos. In the wild, breeding usually reaches its height in late Spring and early Summer, and is at its lowest in late Summer and Autumn. The chief factors governing the intervals between broods is the time taken for the unfertilised eggs (ovocytes) to reach maturity whilst in the ovaries and ovarian folds of the female.

It is possible to arrange the members of the *Paciliidae* in a series. At one end are those fish in which the uterus of the female must be completely empty (i.e., the brood completely extruded) before the next batch of ovocytes can develop. At the other extreme there are fish in which four or even five broods at different stages of development are found within the female. To the former end of the series the Genus *Mollienesia* belongs; the next batch of ovocytes mature and are ready for fertilisation about eight days after the extrusion of the last brood. In all other *Paciliidae* the ovocytes mature in a shorter time, and on these grounds *Mollienesia* is regarded as the most unspecialised. This obviously accounts for its slow reproductive rate as an aquarium fish. It appears that in the *Mollienesia* the ova are all fertilised at the same time, and thus the young fish are born consecutively (often less than an hour elapses between the first and the last fish being born).

### Variation Between the Sexes

Work on *M. latipinna* has shown that the sexes are alike when born, but if the fish is to become a female the rays of the anal fin, especially rays 5, 6 and 7, develop a greater number of segments than the corresponding rays in the potential male. The anal rays of the female become branched at the margin, thus completing development. In the male fish a rapid transformation of the fin takes place, first signified by an increase in the blood supply to the fin, followed by a widening of the third ray by the addition of bony plates to the dorsal and ventral edges. Spines appear on ray 3 and flanges upon ray 5; a fleshy lobe (the prepuce) then develops and the modification of the fin is finally completed by increased segmentation in all rays. The whole organ normally lies parallel to the male's body and is called the gonopodium. Sexual maturity is often attained at a small size in the wild state, and the females (especially those of *M. sphenops*) frequently outnumber the males.

The number in a brood is very variable even within a species. Little is known about the size and number of young produced by each species in the wild state. Among records Hildebrand recorded that, in a 90 mm. *M. sphenops*, 82 embryos were removed from the uterus. In the aquarium brood production rarely reaches this figure. A variation is seen in the case of *M. latipinna* and *M. sphenops*. In the wild the former species appears to be the more productive and *M. sphenops* the least. In the aquarium, conditions are reversed and *M. latipinna* is often difficult to rear and produces small and infrequent broods.

### Care of Gravid Female Fish

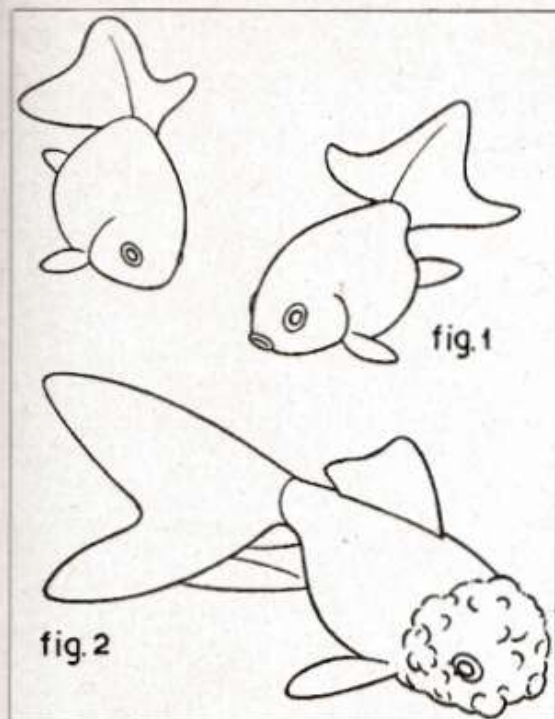
Generally female *Mollienesia* carrying young should be handled with care. Some species, especially the melanistic types, are prone to produce aborted youngsters. The males of *M. velifera* and *M. sphenops* have a slight tendency to bully the females, but show little interest in them during the later stages of pregnancy.

In conclusion it seems apt to quote the first detailed account of the behaviour of wild Mollies given by the "founder" of the Genus, Le Sueur. "In fishing for them in the lake M. Le Sueur believes he noticed that the Mollies do not live in shoals like the *Paciliids* or *Cyprinodonts*; they go in little bands of four or six at the most. Often they stop still just under the surface of the water. Sometimes they dash after other species and pursue them with ardour, thus forcing them to jump out of the water. They swim in and out of the other shoals appearing to be having a game with them. Often these Mollies swim behind a band of *Cyprinodonts* or *Paciliids* and one would say that they act as guardians of the shoal. One sees them hunt and rally those that lag behind. At other times they pursue individuals with great tenacity and then resume their original position in the shoal." M. Le Sueur adds that the habits of these fish (now included in the Family *Paciliidae*) could be studied by more detailed observation than he could make by walking the shores of the lake.



## Japanese Goldfish

Opinions of K. Kishinouye,  
Writing in 1898, Discussed by  
Mr. R. J. Affleck, M.Sc., M.R.S.T.



**K. KISHINOUE**, of the Imperial Fisheries Bureau, Tokyo, Japan, writing in 1898, said that the Goldfish of Japan (Kingyo) were supposed to have been introduced from China but as the Japanese varieties were very different from the Chinese he concludes that they were introduced in the very remote past—if they were introduced at all.

There were many large culture ponds in the warmer parts of the Japanese Empire in the time of Kishinouye and the most beautiful fancy fish could be found in the aquaria of amateurs. According to this writer a choice fish should have the following characters:—the lips, nostrils, circumferences of the eyes, operculum and fins ought to be coloured although the remainder of the body may be uncoloured. The fins ought to be large, delicate, but rather stiff, not falling into folds like a withered flower.

In Britain, particularly with Metallic Goldfish, many aquarists have had to remain content with self-coloured fish because others have not been available. Although Chinese fanciers are said to prefer Metallics with orange and silver markings, most specimens exported from that country are self-coloured, no doubt because the best specimens are retained. Undoubtedly Metallic fish with two colours are most attractive.

### Three-pointed Caudal Fin Advocated

One of the statements by Kishinouye comes as a surprise: "the caudal fin should be three-pointed, *i.e.*, somewhat triangular in shape or lozenge-shaped, not divided at the median line. It should be well expanded and rather erect". To think of the number of web-tails that I have thrown away! "The body should be plump and have an outline of beautiful curves, the fish must be healthy and, although the fins should be large, they ought not to prevent the free locomotion of the fish."

Although the illustrations are sketchy, I do not think that the fins illustrated would be called particularly long by most British Goldfish fanciers. The variety shown in Fig. 1 is called Maruko, Chosen or Ranchu. Both the specimens

have short roundish bodies. According to Kishinouye the head sometimes has many warts on it and the caudal fin is very large. This variety does not normally exceed six inches in total length and is said to be very weak, so that great care is needed for its culture.

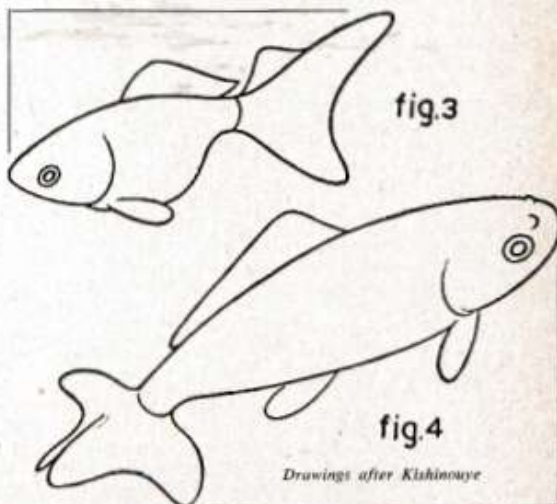
Fig. 2 shows the Shishigashira, Onaga or Oranda. The fins are said to be enormous with the caudal being longer than the body. This is a hardy variety and may attain a length of about a foot. A sub-variety called Hiroshima has the warts confined to the side of the snout.

Although the first two varieties are said to be very fine the next two are considered to be common and inferior. The Rukin or Nagasaki (Fig. 3) is one of the smaller varieties only growing to six inches in length. Although the caudal fin is very large, the other fins are said to be normal in size.

### The Wakin Type

The Wakin is a Common Goldfish and attains a length of more than a foot. The caudal and anal fins are not always divided. Although there are intermediate forms and sub-varieties, the writer maintains that these four are the principal forms of Japanese Goldfish while "Telescope-fish" etc., have been introduced from China.

The opinions of Kishinouye differ from those expressed by other Japanese writers showing that Britain is not the only country where disagreements occur. However, S. Matsubara, Director of the Imperial Fisheries Institute, Tokyo, writing in 1910 on "Goldfish and their Culture in Japan", agrees that the four varieties mentioned above were known from remote time, although he does not agree that web-tails are desirable features! Many Japanese varieties, other than these four, appear to have been evolved after 1897. The story of their development is included in the book "Nippon Gyorui Zuzetsu", translations from which were published in the June and August, 1949, issues of *WATER LIFE*.



Drawings after Kishinouye



# Tail of a Goldfish — its Structure and Contour

FOR a great many years fishbreeders have been striving to produce a Goldfish with a highly-developed tail, or caudal fin—that is to say, a caudal fin which is much larger than that carried by the Common Goldfish or the London Shubunkin.

To a very great extent their efforts have been rewarded and these large-tailed fish are seen in increasing numbers each year. It is, however, a constantly recurring disappointment to breeders of them to find that after about six months, sometimes earlier, the caudal fin, until then carried proudly and well spread, begins to sag, and very often falls below the horizontal. Why should this be?

In the writer's opinion it is the logical consequence of too much development and here it is proposed to give reasons for arriving at this probably somewhat unpopular conclusion.

First let us examine the structure of this caudal fin. Viewed casually from above all that will be seen is what appears to be a length of bone (the uppermost ray). Closer examination will reveal that this apparent length of bone is in fact *two* lengths lying closely side by side, each length composed of a number of quite short pieces or segments, joined end to end. (Figs. 1 and 2.)

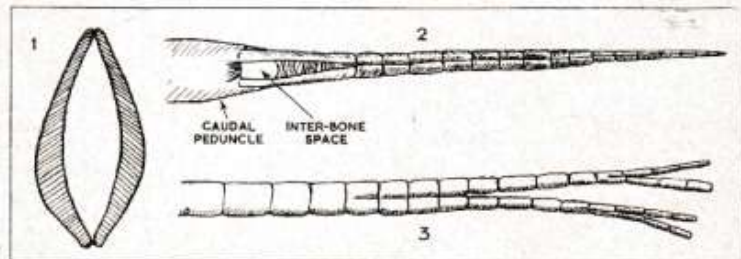
The ray grows by the formation of additional segments on the extremity farthest from the caudal peduncle (this is that part of the fish's trunk into which the ray is inserted and in which the muscles which raise and lower the rays are situated). Each ray of the tail is similar in structure, but different in length.

As it lengthens the ray divides into two, and later these two portions divide, and so on. This is Nature's way of ensuring that the tail is pliable and it gives the fish a greater measure of control when moving this fin. Its lack of rigidity, however, is also one of the primary causes of the drooping of the caudal fin. (Fig. 3.)

Iron or wood is far more solid and rigid than the rays of a fish's tail. If one takes a short length and holds it clear of the ground, by one end, there is no noticeable bend in the material. Take a longer length of the same thickness and hold in the same way. A sag is distinctly seen and a "whip" is felt when the iron or wood is moved. The pull of gravity is now being experienced.

The force of gravity operates in just the same way in water. If the fish possessed no air sac, or swim bladder, in its body it would be unable to rise from the bottom of the aquarium without a prodigious and exhausting effort. Most of us have seen this in a fish with its swim bladder out of order.

The fins of the fish possess no organs to support them. The dorsal is supported by the body of the fish beneath it, while the pectorals, pelvics, and anal are suspended from the lower portion of the body, and



1. Transverse view of a caudal fin ray showing that two lengths of bone are present. 2. Caudal fin ray seen from above. 3. Lateral view of a caudal fin ray showing its much divided nature allowing the fish to have greater control.

By

C. E. C. Cole

hang clear of it. The caudal fin is supported at its narrowest part, and then in a vertical plane, so that the full force of gravity is felt along the greater portion of each ray.

A potential weak spot exists at the junction of each segment in each ray. The most important ray is unquestionably the top one. If a slight break occurs between two segments of the uppermost ray, the tail beyond the position of the break immediately drops several degrees.

The nearer the break is to the caudal peduncle the more conspicuous the effect. Sometimes two or more breaks occur, with particularly obvious results. It is very seldom that the top ray subsides on to the one immediately below it. Usually one ray drops when the uppermost one is damaged, and the whole appearance of the tail is affected.

How can we best counteract the effect of gravity, etc., and ensure that the tails of our fish are as strong as possible? There are several fields of investigation open to experimenters. The first is along lines of feeding. To what extent dietetic deficiencies are responsible for the collapse of so many caudal fins is at present an open question. It is well known that lack of vitamins A and D will cause rickets in human beings, and that lack of calcium will cause soft, weak bones. If this is so in humans, then does it not seem reasonable to suppose that similar deficiencies will have an adverse effect upon the bone structure of fishes?

The advantages of an outside pool are many. Some insects lay eggs in it, and these eggs hatch into one form or other of livefood—fresh meat for the fish, containing all the goodness. Then there is the benefit of direct sunshine in which the fish love to bask, until they feel too warm and seek the cooler depths, or the shelter afforded by a lily pad. After all, sun-ray treatment is one of the cures for rickets in human beings.

Then comes the question of exercise. In the greater space afforded by the pond, the fish can move around freely, and spends much more time doing so, seeking food on the bottom, browsing on the plants, or chasing its companions in and out of the

(Continued next page.)

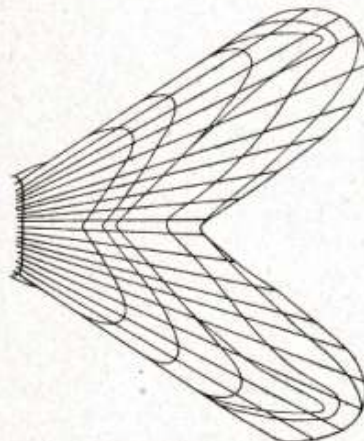


Fig. 4. Diagram showing how the contour of the tail is affected by length of the rays in their relation to each other.



shadows! There is always something for it to do in a pond.

In an aquarium, the pet of the owner who gives it food too often tends to get lazy. With a full stomach, and knowing that it will shortly get another meal, it has not the same eagerness to move around, so it becomes lazy, and its muscles get slack. Slack muscles result in a slack tail.

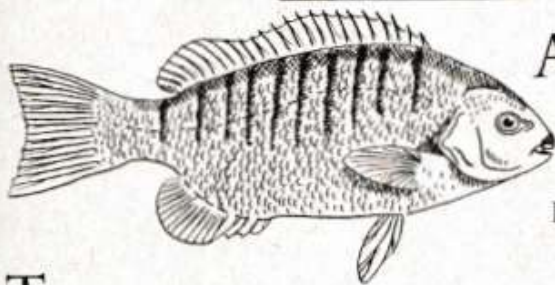
I mentioned earlier that muscles in the fish's trunk raise and lower the caudal fin rays. The longer the rays, the heavier they become and the greater the water resistance to their movement. Consequently the muscles must be in perfect condition to enable them to spread the tail into the position so much admired by those who see it. I have never yet seen a fish which can maintain the position of a fully spread tail for more than a second. That is, of course, a large-tailed Singletail, and not a London Shubunkin or Common Goldfish, whose tails are much smaller.

It is possible to strengthen the tail and the muscles attached to it on the lines indicated above, but the *shape* of the tail

of any particular fish is a different matter altogether. The contour of the tail depends entirely upon the lengths of the rays, in relation one to the other.

Should the uppermost and lowest rays be long, while the centre ones are short, a deeply cleft caudal fin results. Conversely, if the centre rays are long and the others only a little longer, a very shallow cleft is present. Often there is little difference between the first two or three rays forming both the upper and lower lobes, while the remaining rays decrease in length by even amounts, in which case a tail is formed with the inner and outer margins practically parallel. (Fig. 4.)

There are innumerable possibilities, so it is indeed very fortunate that there is a reasonable chance of obtaining any particular shape of tail by breeding from the fish possessing it. Here again, is another field for experiment. What percentage of offspring from any given cross develop tails similar to those of their parents?



## Australian Blackfish

(*Girella tricuspidata*)

By Dr. P. Podmore, D.Sc., M.A. (Cantab.)  
(Melbourne, Australia)

**T**HE Australian Blackfish (*Girella tricuspidata*) is a very fascinating pet in captivity. In Australia it thrives well in small garden ponds when fed on worms, biscuit and meat. Fish of this species soon become very tame and learn to eat food from one's hand. Australian Blackfish belong to the Family *Girellidae* within the Division Perciformes. Many fish in this Division are native to Australia.

Mr. Horace Walduck, J.P., has had Goldfish and local varieties of Australian fish in his beautiful ponds for some years. His largest pond is 25 ft. x 15 ft. and is ornamented with Water-lilies and other aquatic plants. He has a great liking for the Blackfish as a pond occupant. When he feeds them he first disturbs the water with his hand and there is always an immediate response. The fish rise rapidly to the surface and greedily devour worms from his hand. Even when the fingers are moved in the water, the fish show no fear and swim through his hands.

Blackfish would make a valuable addition to a large British garden pond. They are big eaters and could be safely imported into England without much difficulty. The fish have an attractive appearance, their general colour being silvery-grey with a number of dark brown vertical bands.

I have caught quantities of *G. tricuspidata* in Lake Macquarie, New South Wales, and in the rivers of Western Australia. A good bait is a hairy-looking weed which is plentiful on the rocks.

The main natural food of the Blackfish consists of small fry, worms, crustaceans and molluscs and the crushing power of their jaws is considerable. The spawning

period is somewhat variable and October, November and December appear to be the chief breeding months in Australia.

### Edible Flesh

The flesh of the Blackfish is tender, wholesome and easily digested and they have been found preferable to Carp, Roach and Perch for edible purposes. A large proportion of the fried fish sold in Australian city shops is Blackfish.

*G. tricuspidata* require a deep pond. Mr. Walduck kept large specimens in a water hole in his garden. This hole

had a depth of 10 ft., a length of 9 ft. and a width of about 6 ft. He found the fish very easy to feed on the usual foods which consisted chiefly of water biscuit and worms. On this food they did well and grew rapidly, some measuring 15 in. in length. In natural conditions a greater size is reached. There is a specimen in a collection which measures 20 in. and weighed 5½ lbs. The Australian Blackfish (*G. tricuspidata*) is not to be confused with the Australian River Blackfish (*Gadopsis narmoratus*). This latter species somewhat resembles the marine Blennies.

In his experiences with other fish Mr. Walduck found his Goldfish did not interfere with Mountain Minnows (*Galaxias coxii*) but both thrived together in his large pond. The largest variety is the Tasmanian Minnow which measures about 10 in. when fully grown. They somewhat resemble a trout in shape and colour and are very plentiful in the Emu and other Tasmanian rivers.



Mr. Horace Walduck, J.P., beside one of his garden ponds. He has kept Australian Blackfish successfully in deep pools. Sketch at the head of this article shows the species *Girella tricuspidata*—after Fowler.



December, 1953

## Unorthodox Method

Average of One Spawning  
Removed Soon after Being

By



[Photograph by A. Davies]

I WAS first attracted to the breeding of Angel Fish upon hearing of the difficulties encountered in my locality (Ipswich) owing to the scarcity of Rotifers. During August, 1951, I obtained four Angels about four months old from a local aquarist. These were not selected but simply netted at random. They were placed in a community tank but were soon put in a separate one as it was obvious there would be little likelihood of their living contentedly owing to the fin-nipping propensities of Tiger and Nigger Barbs and the activity of Swordtails and other lively inmates.

One of the Angels was a "runt" and never exceeded a body size of a sixpence. It was, therefore, relegated to the "pensioners, etc.," tank. By June, 1952, two of the Angels were "sparring" and indulging in the usual mouth tugging. The third Angel was also a male and, as he was showing a marked interest in the female, he was removed to another tank.

### Frequency of Spawning

I will now give my observations on the breeding of these Angel Fish, but would emphasise that my remarks are based on the pair referred to only and they do not necessarily apply to Angel Fish in general. I believe fish, like humans, have their peculiarities and likes and dislikes. My conclusions are the result of a daily study over a period of two years.

The diary shows that spawnings have occurred as follows. In each case the number of eggs has been over three hundred. August 13, 1952 (4 p.m.); December 24, 1952 (3 p.m.); January 7, 1953 (12 noon); January 27, 1953 (10 a.m.); February 9, 1953 (11.30 a.m.); February 24, 1953 (12 noon); April 7, 1953 (1 p.m.); May 7, 1953 (12.30 p.m.); May 21, 1953 (2 p.m.); June 9, 1953 (12 noon); June 21, 1953 (between 10 p.m. and 8 a.m. June 22, all eggs eaten during night); July 20, 1953 (12.20 p.m.); August 2, 1953 (12.30 p.m.).

The thermostat has not been altered since the fish were purchased. It has a differential of about four degrees and

in practice the temperature varies between 76 deg. F. and 82 deg. F. I do not favour an even temperature. My tank is 24 x 12 x 12 in., with about one inch of washed builders' sand and small shingle on the bottom. It is lightly planted with *Vallisneria*. Angel Fish are constantly pruning the *Vallisneria* and they keep the plants down to four or five inches in height. The fish do not appear to like any plant or other object where enemies might possibly hide.

### Importance of Tank Positioning

The position of the tank is of major importance. It is essential that the Angels should not be frightened by reflections, persons approaching the tank quickly, etc. My tank is placed in a wall recess, the bottom being 4 ft. 6 in. above floor level. In common with some other Cichlids the fish do not appear to like persons towering over them. The aquarium faces south-east and receives moderate natural lighting but no sun. Artificial light is not employed during the summer months, and in the winter a 25-watt lamp is used to give just sufficient lighting to keep plants in good condition but free from algae.

Water is that originally placed in the tank and consists of 50 per cent tap water and 50 per cent rainwater, both boiled prior to being introduced. Losses due to evaporation are made good with boiled rainwater. Slight aeration is used when temperature exceeds 80 deg. F., and also during the night.

I consider it desirable that the fish should spend their life in the same tank if at all possible, as changes are likely to affect adversely their breeding potentialities. It will be seen from the spawning dates that no spawning occurred between August, 1952, and December, of that year. This was no doubt on account of my thoughtlessness in approaching their tank too quickly with the result that they were frightened. There have, of course, been occasions when they have seemed frightened for no apparent reason but they have recovered quickly.

At all times I feed my fish with as much *Daphnia*, mosquito larvæ, Bloodworms, etc., as my six-foot zinc bath, sunk in the ground, will supply. This, as you will realise, is not much, but supplemented with dried fish food (I find Elite very satisfactory) and Dwarf White Worms, the fish have been kept in fine condition over an extended period.

When I observe spawning is imminent, i.e., by quarrelling



[Photograph]

[G. J. Water Tigers, larval stage marginalis, are a danger. The as these creatures may have been re the death of a brood of young



# of Breeding Angel Fish

hatched from a Single Pair — Eggs

— Consistent Success Recorded

Parker

and a departure from usual habits, special efforts are made to increase the supply of *Daphnia* and Bloodworms. When live pond food is scarce I feed the female with shredded lean raw beef. It is strange that although my female Angel Fish is never satisfied until she has received her pellet of beef at mealtimes—I feed at 8 a.m., 1.30 p.m., and 6 p.m. daily—the male fish turns away in disgust. I have never been able to induce him to touch this food. Neither of the fish will eat Earthworms, however small.

The first spawning was made on a watch-type thermostat fixed to the front glass of the tank. No prior notice was given of the intention to spawn—no quarrelling or cleaning. I removed the thermostat with eggs attached and placed them in a Kilner jar. Attempts were made to hatch the eggs in water containing methylene blue, by the method frequently described. The result was plenty of dead eggs and three live baby Angels. These lived about three weeks. I would hasten to add that I am not criticising previous accounts of spawnings. The reverse is the case. What knowledge I do possess has been gained from text-books and publications, plus personal observation.

Subsequent spawnings took place after the usual signs had been observed and I was able to make preparations for dealing with the eggs. After a few indifferent results I finally adopted the procedure I shall now explain and which has proved successful in my case.

After the first spawning the female has always spawned on the rear glass of the tank—in the left-hand corner. The rear glass is covered with dark green paper but the sides and front of the tank are absolutely clear. I have endeavoured to induce her to spawn on various plants, slate, glass tubes, both clear and of various colours, but have not been successful. The pair have looked with suspicion upon these and have deferred breeding operations until I have removed the offending objects.

## Preparing a Container for the Eggs

Immediately it is obvious that spawning is likely to take place I pour two pints of boiled tap water and two pint of boiled rain water in a plastic bowl with a flat base (the top of the bowl is ten inches in diameter) and add one drop of a 5 per cent solution of methylene blue. The bowl and contents are then floated into the tank in which I propose rearing the young Angels. This contains eight inches of water. The temperature of the tank is adjusted to equal that of the water in the adult Angels' tank. All water is filtered through fine cotton material (I use a handkerchief) after boiling.

After all eggs have apparently been laid approximately two hours is generally allowed before removing them. This is done sooner if I am satisfied the male has finished fertilising them.

The removal of the eggs is a delicate operation and no attention must be given to the attacks of the parents who do not hesitate to try to knock the hand and container away.

I use the lid of a thin plastic box. This is placed below the bottom row of eggs and firmly pressed against the glass. It is then very slowly moved upwards and a pause is made as each row of eggs is scraped from the glass. This is to allow time for the eggs to sink into the lid. If done too quickly the water will be agitated and the eggs will float over the edge of the lid. This method will, of course, only

be necessary when eggs are deposited on the glass, but the remaining details should be applicable to all Angel Fish spawnings.

The eggs should be emptied into the plastic bowl and gentle aeration given during the hatching and rearing stages. Next, with a small camel hair paint brush (or any other very soft brush) which has been dipped in boiling water, gently spread the eggs about the bottom of the bowl so that none touches. Aeration should not be so great as to sweep the eggs into a heap.

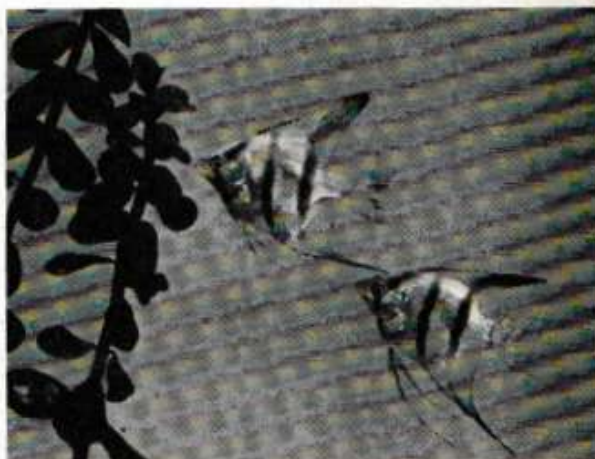
Thereafter as often as possible remove all dead eggs and foreign matter, if present, with a pipette or similar appliance. Also again spread the eggs about as it will be found that they collect together after a time.

## Hatching of the Eggs

In two or three days, according to temperature, the eggs should hatch out and it is not practicable to continue using the brush for spreading the eggs as the movements of the young fish will cause them to "bunch". It should, however, be used to separate any dead fry before removing them with a pipette.

Prior to becoming free-swimming, the babies will probably mass in small bunches (heads in the centre) and look like bees swarming. Do not separate them but agitate the water over each bunch with the brush to clear the water of dirt particles. It would seem that this "bunching", heads together and all tails vigorously waving, is Nature's way of keeping the babies free from dirt and Fungus spores, to compensate them for the loss of the natural cleaning they should receive from their parents.

Immediately the majority of the babies commence to



Photograph]

[G. J. M. Timmerman

Two young Angel Fish showing good development.

swarm start replacing the water containing methylene blue in the bowl. The water must be taken from the bowl and replaced with water from the tank in which it is floating, gently, so that the babies are not bruised. I have found it satisfactory to take out one pint of water from the bowl each morning and evening, replacing it with water from the tank, until all the young are free-swimming and have ceased to swarm. When this stage is reached the bowl and its diluted contents should be gently lowered into the tank and the babies tipped out of the bowl.

I prefer the tank in which the babies are placed to be devoid of sand, etc. Any dead fish and debris can be seen easily on the glass bottom and removed with the pipette.

Rotifers and sifted *Daphnia* are recognised by leading

(Continued next page.)



experts as the best first food but, if livefood is used, it is necessary to first place it in a white-bottomed bowl and examine with a lens to ensure that no enemies are present. I lost over 300 week-old Angels in three days on one occasion, and upon examining the water I found several minute worm-like creatures, including tiny Water Tigers, present. Rightly or wrongly, they got the credit for the slaughter.

As I have only a few tanks available, I have to dispose of most of the eggs or babies. I am therefore able to experiment without financial loss.

To rear young Angels without live pond food I rely on Brine Shrimps and Mikro-worms until they are able to take Dwarf White Worms but, if one is able to take the trouble and risk, Rotifers and sifted *Daphnia* are preferable.

When the young are six weeks old I consider them out of danger provided care is taken to examine the livefood given. They can then take ordinary dried food in quantity, if necessary.

Before concluding, I should like to answer one question which the reader may ask—"Is any harm done to eggs and young by the unnatural handling?" The answer is "No", for of the thousands of eggs I have handled in this manner I have not had more than, on average, one deformed fish per spawning which is usual in any breeding attempt. At the time of writing I have about 120 young Angels seven weeks old and only one has a deformed fin. Of over 300 spawned recently (now ten days old) I can discern none deformed.

In all the operations referred to strict cleanliness has been observed. This is very important. Brushes, pipettes and other utensils are, where practicable, dipped in boiling water before and after use and are not used for any other purpose. Tanks and bowls are filled with a strong solution of permanganate of potash and remain filled for at least twenty-four hours prior to use. All water used is boiled and filtered before introduction.

### Current Research

## Utilising Fats and Carbohydrates

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

IN 1951 the Biochemical Society published a special report, containing the proceedings of a symposium devoted to "The Biochemistry of Fish" (Cambridge University Press). Mention is made of this volume since the papers in it form an excellent background to much of the work that is being undertaken in various parts of the world on the chemistry and physiology of fish tissues. In addition to an introductory chapter and to a concluding one on the economics of fish utilization, there are sections dealing with proteins, nitrogenous extractives, the chemistry and metabolism of fats, carotenoids and bile salts. With the exception of the material in the concluding chapter, there is no bias towards fish that are of food-value and freshwater species receive equal treatment.

In the biochemical field, Dr. Sidney Smith of the Zoological Laboratory, Cambridge, has continued his studies on the development of the Rainbow Trout (*Salmo irideus*), and his present paper deals with the metabolism of carbohydrates and fats (*Journal of Experimental Biology*, 1953, 29, 650). The amount of carbohydrates present in the developing egg and embryo is never very great, and it shows a fall—indicating consumption—during three relatively short phases of development, viz: (i) immediately after gastrulation, when the blood circulation is established, at 9-18 days of incubation at 10 deg. C.; (ii) during the period of hatching, at 34-36 days at 10 deg. C. and (iii) at the onset of starvation, at 66-68 days, 10 deg. C. The third phase of carbohydrate utilisation in Smith's experiments was, of course, entirely "experimental", since the alevins had been denied food whereas by this stage they would normally have been eating. Their yolk reserves were almost exhausted.

#### No Appreciable Use of Fats Before Hatching

There was no evidence that the fats (which are considered to be glyceride-fats) are broken down or utilised to any significant degree before hatching. During the stage of yolk-sac absorption, however, there is evident consumption of fat which, together with protein, forms the main source of energy for development.

The yolk-sac wall in the trout embryo has a well-developed blood circulation in which blood that has flowed through the wall from the liver capillaries is collected into a vein leading directly into the heart. As the yolk mass breaks down it forms a zone of emulsified droplets in contact with the wall of the yolk-sac, and these droplets appear to be composed of fat-protein conjugates or lipoprotein. About

40 days after hatching (at 10 deg. C.) there is actual fusion of liver tissue with the yolk-sac wall. This may be connected with the final absorption of fat (glyceride-fat) from the yolk-sac. Whatever the mechanisms involved, however, there is an increase in the amount of glyceride-fat during the yolk-sac phase, and this fat is consumed later during what is described as "a relatively intense burst of heat-production".

#### Trout Resistance to Cyanide

In the same issue of the *Journal of Experimental Biology* (29, 632), Drs. D. W. M. Herbert and J. C. Merken, of the Water Pollution Research Laboratories, Watford, report the results of their work on the toxicity of potassium cyanide for trout. Their paper is of interest not only for the actual work on cyanide intoxication, but also because it describes an apparatus in which 50 yearling Rainbow Trout may be maintained in a stream of water at a constant temperature and containing a constant concentration of the material (in this case potassium cyanide) to be tested. Mains water is passed through a sand filter to remove suspended solids and then through a tower filled with activated carbon to remove any chlorine. The treated water is oxygenated by pumping at high velocity through a glass filter into a storage tank, from which it is pumped up to a constant level tank with a controlled orifice allowing the flow to approximate to 2 litres a minute. Water from the constant level tank falls into a mixing vessel into which a solution of the material to be tested is added at a known rate by a constant delivery dosing pump. Thorough mixing is effected by passing the water and the solution of cyanide through small holes in the central pipe of the mixing vessel. From here the water flows through a throttle to a delay tank of 50 litres capacity, in which any small fluctuations in concentration of the cyanide are smoothed out. From there it flows into a heavily glazed iron test tank, which is heated by immersion heaters and controlled by a thermostat of the bimetal spiral type enclosed in a tinned metal pocket projecting through the side of the tank.

The actual results have been subjected to statistical analysis and the relationship of concentration to survival time worked out of a range of cyanide concentrations. What is especially interesting, however, is that the resistance of individual trout (even from the same batch) is mainly determined by inherent properties which persist for at least three weeks.





The Editor is not responsible for opinions expressed by correspondents

#### NATTERJACK CAUGHT AT WIMBLEDON

SIR,—Last June, I caught a Natterjack Toad on Wimbledon Common. I put it in a show staged by the Lotus Club and Mr. P. Hewitt, an A.S.L.A.S. judge, gave it a "first".

I told him I caught it on Wimbledon Common; he was most surprised. He told me that they have never been recorded there before. He said it was a good sized specimen with good under-markings. It is just over 2 in. in length with a bright yellow line running down its back. It is pale blue underneath and its eyes are light green.

I keep it in a small tub with a common toad. It is very tame and when I approach the tub it appears from under a piece of bark and waits for a mealworm or wood lice which it eats from my fingers.

Wimbledon,  
London, S.W.19.

(Master) D. POLLARD

Mr. Alfred Leutscher, B.Sc., writes:—This is a very interesting discovery, since the Natterjack is by no means common around London. It lives and breeds in isolated colonies, usually on sandy soils or near the coast, and the nearest locality to London is given by Dr. Malcolm Smith (in "British Amphibians and Reptiles"—Collins) as Woking. There are no definite present records for Wimbledon Common, and it is just possible that Master Pollard's specimen is an escapee. If Natterjacks still occur on the Common it is to be hoped that collectors and naturalists will leave them to breed undisturbed, as it would be a pity to lose one of our few and already-scarce native amphibians.

#### MORE ABOUT BARBUS FILAMENTOSUS

SIR,—Further to my letter in your October issue clarifying the nomenclature of *Barbus (Puntius) filamentosus*, wrongly described as *Barbus mahecola*, the following supplementary notes may be of interest to your readers.

The snout of the male is covered with conspicuous pores and tubercles, especially at breeding time. The female is a heavier, drabber fish lacking the coloration of the male, the fin filaments, the pores on the snout, but possessing the black spot at the tail base. Her coloration is brownish on the dorsal surface shading gradually to silver on the belly. For many years, as now, female *Barbus filamentosus* have been thought to be *Barbus mahecola* erroneously.

The adult fishes are delicate and difficult to keep, except in large aquaria and with ample aeration. They breed readily in the rainy season after the manner of all Barbs and in the wild several males court a single female, finely divided roots being the usual spawning medium for the amber eggs. I have bred them in aquaria, using rain-water, planting the tank with *Hydrilla verticillata*, which closely resembles *Elodea*.

The fry are numerous, quite large at birth and very hardy. At the age of one month they show stripes, and, when an inch long, can pass off for baby *Barbus tetrazona*. At this stage, the fins are reddish and three distinct bands encircle the body which is silvery to light cream in colour.

When they reach 2 in. long, the stripes fade, and the tail fin becomes coloured with a red and black blotch on each lobe, similar to that of the Scissortail (*Rasbora trilineata*). As the fish grows larger, the body stripes disappear and the fins lose their colour, although the colours on the tail persist till sexual dimorphism is apparent, usually at the end of one year.

The fish breed at the age of two years but do not become really attractive till the third year when the males' filaments are at their best. The coloration of the caudal lobes depends on the lighting, and is always brighter in the male. With correct top-lighting and a dark background, the lovely red and black markings show up as well as the emerald green of the male's

body. In a transparent all-glass tank the fishes look drab. *Barbus filamentosus* will eat anything and is very hardy, although difficult to catch when adult and inclined to be a jumper like all big Barbs. For the best results a tank of at least 50 gallons is necessary, with dark background, ample rockwork, and top lighting. Aeration is desirable, and, in fact, almost indispensable for adults. They prefer neutral, or very slightly acid water with a temperature of 70 to 75 deg. F. For breeding rainwater is essential.

The true *B. mahecola* is described as a largish drab Barb with a dark spot on the caudal peduncle and a dark patch under the dorsal fin. This fish is not found in Ceylon. Thus the fact that the fishes I captured in Ceylon, and which tally exactly with the pictures and description in WATER LIFE, are *B. filamentosus* and cannot be *B. mahecola*, further strengthens the assertion that a misnomer is evident.

Over two years ago, in a shipment from Mr. M. Manal, honorary secretary of the Aquarist Society of India, I received a few immature *B. filamentosus* which he called *Barbus melanampyx*. I hastened to assure him that they were indeed young *B. filamentosus*, but only after I showed him wild-caught specimens in various stages of transition to the less marked *B. filamentosus* was he convinced. I might add that *Barbus melanampyx* is not found in Ceylon either.

Dehiwala,  
Ceylon.

RODNEY JONKLAAS  
Zoological Gardens of Ceylon.

#### DUDLEY'S GHOST

SIR,—During the past three years there have been three successive attendants at the Dudley Zoo Aquarium and all of them have reported unusual happenings overnight. For instance, on more than one occasion they have asked me whether I had been to the aquarium during the evening because when they went in the following morning they found that filters had been knocked off tanks, doors left open which should have been closed and sundry minor evidence of interference. Naturally, we came to the conclusion that someone at some time or other in the past had acquired a spare key to the main door—possibly a boy who took his pals in after closing time.

I had the lock changed, and I believe the staff set the usual booby trap of black thread stretched across passageways but this was never broken. Now the present attendant reports that some weeks ago he went back to the aquarium at night and was prevented from getting the key into the keyhole by an "unseen force". Eventually he managed to get the key home and on opening the door was struck by an "icy blast" which seemed to push past him as he went in.

We have another member of the staff who used to work in the aquarium and he also confirms that he used to hear footsteps and voices for which he could not account.

The Aquarium is built into what used to be the crypt or vault under the old chapel so if there is anything in this haunting business it should be an ideal spot for ghosts, poltergeists, wraiths or spirits.

I only believed in Ghost Fish and many is the time I have gone up to the aquarium late at night and walked into the place without a thought. Now, I am not quite so sure that I should do this with such a clear conscience. If there is any truth in the story, I think we can fairly safely say this is the only haunted aquarium in the world.

Dudley Zoological Society Ltd.

D. H. S. RISDON  
General Manager

#### CRUSTACEA FROM BRACKISH WATER

SIR,—I have made a successful attempt to keep in fresh water Common Prawns (*Leander serratus*) taken from No. 3 Pond near the main road crossing Moreton Common, Wirral, where the water is brackish. I added fresh water to their container gradually, over a 12-hour period. The prawns were then transferred to a freshwater indoor aquarium where they thrived on Blood worms and *Tubificæ*. A short while after I caught them, they started twisting about during which time they cast their "skins". The same pond contains the so-called Freshwater Shrimp (*Gammarus pulex*) which I have caught and have kept in freshwater tanks without finding it necessary to change the water over a period. These make good livefood for fishes.

Readers may like to know that I have tried the following methods to cure affected Sticklebacks effectively. I have employed them once only but the results have been promising in each case.

1. Fish attacked by the Fish Louse (*Argulus foliaceus*) were immersed in 100 per cent sea water. The lice died in about 30 minutes and the fish were not distressed by the salt content.
2. Fish affected by skin flukes were placed in a solution of



Iglocline (2 teaspoonsful per pint of water) for 30 minutes. All the flukes died during this treatment. I have found that if the fish are first placed for a short while in 100 per cent sea water, the flukes come further out of the skin and the subsequent Iglocline treatment is quicker.

3. Fish with White Spot (*Ichthyophthirius*) were placed in a tank with Iglocline added in the strength of 2 teaspoonsfuls per pint. All traces had disappeared in one week.

In the December 1952 issue of *WATER LIFE* you published a letter of mine about the behaviour of Sticklebacks. Since then a trio of Three-spined Redbreasts (male *Gasterosteus aculeatus*) and one Ten-spined (*Pygosteus pungitius*) built nests. Twenty Three-spined youngsters grew to half-an-inch in length. They were hatched in a tank 18 x 12 x 10 in. Each night they would come to the surface as if to take air. Every time they did so it was noticed that the *Tubifex* worms at the bottom were active. The male parent would chase any fish which ventured near the fry and would make them keep their distance from the nest so long as any fry remained in it. After the young had left, the male deliberately pulled the nest to pieces and swam away, showing no further interest in the young.

Liverpool 17. W. ROUGHSEGE

#### SUNFISH IN BRIDGWATER POND

SIR.—Two unusual fish caught by an angler in a pond near Bridgwater, Somerset, have been identified as the North American Sunfish *Lepomis gibbosus* (Linn.). How they found their way into the pond is a mystery, but as this species has been kept in the aquarium occasionally, it is assumed that they were introduced by an aquarist.

*Lepomis gibbosus* belongs to the family *Centrarchidae* (Sunfishes). In America it ranges from southern Canada to Georgia on the Atlantic coast, inland to Iowa, and the Mississippi Valley; it is

common in the Great Lakes. Usually this species is found in very weedy ponds, with clear unpolluted water, but it has been recorded from rivers and estuaries. Examination of stomach contents shows it to be a wholly carnivorous fish, which feeds mainly on pond-snails, crustaceans and insect larvae.

In America, it is called the Pumpkinseed, Sunny, Bream and, most commonly, the Pond Sunfish. It is strikingly marked with a blue and orange flecked body, orange and blue striped head, and most characteristic of all, a brilliant scarlet patch on the operculum. With such colouring and the fact that it rarely grows larger than eight inches, it is a very attractive fish for the large tank, and it should be hardy enough to thrive in a thickly planted garden pond.

Theydon Bois,  
Essex.

A. C. WHEELER

#### LOSSES AT MANCHESTER

SIR.—Mr. F. E. Cox reported in your last issue on the loss by members of the Cheltenham and Gloucester Section of the G.B.S. of 13 Guppies at Manchester. I am afraid they were not alone in their misfortune.

We lost 18 Tiger and Nigger Barbs due, we believe, to trouble with the heater connections. Two of our committee members had a check made on all the tanks at the show and a number of them were empty.

No one gave us a satisfactory explanation although it was the President, I believe, who, in the assembly room, stated that a few specimens had been lost and urged exhibitors to take more care when staging their fish.

May I say that we have exhibited at the major shows in our county and have never lost a single fish until this occasion. Bury,  
Lancs.

ARTHUR SMITH  
Member, Bury A.S.

## Champion Classes at Shows?

SIR.—The Editorial in your October issue was headed "Higher Status". It could easily have been headed "Dynamite". It is to be hoped that the question of champion and novice exhibits will receive the very serious consideration of the powers-that-be. As an explosive it can only be handled by experts at a very high level. The honest-to-goodness aquarist (we all are, I know) who consistently supports shows and comes away with vhc, hc, c, or nothing at all, may well be in need of some consideration and encouragement. We have all heard it said:—"It's no good showing there; so-and-so is exhibiting"; yet the dividing line may be only a few points.

There have been instances when highly successful exhibitors have dropped out of the race of their own accord in order to give others a chance. I have often wondered if this is a correct attitude to adopt, whilst recognising that it is a very nice gesture. Possibly your suggestion of two classes will help solve the problem. The question that will arise, with, I am sure, much heated discussion, is "What is a champion and what is a novice?" You suggest three first prizes in novice classes, after which the exhibitor becomes a champion. An exhibitor could have umpteen seconds, just one or two points away from a first each time and still be a novice. Some novice! Why not a points system for 1st, 2nd, 3rd only and, after gaining so many points, promotion to champion status? Do you expect a champion to maintain himself in the top grade? Would he be demoted if he failed?

The matter bristles with ifs, ands, buts, pros and cons but it is worth examining. It is probably true to say it has got to be faced one day, so why not now?

I hope that the pages of *WATER LIFE* will be thrown wide open for a very frank discussion on this matter, both for and against. I conclude with an S.O.S. to the Federation of British Aquatic Societies. Give us a lead, please, on this important matter.

Harlesden, W. S. L. MELLISH  
London, N.W.10. Chairman, Willesden A.C.

SIR.—The Editorial in October issue voices, I am sure, the unspoken thoughts of many exhibitors. The consistent and deserving prizewinners have made the top places a class of their own and novices are undoubtedly discouraged by this fact.

I have met with difficulties in this connection. Our novice members need extra persuasion before they will exhibit and persistent prizewinners feel reluctant to enter for fear they will be in the lead once again. Our show committee has recognised this position and has instituted a trophy which will be awarded to the member who has most consistently supported our show

programme and who, though obtaining a "place", has never won a premier award.

The question of champion and novice classes has been mentioned to the committee of a South London Association for their consideration in connection with possible future shows. It may perhaps be as well to remember that in other hobbies and sports the handicap is an old established custom.

As a small society, we look to our more knowledgeable brothers for instruction and I hope that your recommendation will be very closely examined by all concerned in the guidance of our hobby.

Brockley,  
London, S.E.4

H. J. VOSPER  
Show Secretary, Forest Hill A.S.

SIR.—What an excellent suggestion you made in your October Editorial of having both championship and novice classes at open shows.

During the past two years, I have met a large number of aquarists and talked about many shows. In numerous cases when I have asked them if they intended showing at such-and-such an event, the answer has been "Why pay an entry fee for nothing? Mr. X will win that class; he always does. I see no fun in paying for nowt". Consistent winning on the part of a few certainly tends to bring discontent and also make people lose heart in the hobby.

I trust that some national body will attend to the matter soon. Clitheroe.

ROBT. RAWLINSON  
(Chairman, N.E. Lancs. G.B.S.)

SIR.—The question of introducing champion and novice categories for exhibitors is going to have considerable airing and I shall raise it as I go around the clubs to get different points of view.

As I said at the F.B.A.S. Assembly, where you first made the suggestion, I am all for the general idea in a big way, but I want to hear opinions from all sections of the hobby before I decide on exactly what angle is best for the average club that has 30 to 40 members, of which, perhaps, only five are experienced and, as usual, hold things together. All Clubs have got to think of new ways of keeping their members and this may be one of them.

Anyway, I am all for novice and senior classes but the championship category may have unknown snags.

Surbiton, J. E. EDWARDS  
Surrey. (Hon. Advisor, Redhill A.C.)

(The Editor invites show secretaries, exhibitors and judges to contribute to this discussion. Their opinions may help the F.B.A.S. in coming to a decision for or against such an innovation.)



## PROBLEMS ANSWERED

Queries are answered free of charge by a panel of experts. They should be sent to "Water Life," Dorset House, Stamford Street, London, S.E.1, together with a stamped, addressed envelope for the reply. All queries are answered direct but a small selection is published below.

### Willow Tree Nuisance

Our 8 ft. x 3 ft. pond is beneath a willow tree and after the fall of the leaves the water becomes black and smelly and we lose a certain number of fish. We do what we can to rake out the leaves and never let ice remain on the pond. Is there anything else that can be done?—(O.W.C., Cambridge).

Ponds generally do not do well when sited under trees. Willow trees, being indigenous to water, are less injurious than others but nevertheless the leaves can affect the "balance" of a pond. We suggest you empty it late every autumn and give it a rough clean out to remove the accumulated humus without disturbing any Water-lilies which may be present. The fish mortality each winter, however, seems to point more to an excessive fish population than anything else and it is suggested that this should not exceed say 20, 4 in. fish or their equivalent.

### Doubtful Temperament

I had one tropical tank containing about 15 fish but recently purchased a larger aquarium containing fish which included three 2 in.-long Firemouths (*Cichlosoma meeki*) and an *Apistogramma pertense*. I put all the fish into the large tank but an aquarist told me that the two species mentioned should be removed as they are Cichlids and therefore pugnacious. This I did although prior to doing so I noticed no trouble.—(E.L., Leeds).

The fish you mention are Cichlids and, although individuals vary in temperament, Cichlids are generally not regarded as good community fish. Firemouths can be very bad tempered at times. Most of the larger Cichlids are given to rooting up plants so that it is impossible to keep a tank containing them in a tidy and attractive state. The foregoing does not apply to *Apistogramma pertense* which is a Dwarf Cichlid and is quite a good community fish.

### Water Milfoil

All the plants in my 24 x 15 x 12 in. tropical aquarium are growing well except the *Myriophyllum*, the lower leaves of which turn brown and rot leaving only the top five or six inches of green foliage. The tank is illuminated with two 40-watt bulbs for five to six hours daily.—(M.A.F., Devizes, Wilts.).

Your *Myriophyllum* is growing in the normal manner. The only way to keep it looking bushy is to nip off the heads periodically. This will encourage new growth to shoot out from lower down the stem but these shoots will in time follow the pattern of the original stem so the process must be repeated. The heads, if stuck in the compost, will also grow. We prefer two 60-watt lamps for about six hours a day over a 24 x 15 x 12 in. tank. This will not stop the *Myriophyllum* from going brown at the bottom but it may help to produce a more luxuriant general growth. However, if you are satisfied with the appearance of the tank do not alter things just because we suggest a little more light.

### Pond Stocking

I planted Water Buttercup, Starwort, Water Dropwort, Water-lilies and Willow Moss in my pond. Within three months I found that all the plants except the Starwort had rotted and large quantities of algae were present. How may I prevent this occurring?—(D.G., Leicester)

The plants you name (except the lilies) are wild ones and do not take very easily to pond life as they come mostly from moving water. It is suggested that you clear them out altogether, just leaving the lilies to grow on and become acclimatised. Next Spring you could plant *Lagarosiphon major* (*Elodea crista*) and

### *Pachypanchax playfairii*

Could you give me some details on sexing and breeding *Pachypanchax playfairii*? I have two fish of this species which I believe are the same sex as they are of similar appearance. One is guilty of fin-nipping the other.—(J.T.H., Bolton, Lancs.)

*Pachypanchax playfairii* are not difficult to sex since, in the male, the scales stand out slightly, rather like a fish with a mild attack of Dropsy. In addition his colour is a deeper yellow than the female. He is richly coloured with live rows of red dots on his sides. The edge of the anal fin is red, the dorsal and anal fin also having metallic green dots. The caudal fin is tipped with a fine red line at its margin. The female has a black spot in the dorsal whilst other fins are faintly yellow.

These fish are partly carnivorous. For breeding, they require a heavily planted tank with plenty of loosely-floating plants in which to spawn. The female drops one egg at a time and will lay about 20 in a day, the spawning

Giant *Sagittaria* and these should settle in and give you more satisfaction. If the pond has got very much out of hand perhaps a drain off, general clean-up and refill will be advisable.

### Egg Eaters

In my 8 ft. x 4 ft. 9 in. x 2 ft. 6 in. pond I originally put 22 Common Goldfish and Shubunkins. Recently I was given two 6 in. Silver Rudd and two 6 in. Hi-go! Carp which were also introduced. I have since been informed that the Rudd and Hi-go! Carp will eat any eggs and fry produced by the Goldfish.—(C.G.K., Cleethorpes).

It is true the Carp and especially the Rudd will eat the young Shubunkin fry but then so will the adult Shubunkins themselves. If you want to rear the maximum number of young in so small a pond, you will have to remove all the adult fish as soon as the eggs are laid by the spawning fishes.



Female *P. playfairii*. Photographs by G. J. M. Timmerman.

being completed in about a week. The males are vigorous drivers and are capable of serving several females at one time.

These fish are inclined to eat their eggs and young and should be removed from the breeding tank at the earliest possible moment. The eggs are quite large and, at a temperature of 75 deg. F., hatch in about two weeks. As the fry from one spawning will vary in size they should be sorted from time to time as the larger babies will eat the smaller ones. They are not difficult to rear, requiring only a few days on Infusoria before going on to sifted *Daphnia* or Brine Shrimps, after which the usual foods should suffice. They are a rather long-lived fish, breed best during the winter and seem to do well when there is a rise in the day temperature over night temperature. They are best kept at between 72 and 85 deg. F. Left: the colourful male *P. playfairii*.



## WATER ANALYSIS

Samples should be sent in a clean pint bottle, well packed, to Water Life Analyst, 12, Featherbed Lane, Addington, Surrey, together with a fee of 5s. per sample. The name and address of the sender and details of prevailing conditions should accompany each sample which is submitted.

Sample received from E.O., West Hartlepool, Co. Durham. Taken from a 24 x 12 x 12 in. tank in which a new concrete background had been installed, the concrete having previously been treated with spirits of salt. When this background was first introduced several fish were lost but it had since been washed and returned to the tank which contained three Guppies. It was at this stage that the sample of water was sent.

Test for Impurities:—Appearance: clear. Odour: none. Total mineral content:

sample too small for determination. Organic matter: sample too small for determination. Nitrogen compounds: 0.000064 per cent, slight organic contamination. Ammonium compounds: negligible, very satisfactory. Poisonous metals: none. pH: 7.6, satisfactory. Chlorine, as salt: 0.0265 per cent, satisfactory.

Suggested corrections:—The results obtained from the chemical analysis of this water reveal that slight contamination of vegetable origin is present. There is also a fairly high concentration of chlorides and, whilst this would not prove to be injurious, a further washing of the concrete background in running water would seem to be desirable. However, the water in its present condition is satisfactory and would support plant and fish life.



# In and Around the Aquaria World

— By W. J. Page —

ON behalf of the proprietors and staff of WATER LIFE I wish all readers a merry Christmas and a happy and prosperous New Year. The accompanying cartoon catches the spirit of the season well, not that I can honestly recommend aquarists who are total abstainers to resort to such measures. A regrettable waste, even if fish do have a sty liking for an occasional tonic. Speaking with less levity, I hope that in 1954 each and every fish breeder will enjoy a record season with his stock and that our societies will be able to report a bumper membership.

**DISCUSSING** Mr. Affleck's article on Bubble-eyes (WATER LIFE August issue, pp. 197-8) at a recent Goldfish Society meeting, one member said he remembered a photograph of similar fish being reproduced in WATER LIFE before the war. I think that some confusion has arisen here; the picture referred to was no doubt that which appeared in the January 17, 1939 issue showing, face-on, a typical Celestial. Comparison between figures 42 and 45 in the August issue will show clearly the difference between the eyes and surrounding areas of the two distinct types.

I SUPPOSE that, if there are such things as ghosts, there is no reason why they shouldn't have their fun at night in a public aquarium as anywhere else. Assuming that they do exist, the story on page 325 about the ghost of Dudley Zoo Aquarium is credible, if eerie. The Zoological Society's gardens are in the grounds of Dudley Castle and the aquarium is in a crypt under the site of the castle chapel.



Mr. D. H. S. Risdon.

Mr. D. H. S. Risdon, who writes the letter, is well-known in the livestock world. He is an experienced aviculturist and was for some years associated with the Keston Foreign Bird Farm in which the late Duke of Bedford (then Marquess of Tavistock) was interested. A Flight Lieutenant in the R.A.F. during the war, Mr. Risdon is a good administrator as well as a successful keeper of animals, birds and fish. It is reassuring to know that his expressed fears about future nocturnal visits to the aquarium are only half-hearted.

THE decision to stage a special challenge class at the forthcoming WATER LIFE exhibition gives clubs the opportunity to show how near they can get to the Federation of British Aquatic Society's ideals for Platies, Mollies or Swordtails. Each competing club is permitted to stage one entry of a true pair of livebearers (excluding Guppies) for which there is a recognised

standard, thus paving the way for exhibits representing all recognised varieties of three of the most popular Genera of tropicals kept by aquarists today.

It is believed that there will be a good response to this innovation and if clubs deciding to participate go about it in the right way some truly excellent fish should be on view. There is ample time to send in an entry and still more time to decide which pair of eligible fishes from amongst those owned by members of the club shall challenge the best of other societies. Between now and when the final selection



“YIPPEE!—A YEETOTALLER!!”

is made one or more table shows can be held and, by mutual consent, the male and female Platy, Mollie or Swordtail considered most likely to win, selected. To make up the best possible pair clubs are not barred from entering a male owned by one member and a female owned by another.

Points to take into account when choosing the two fish are that the standards allow a generous allocation of marks for matching, excellence of colour earns useful points, the sizes given in the F.B.A.S. Handbook are the minima and good condition and deportment can make all the difference in the position gained, other things being equal. It should also be remembered that exhibits worthy of good average marks for each of the characteristics listed in the scales of points will always beat others outstanding for one or two, such as body and condition, but failing in others, e.g., colour and finnage.

The fish, as all know, are each judged to a maximum 100 points and some judges have been known to express off-the-record surprise that the final placing differs from their initial visual assessments, only to

confirm their placings when re-checking the markings. How often, we wonder, have arguments over awards at shows been caused by the disputants being carried away by, for example, colour or mere size, not taking into due account the fish's merits and demerits in other respects? It is the recognition of all the points of a fish, good or bad, that makes a reliable judgment.

AT the invitation of the F.B.A.S. Council, I went along to a recent General Assembly to give a talk. Before my place on the lengthy agenda was reached I was entertained by a number of lively debates. The delegates welcomed back Mr. A. Fraser-Brunner who had been away in the Red Sea area for some time. He expects to be a member of another expedition sponsored by one of the U.N. organisations early in the New Year.

The treasurer had asked permission to leave early to attend another meeting and gave, in consequence, a brief but concise report on the financial position. Some might have thought that his sudden, if not dramatic departure usurped the powers of the imperturbable Mr. T. E. Butt, who was in the chair, had they not been aware of Mr. Baylis' strong personality. Certainly it had the effect of shortening the time a representative of Croydon A.S. had to raise a question on his club's position in the Federation and its payment of alleged overdue subscriptions. The delegate in question, who is treasurer of a South London group of clubs, stood his ground and raised the matter again under "Any Other Business". Slightly ruffled feelings after the exit of the treasurer were neatly smoothed down by Mr. J. H. Glenn.

Later, robbed of a number of chairs wanted for another meeting, we were able to see some of the big names in the hobby precariously perched for the rest of the meeting on two-or-three-high kneelers. Mrs. Edwards, wife of J.E.E., a Council member, readily assumed a low but not lowly position on one of them but it appeared that Russell Holland and others were braving out an inconvenience; they seemed a little uncertain where their centre of gravity was for the rest of the afternoon.

Some ladies being present, we wondered what was coming when Henry White, president of the affiliated Federation of Guppy Breeders Societies, arose and asked permission to speak about the B judges. Our minds were put at rest when he



Mr. H. Russell Holland, an F.B.A.S. official.

explained that his complaint was over the little war being made of Grade B adjudicators on the Federation's panel. I can sympathise with his point of view, but am not sure of the solution. Mr. White's own view is that the category should be abolished altogether, basing his contention on the fact that an individual either is or is not qualified to be a judge. Others will echo that sentiment.

At the beginning of the meeting Mr. Fraser-Brunner, speaking in response to the chairman's welcome, unwittingly stole some of my thunder, choosing to remark on the same subject—the development of the hobby and its present-day position—for





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Already the den has been visited on Sunday afternoons by A.S.L.A.S. clubs. It seems that it is going to be a well-known rendezvous where, in suitably secluded surroundings, much of what goes on in aquarists' circles is going to be discussed, debated and, perhaps, in some instances, decided. Who said there was no underground movement in the fish world?

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## AQUATIC PRESS TOPICS

Show Standards or Science *Ad Nauseam*

**PROVOCATIVE** words on tropical fish show standards come from the pen of Dr. G. S. Myers in the September issue of *AQUARIUM JOURNAL* (U.S.). He, as editor of the *Journal*, prints an article on British show standards from G. P. Burwell (Leicester) before making his own comments. He writes that "the article . . . brings to mind some serious objections I have long held in regard to rigid show standards for many species". Dr. Myers takes as an example *Mollinia sphenops* with its many geographical sub-species. Telling that the F.B.A.S. show standard booklet describes ideal body and fin characteristics and adult size, he goes on "It is quite possible that these standards are excellent for the particular sub-species or local race or races of *sphenops* from which the stock present in British aquariums was derived—the stock that happened to be familiar to those persons who drew up these standards. But what happens if some poor devil of an exhibitor comes along with first-class stock of another sub-species or race of *sphenops*? . . . it is entirely possible that fifteen or twenty different stocks of *sphenops* will be brought

Reviewed by —

L. W. Ashdown

in during the next few years . . . Many will not conform to the standards. . . The same standards cannot serve for all of these." Dr. Myers speculates that the reply will be that more standards can be added as each type appears and only a few species will cause trouble anyway. This he refutes for differing geographical races of Tetras have already caused confusion in the United States. He continues "Judges do not know what they are judging, in many instances." Phew! that should make a few fanciers sit up, but Dr. Myers goes further. "No set of show standards can keep up with a situation like this unless the standards gradually become as complicated as a major ichthyological treatise. . . . No aquarium fish judge I know is equipped to deal with the situation and no panel of aquarists bent on setting up show standards is likely to have the foggiest notion of the true nature of the problem. It is for this reason that I feel that attempting to present rigid standards (with illustrations) for tropical fishes is like pursuing a will-o'-the-wisp. It is an illusory occupation. Only in species in which well-defined artificially produced fancy breeds are developed is it worthwhile to set up real show standards. The breeders can at least get together and decide on what fancy varieties they are breeding. But when standards committees and judges attempt to reduce the complexities of fish classification to a judging chart they are far beyond their depth, and their decisions become ridiculous."

## Observations on Dr. Myer's Views

Some of the scientific authority possessed by the author tends just a little to authoritarianism in these closing paragraphs. We in the hobby look to the scientist for guidance but it is fallacious to imagine that ours is an entirely scientific pastime. In this country, at least, we regard it as a livestock fancy—perhaps somewhat more scientifically inclined than

others—but still a fancy. Accordingly we have the same show-conscious approach as other livestock pursuits with a heavy emphasis on pedigree, line-breeding, standard ideals, etc. Compared with birds, rabbits, poultry, dogs, etc., our hobby is young and it is only within the last twenty years that we have been formulating show standards. Primarily these have been for Goldfish and Guppy varieties which apparently escape Dr. Myers' condemnation. Now can Dr. Myers' purely scientific viewpoint hold water for other species of fish? In many cases I think not. Where a species is particularly popular—such as the Fighter—over a period of years specimens will be developed that are infinitely superior from the show point of view to newly-imported stock. Except for interest, the latter will then be of very little value. The same

This specimen of Glass Catfish appears to be *Kryptopterus macrocephalus* rather than *K. bicirrhus*, according to the description of Meinken. Mottled colouring on the back is blue and there are two lateral black stripes, the upper one thinner. In addition, a black line runs along the base of the anal. Photograph, G. J. M. Timmerman.



would apply to *M. sphenops*. What aquarist would swap a 95-point black Mollie for "a geographical sub-species" which bore no relation to his prize strain? A narrow approach? Agreed, but it seems to be in the Britisher's make-up to specialise in his livestock breeding—after all, would the owner of a £200 budgerigar look twice at an Australian wild specimen? Of course not. Let us in defence of this policy point out that few, if any, other countries hold the reputation for pedigree stock held by our own.

Now it seems time to come to a compromise. The popular species capable of development are pure fancier's stuff and in a different category from other stock. Species not often seen and rarely bred are comparable to foreign birds (excluding Budgies, Canaries and Zebra Finches) of the cage bird world. All that we can do for them is to offer a broadly outlined standard with body (20 points), fins (20), size (20), colour (20) and condition and deportment (20), leaving it to the experienced judge to sift out the good 'un. In this section there might be room for the varieties, sub-species, colour variations of specifically standardised fish but unless they had something outstanding to offer it is doubtful whether they would attract much attention.

It is interesting to speculate which main road the hobby will take, the fancier's highway or the supremely scientific path advocated by Dr. Myers. Knowing a little of the development of other livestock hobbies, I'd plump for the former—but only in Great Britain. Here I believe that

in the not too distant future we shall have an extensive export trade in pedigree fish—just to underline that our approach was not quite so shallow after all.

**A** CHANCE inspection of some Glass Catfish soon after writing the notes which appeared in the last issue tends to confirm the "two species" idea advocated there, for these particular specimens very closely resembled the Meinken description for *Kryptopterus macrocephalus*.

## From Continental Journals

Breeding Behaviour of a *Tilapia* Species

**T**HE interesting breeding habits of a large Mouthbreeder are described by Valentin Bohrer in the November issue of *DIE AQUARIEN-UND TERRARIEN ZEITSCHRIFT* (DATZ.) The fish is referred to as *Tilapia natalensis* and the German author gives an account of the quite extraordinary breeding habits of this Cichlid which, in its breeding colours—black body, white throat and vivid red of dorsal and caudal fins—must make a lovely sight.

When ready to breed, the male fish dug a fairly big pit, some 4 in. across and 1½ in. deep, and cleaned it very carefully. After some chasing by the male, the female went right down into the hole and laid some 30 eggs. She then turned round quickly and picked them all up in her mouth before the male could fertilise them. The male then deposited his milt in the pit, which was also picked up by the female and fertilisation was effected in

her mouth by chewing for about four minutes. Then she laid another batch of eggs in the pit and picked these up in her mouth. She proceeded to suck the milt straight from the male fish and fertilised the second batch in her mouth. This strange procedure was repeated four times when the female, with approximately 120 eggs in her mouth, withdrew between the rocks. After two days the male started chasing the female wildly and Mr. Bohrer tried to net her, a procedure which took him considerable time and trouble in his big furnished community tank. When he finally succeeded in separating the female she was still holding the eggs in her mouth. The fry hatched on the thirteenth day. The young fish were relatively large and therefore easily fed on sifted livefood. For some weeks they still returned to their mother's mouth at any sign of danger.



## National Exhibition of Cage Birds and Aquaria

January 7, 8 and 9, 1954 — Olympia, London, W.14

Schedules being sent to all Clubs and known Exhibitors

A RECORD entry is expected for the bird section at the National Exhibition of Cage Birds and Aquaria. In addition to large classes for canaries, budgerigars and British birds there will be many beautiful and rare foreign species. The aquaria section, promoted by WATER LIFE, will be devoted to interclub, individual, and junior classes for furnished aquaria, a special challenge class (with a judging competition for visitors) and displays by the Goldfish Society of Great Britain, the Federation of British Aquatic Societies, the Federation of Guppy Breeders' Societies, and the London Branch of the British Herpetological Society.

The Goldfish Society will again present a range of tanks telling, in sequence, the development of exhibition types. It is the intention of the Federation of Guppy Breeders' Societies to stage, on a competitive basis, furnished aquaria containing breeders' teams and the London Branch of the Herpetological Society will make as representative a display as possible for the time of the year. A novel, instructive exhibit is planned by the Federation of British Aquatic Societies.

Clubs and individual exhibitors still have time to enter for the competitive classes for which numerous prizes are offered. These include WATER LIFE Trophy, for the best interclub furnished aquarium, Awards of Merit for first prizewinners, with WATER LIFE Diplomas to runners-up and prizewards. Cash awards are £2.2.0, £1.1.0, and 10.6d. in club classes and £1.1.0, 10.6d. and 5.0d. in individual and junior classes.

The section will be stewarded by experienced aquarists from societies in the London area and the awards will be made by qualified judges on the F.B.A.S. panel. If you or your club wish to enter and have not yet received the schedule, write for a copy now. Entries close first post on December 11.

The exhibition will be open at the following times: Thursday, 2.30 to 9 p.m.; Friday, 10 a.m. to 9 p.m.; Saturday, 10 a.m. to 8 p.m. Admission to the show is 2/6; children under 14, half price. Three-day season tickets cost 5/-. Tickets are obtainable at the turnstiles or in advance from the Show Manager, Dorset House, Stamford Street, London, S.E.1.

The National Hall at Olympia, in which the

exhibition will be staged, is entered from Hammermith Road. Exhibitors are asked to use Gate D, Door No. 3, when staging their exhibits. The hall is easily accessible from all parts of London, buses connecting with the main line railway termini and with Underground stations at Earls Court, Kensington High Street and Hammermith.

This is the event at which teams for clubs and individual aquarists vie with each other to set up tanks with their full complement of fish, plants, rockwork and compost. The high standard reached gives results which it is hard to imagine have not been built up over a matter of weeks or even months instead of a few hours.

The aquaria section, complete in itself, is nevertheless a popular feature of the National Exhibition to the thousands of bird fanciers who attend as well as the large number of members of the lay public. A visit by aquarists is well worth while. Support by exhibitors gives them the opportunity to be represented at the last big event of the fishkeeper's year. Make a visit to WATER LIFE show a "must" in your diary and meet there the leading lights of the hobby.

### News from the North-west

#### Maintaining Interest in Aquarists' Societies

THE Warrington Aquarist Society, which held its first annual exhibition of tropical and coldwater fish on October 31 with 200 entries in 19 classes, is still one of Lancashire's young societies—barely 15 months old. The only society in its district, it draws members from a 15-mile radius, from "Mike" who must not miss his last train to Cadishead to Jim Bowler (the treasurer) riding in what he calls his "Lizzie" from Penketh. The chairman, Mr. E. Palmer, makes that happy link between aquarist and angler, for in Warrington is a great angling community. From the big U.S.A.F. base nearby at Burtonwood, Sgt. Gossett brings an American flavour to the meetings when he measures a tank with a "yeah, by yeah, by yeah." Last, but not least, there is Mr. D. Shepherd, the hard-working secretary, who calls himself the owl of the society because he often works hard into the night to make its meetings so successful.

#### Joint Subscriptions

The Chester Aquarist Society, which I have mentioned previously, recently had its third birthday with about fifty members present. The society encourages members to bring their wives along to meetings, a very successful idea which a reduced joint annual subscription makes possible. Monthly meetings at the Old Dee Bridge Café consist mainly of talks by local fish breeders, with an occasional table show. President is the director-secretary of the local Zoo and this winter's programme includes a lecture by him and another from the Zoo's vet.

However, not all societies are so fortunate as Chester and Belle Vue in having a zoo with which to link so happily. The problems of keeping a society going over the years are not always easy just because the town is a big one. Consider the experience of one of the North-west's veteran aquarists, Mr. Frank Williams, a member of the Liverpool City treasury staff and formerly President of the Liverpool & District Aquarium Society which disbanded some years ago. Mr. Williams was one of the pioneer founders of the original Merseyside (Wallasey) Aquarium Society of 1926-36. He began keeping Goldfish at the age of seven, and graduated through frog-keeping and fishing for his stock to making his first real tank out of the angle-irons

of some old bedsteads (I wondered where the old Cliff Aquarium at New Brighton got that idea!)

In 1925 he constructed a tropical tank for Zebra Fish, heated by means of a small gas jet. With Bateman's "Freshwater Aquaria" and Furneaux's classic "Life in Ponds and Streams," he began his bookshelf. By 1932 he had bred Guppies, Swordtails and Platies. In half-a-dozen tanks, very effectively heated by oil lamps, in a greenhouse, Paradise Fish and Blue Gouramis bred for him after the initial failures when he forgot to allow for the sun overheating the place in the daytime.

From the late Mr. Felix Kuhn, a well-known Merseyside fish-breeder of that period, he obtained two Moors and two Veiltails at 2/6d. each—fished out of a tank containing dozens of the same size—and pairs they proved to be, for they subsequently bred. I still possess my invitation card and souvenir serviette from the day I first met Mr. Williams, at the reception following the public opening of the old New Brighton Cliff Aquarium, in 1932.

After the war, Mr. Williams began all over again, sweeping some Guppies for Swordtails in the local gas company's show tank. He started the Merseyside Aquarists. The post-war aquarist hobby boomed but now Mr. Williams asks me if all this post-war rush to the hobby was merely a passing craze? It is disheartening to see clubs one had founded dissolve, and to find people who took up the hobby with enthusiasm let it drop. But I think these disappointments are not peculiar to aquarium societies. All amateur societies with which I have been connected have a large transient membership. Mr. Williams thinks it is not sufficient to keep and breed fish, the study of pond life broadens the interest. "A man may with some truth say 'I know all about fish breeding,'" he pointed out, adding, "but I have yet to meet one who knows all about a pond."

Finally, this problem of why clubs which flourish for a time pass out of existence. Mr. Williams thinks the hobby has been made too easy with tanks ready made and gadgets galore, and that some people entered fish-breeding with false hopes of making money. The difficulty of meeting the wishes of both beginners and experts is also a stumbling block. Mr. Williams found

### — by "Aquaticus"

that a technical lecture which pleased the experts was above the heads of the beginners; a pond life lecture often bored fishkeepers; and simple talks wasted the expert's time. Not all societies, of course, are big enough to have a beginners' section. So, although his societies floundered, he still continues in the hope of meeting people interested in pond life as well as in fish. I am rather surprised to learn that he got some small Bitterling from a local canal and, with the aid of a swan mussel, had a nice hatch of youngsters. Who put them in the canal, for Bitterling are not native to Britain?

Taking up Mr. Williams' theme of pond-hunting for fishkeepers, the problem is sometimes to find interesting waters; there is so much industrial pollution. However, one day this Autumn I visited the Old Quay Canal at Lapwing Lane Bridge, Moore, on the edge of Warrington, and found it thick with *Daphnia*, and a Warrington fishkeeper netting them out by the jarful. Chester aquarists have a good water at Mollington Canal; Wrexham aquarists in the Llangollen Canal.

#### Mere Preservation

Some very interesting Cheshire waters were included in the places of scientific and natural interest recently recommended to the Cheshire County Council by the Nature Conservancy for preservation under Section 23 of the National Parks Act. They include the very deep Rostherne Mere near Altrincham, which is different from other English lakes as it has a phytoplankton more like that of Lough Neagh or certain calcareous Danish Lakes, as well as once possessing the only land-locked freshwater smelt in this country. Also there is Oakmere, in the Delamere country, where the Royal Ferns grow and such plants as the rare watergrass *Calamagrostis neglecta* in the reed-bed (it grows in only about five botanical vice-counties), and *Carex echinata*, a rare Sedge.

#### Thameside Tropicals Extension

A NEW aquatic nursery built by Thameside Tropicals was officially opened on November 22 by Mr. McDonald Hobley, the well-known B.B.C. chief T.V. announcer. The extension to the premises at Shepperton provides facilities for breeding tropicals on a large scale and for displaying the fish under excellent conditions. Clubs are invited to visit the nursery, the full address of which is Thames Cottage, Hallford Bend, Shepperton, Middlesex.



## SHOW REPORTS

## Largest-ever Show of Guppies Staged in London

Nine Guppy Federation Sections Compete for Sixteen Trophies

ALMOST 700 Guppies comprising nearly 500 entries made the 1953 Annual Cup Competition of the Federation of Guppy Breeders' Societies the largest show of Guppies ever staged. It was held in St. Martin's School of Art, Charing Cross Road, London, on September 19. Good stock now seems more evenly distributed throughout the country and only four trophies were retained by Sections previously holding them, the remaining twelve cups being well distributed among the nine Sections taking part.

One third of the first prizes went to the E. Midlands Section and they also took three second and three third awards apart from six cups. Enthusiasts from Gloucester and Cheltenham, still feeling the effect of some losses at Manchester, did well to take first and second places in the largest (51-strong) class, which was for Bottomsword Males. Newly-formed N.E. Lancs. Section took first in the Female Breeders' class. The response from provincial members was a little disappointing, but four of them managed to get second or third prizes. They were Mr. R. J. Tye (second in the Scarftail Male class and third in the class for Bottomsword Males), Mr. A. L. Judge (with a third among the Coloured Females), Mr. W. J. Smith, who obtained a third prize in the Male Breeders' class, and Mr. A. Taylor who came second in the Female Breeders' class.

E. Counties did exceptionally well with seven first awards in individual fish classes, also a first in the inter-section furnished aquaria and the Brosiam

Cup for the best breeders' achievement. Mr. B. Layzell, of this Section, showed the best fish in show, a Doublesword, and Mr. D. Johnson, also an Eastern Counties man, took the award for best female fish. North London members were second among metropolitan and Home Counties sections with two firsts, three seconds and three third awards. Three seconds came the way of the W. Londoners, but the only place in the first three for S. London was a second in the Roundtail class. Awards in the open classes were shared among five exhibitors, Messrs. G. Seingier, R. G. Mealand, F. L. Cooper, F. Darrieulah and G. Boyles. Messrs. H. S. White and W. Howe are to be commended on their organisation. Along the sides of the hall were large coloured diagrams, breeding charts, location maps and information on the show standards. The F.G.B.S. enquiry stand was manned by Mr. E. S. Roach. In front of the stage (where the trophies were displayed) the furnished aquaria were positioned with the two main lines of exhibits running down the length of the hall. A separate table accommodated the main prizewinning fish.

## PRIZEWINNERS

(E.C., indicates Eastern Counties Section member; E.M., East Midlands Section member; C. & G., Cheltenham and Gloucester Section member; N.E., North-east Lancs. Section member; N.L., North London Section member; S.L., South London Section member; W.L., West London Section member; PROV., provincial member.)

COFERTAIL MALES (37): 1 (85), A. Maher (C. & G.); 2 (85), G. E. Tansley (E.C.); 3 (72), C. Farmer (E.C.). ROBSON MALES (11): 1 (86), C. Farmer (E.C.); 2 (82), A. P. Stanley (W.L.). ROUNDTAIL MALES (13): 1 (65), E. L. Matthews (E.M.); 2 (64), H. Pearson (S.L.); 3 (63), R. A. Foster (W.L.). SPEARTAIL MALES (15): 1 (66), W. R. Burwell



Mr. H. S. White, the F.G.B.S. President.

(E.M.); 2 (65), E. S. Lloyd (N.L.); 3 (63), H. Esterbrook (E.M.). PINTAIL MALES (8): 1 (81), W. R. Burwell; 2 (73), H. Esterbrook; 3 (71), E. L. Matthews. All E.M. SCARFTAIL MALES (30): 1 (82), E. S. Lloyd (N.L.); 2 (79), R. J. Tye (PROV.); 3 (78), G. W. Kingston (N.L.). LYRETAIL MALES (17): 1 (80), C. R. Looker (E.C.); 2 (78), G. E. Tansley (E.C.); 3 (77), G. F. Burfoot (N.L.). DOUBLESWORD MALES (47): 1 (89), W. G. Layzell (E.C.); 2 (89), A. R. Wooding (W.L.); 3 (88), W. G. Leak (E.C.). VEILTAL MALES (40): 1 (85), C. Farmer; 2 (81), and 3 (80), G. E. Tansley. Both E.C. BOTTOMSWORD MALES (51): 1 (87), F. W. Humpidge (C. & G.); 2 (85), J. Manwaring (C. & G.); 3 (83), R. J. Tye (PROV.). TOPSWORD MALES (17): 1 (70), J. H. Slack (E.M.); 2 (68), G. F. Burfoot (N.L.); 3 (66), W. R. Burwell (E.M.). GREY FEMALES (25): 1 (84), J. H. Slack (E.M.); 2 (79), E. L. Matthews (E.M.); 3 (78), Mrs. L. C. Holloway (E.C.). GOLD FEMALES (22): 1 (74), R. J. Affleck (N.L.); 2 (72), P. C. Pavitt (W.L.); 3 (62), A. J. Holloway (E.C.). GOLD-LACED FEMALES (11): 1 (83) and 3 (80), D. Johnson; 2 (81), A. J. Holloway. Both E.C. ROBSON FEMALES (5): 1 (79), W. R. Burwell (E.M.); 2 (78), C. Farmer (E.C.). COLOURED FEMALES (38): 1 (81) and 2 (80), D. Johnson (E.C.); 3 (72), A. L. Judge (PROV.). BREEDERS' MALES (27): 1 (80), C. Farmer (E.C.); 2 (78), A. G. Kendall (N.L.); 3 (65), W. J. Smith (PROV.). BREEDERS' FEMALES (17): 1 (80), R. Rawlinson (N.E.); 2 (71), A. Taylor (PROV.); 3 (65), C. Farmer (E.C.). INTER-SECTION FURN. AQUARIA (6): 1, Eastern Counties; 2, N. London; 3, N.E. Lancs.

## OPEN CLASSES

COFER-, SPEAR-, ROUND- AND PINTAIL AND ROBSON MALES (6): 1 and 2, G. Seingier; 3, R. G. Mealand. SCARF- AND VEILTAL MALES (13): 1, R. G. Mealand; 2 and 3, F. L. Cooper. A.V. SWORDTAIL MALE (2): 1, G. Seingier; 2, R. G. Mealand. A.V. FEMALE (9): 1, F. L. Cooper; 2, R. G. Mealand; 3, G. Seingier. BREEDERS' MALES (6): 1 and 2, F. Darrieulah; 3, G. Boyles; BREEDERS' FEMALES (3): 1, G. Seingier; 2, G. Boyles; 3, F. Darrieulah.

## Strong Guppy and Cichlid Classes at Romford

THE third annual open show of tropical fish staged at Romford A.S. attracted an appreciable entry especially of Cichlids and good-quality Guppies. The interclub furnished aquaria class was poorly supported, however. Held in the Romford Y.M.C.A., a feature this year was the improved layout due to the purchase of 200 new show tanks and the provision of up-to-date lighting. Special prizes went to Mr. L. Land, who won a WATER LIFE Diploma with his Blue Acara which was adjudged best fish in the show, Mr. F. Ahrens for the best furnished aquaria, Master C. Speller for best junior furnished aquaria and Mr. D. R. Butler for the best breeders' entry. The show was well attended and received very favourable comment in the local press. The judge was Mr. C. J. Saunders, B.Sc.

## PRIZEWINNERS

INTER-CLUB FURN. AQUARIA (2): 1, Hornchurch & District Aquarium Society; 2, Romford A.S. INDIVID. TROP. FURN. AQUARIA (4): 1, F. Ahrens; 2, H. Lowther; 3, A. E. Falkus. JUNIOR TROP. FURN. AQUARIA (4): 1, C. Speller; 2, D. Fleming; 3, C. Ahrens. SCARF- OR VEILTAL GUPPIES (11): 1, 2 and 3, C. Farmer (two Scarftails, one Veiltail). A.O.V. MALE GUPPY (16): 1, F. Ahrens (Doublesword); 2, W. G. Leak (Doublesword); 3, C. Farmer (Robson). FEMALE GUPPIES (12): 1, D. Johnson (Gold-laced); 2, A. E. Falkus (Coloured); 3, R. D. Morgans (Coloured). MOLLIES (10): 1, C. Speller; 2 and 3, C. W. Harrison. PLATIES & SWORDS (12): 1, A. L. Collins (Tuxedo Platy); 2, J. F. Royce (Sword); 3, H. G. Rundle (Festival Platy). BARBS (20): 1 and 2, W. E. Gawler (Clown and Tiger); 3, D. R. Butler (Rosy). DANIOS, RASBORAS & MINNOWS (7): 1 and 2, R. D. Morgans (Harlequin and Pearl Danio); 3, E. D. Thompson (Giant Danio). CHARACINS (15): 1, F. Ahrens (*H. serpe*); 2, A. E. Falkus (Penguin

Fish); 3, R. D. Morgans (*H. rosaceus*). MALE FIGHTERS (12): 1, F. R. H. Bird; 2 and 3, H. G. Rundle. A.O.S. LABYRINTH (11): 1, D. Brown (Dwarf Gourami); 2 and 3, H. H. J. Cribb (Pearl and Thick-tipped Gouramies). DWARF CICHLIDS (1): 1, A. E. Falkus (*Pelmatochromis*); 2 and 3, F. Ahrens (*A. ramirezi* and Orange Chromide). A.O.S. CICHLID (14): 1, L. A. Land (Blue Acara); 2, Mrs. M. Sweetenham (Jack Dempsey); 3, F. Ahrens (*A. porteri*). CATFISH (7): 1, F. Ahrens (*C. myersi*); 2, G. Bunton (*C. paleatus*); 3, R. D. Morgans

(*C. annus*). A.O.S. TROP. FISH (10): 1, F. Ahrens (Lyretail); 2, A. E. Falkus (Lyretail); 3, L. A. Land (*Aplocheilichthys lineatus*). BREEDERS' LABYRINTH (4): 1, A. E. Falkus (Dwarf Gouramies); 2, H. G. Rundle (Fighters); 3, E. D. Thompson (Three-spot Gouramies). BREEDERS' A.O.S. EGG-LAYERS (10): 1, D. R. Butler (*H. rosaceus*); 2, F. Ahrens (*Cichlasoma* species); 3, W. B. Johnson (Black Widows). BREEDERS' LIVEBEARERS (5): 1, H. Law (Yellow Wagtails); 2, A. E. Falkus (Black Mollies); 3, C. Speller (Red Platies). PLANTS (11): 1 and 2, F. Ahrens (Amazon Sword and Indian Fern); 3, G. A. Carter (Amazon Sword).

## Recognition Given for Show Secretary's Untiring Efforts

Southampton Society Makes Presentation at Close of Annual Show

SOUTHAMPTON A.S. staged its fourth annual show in September and on this occasion there was a 247 entry and an attendance of over 3,000. The Mayor of Southampton (Alderman Mrs. V. F. King, J.P.) performed the opening ceremony and Mr. R. J. Stranger, C.B.E., President, handed out the prizes on the last of the three days. Mr. Stranger also presented Show Secretary E. C. Goleworthy with a table lighter in appreciation of the work done by him for the society. Judging the exhibits were Messrs. C. W. G. Creed and B. Meadows. Best fish in show and winner of a WATER LIFE Diploma was a *Geophagus brasiliensis* shown by Mr. P. L. Burden, whilst another WATER LIFE Diploma went to Mr. H. Gilbert, whose Fantail was adjudged best coldwater fish.

CLUB FURN. AQUARIA: 1, Southampton A.S.; 2, Portsmouth A.C.; 3, Winchester City Aquarists. INDIVID. TROP. FURN. AQUARIA: 1, Dr. R. C. C. Clay; 2, Mrs. W. J. Smith; 3, W. J. Smith. INDIVID. COLDW. FURN. AQUARIA: 1, H. Gilbert; 2, R. Lewin; 3, Mrs. H. J. Gilbert. GUPPIES: 1, Dr. R. C. C. Clay; 2, C. G. Woodward; 3, J. Robinson.

SWORDS: 1, 2 and 3, J. A. Cheyne. MOLLIES: 1, C. G. Woodward; 2, H. G. Rundle; 3, E. C. Goleworthy. PLATIES: 1 and 2, E. C. Goleworthy; 3, W. J. Smith. BARBS: 1 and 3, J. A. Cheyne; 2, Mrs. H. J. Gilbert. DANIOS, WHITE CLOUDS AND RASBORAS: 1, L. Hawkins; 2, Mr. H. J. Gilbert; 3, K. G. Gray. FIGHTERS: 1 and 2, H. Russell-Holland; 3, H. G. Rundle. CHARACINS: 1 and 2, A. S. Long; 3, W. J. Smith. CICHLIDS: 1 and 3, P. L. Burden; 3, H. Howell. CATFISH: 1 and 2, Dr. R. C. C. Clay; 3, L. Hawkins. A.O.S. TROP.: 1, R. Lewin. BREEDERS' LIVEBEARERS: 1, J. Robinson; 2, R. V. Fish; 3, H. G. Rundle. BREEDERS' EGG-LAYERS: 1, J. Robinson; 2, Mrs. H. J. Gilbert; 3, E. C. Goleworthy. COMMON GOLDF. AND COMETS: 1 and 2, J. A. Cheyne; 3, H. Gilbert. SHUBUNKINS: 1 and 2, D. Paul; 3, H. G. Rundle. FANTAILS: 1, H. Gilbert; 2, E. L. Knight; 3, D. Paul. A.O.V. GOLDF.: 1 and 2, D. Paul; 3, W. Angel. A.O.V. COLDW.: 1, J. A. Cheyne; 2, R. V. Fish; 3, L. Hawkins. BREEDERS' COLDW.: 1 and 2, D. Paul, PLANTS: 1 and 2, E. C. Goleworthy; 3, R. V. Fish.



## Innovations at East London's Twelfth Annual Show

### Close Competition in Many Classes—Tooth-carp Best Tropical Fish

THE proven standard pattern of E. London A. & P.A. annual exhibitions was not strictly followed for the 1953 event. For one thing the catalogue had a more modern appearance, for another, flowers bedecked the show hall. In addition more classes were shown in pairs and illustrated lectures were given during the Friday and Saturday. From an overall viewpoint all these innovations spell improvement. As last year the show was of three days duration in the spacious St. Margaret's Hall, Barking, with judging taking place the evening prior to opening. It seemed strange to be visiting the E. London "annual" late in the show season instead of near the beginning, but a September date enabled the breeders' show, usually a separate event, to be combined with the main show.

Opening the show was Mr. George Cansdale, Messrs. T. E. Hunt (show organiser) and F. A. Petto (show secretary), with their show committees, are to be congratulated on their arrangements. Judging were Messrs. C. W. G. Creed, S. Harker, R. G. Mead and H. Russell-Holland and C. J. Saunders, B.S. Vice-president A. Leutscher, B.Sc., staged an herpetological display and there was also a stand showing microscopic aquatic life. Mrs. R. H. Wood answered queries on the F.B.A.S. stand.

Few other societies could stage a show of quality fish such as this with all exhibits (excluding interclub furnished aquaria classes) coming from members. That the quality of the fish and plants has been consistently high in post-war events—this year was certainly no exception—speaks well for the strength of the society.

Leading the tropical club furnished aquaria was a tank of unusual design (77 points) with the bottom layer dipping away to the back. Plant positioning was really good. Plants were intelligently used in the first prize-winning cold-water club furnished aquarium (81). The layout was a little unusual but the grey bottom layer did not give quite the desirable contrast. This exhibit won the Coronation Trophy and a WATER LIFE Diploma for Bethnal Green.

#### LIVEBEARER CLASSES

An 88-point Doubleword Guppy led its class. It was a very good fish. A well-proportioned and coloured Cofertail (88) headed the class for Round, Cofertail, Spears, Pintails and Robsons. The leading Scartail (81) did not have the desirable caudal length. A particularly well-coloured fish led the Female Guppies but its dorsal and caudal could have been better shaped. A pair of Red Platies (164 points out of 200) were the best of their group. Colour and body depth were good but body shape could have been better. Blacks (162), good in every respect except that the dorsal was not too developed, won the Mollie class. Swordtails were a good average lot with Blacks (158) leading. The combination of body shape, finnage development and excellent colour put a pair of *Limia nigrofasciata* (158) well ahead among the A.O.S. Livebearers.

Black Widows took all the places in the class for this species and Buenos Aires Tetras. The leader (82) was large and had good colour density for its size. A very fine *Hypostobrycon nanae* (85) led the class for *H. serpa*, *H. nanae*, *H. scholzei*, etc. Among the A.O.S. Characins a Neon was first (80). It was a fine fish but a trifle small. Cherries took first three places among the Barbs. The leaders (88) were well matched and had good colour. Second prizewinners were coarser. In the Rasbora, Danio and White Cloud class a pair of White Clouds (81), showing fineness of body and good colour, were first. A really brilliant *A. ramirezi* headed the Cichlids (86)—colour was absolutely stunning. A very nearly faultless *Aplochelilus lineatus* (85) won the strong Egg-laying Tooth-carp class, and was adjudged best tropical fish. Second was a well coloured *Rivulus cylindrateus* (83). Of the eight entries in the *Corydoras paleatus* class a fish of fine colour and size, shown by Mr. Dowling, was first prizewinner (80). Among the A.O.S. Catfish a *Corydoras melanostictus* of excellent size was the winner with 83 points. The first prizewinners in the Fighter class were well ahead with 85 points. They were well matched Rads with fine finnage. The male's body was just a little dark and heavy. A quite exceptional Dwarf (90) was the best fish in the class for Dwarf

and Thick-lipped Gouramies. It had beautiful colour and markings. Another class of quality fish was that for A.O.S. Labyrinth. A Three-spot (83) of lovely colour density and fine condition was first.

Two quite good Common Goldfish were first and second in their class. The first prizewinner (76) had a better body contour. Shubunkins were not exceptional but the first prizewinner was well ahead with 64 points. Its caudal was narrow-forked. Winner of the Fancy Goldfish Cup was a good Fantail Moor with 69 points. A well-shaped Golden Orfe (80) came first among the A.V. Foreign Coldwater Fish.

An *Echinodorus radicans*, a superb plant of magnificent size and condition, led the Large Home-propagated Plant Class. It was awarded the Credo Cup. Well grown Twisted Vallisneria with not over exceptional twisting won the A.O.V. Plant Class.

In the breeders' classes the entries were judged on merit with the result that several first, second and other prize-cards were given in each class. This is permissible in a members' show where the prime aim is to give acknowledgments to the exhibitors' success as fish breeders. Five firsts were given in the Breeders' Livebearers. Mr. Campkin gained two with beautifully coloured *P. variatus* and demersy-coloured and well-conditioned *M. latipinna*. Another first went to Mr. Gibbons with some remarkably well-staced *M. sphenops*. Other first prizewinners were Mr. R. C. Dowling with well-coloured, nicely-matched but somewhat small Green Swords, and Mr. Law with Yellow Wagtail Platies, fine size and shape, but slight metallic colour of their bodies. Three firsts went to exhibitors in the Breeders' Frylayers. Pride of place went to a superb quartet of large and well-coloured Angels which won the Breeding Achievement Trophy and a WATER LIFE Diploma for Mr. Law. The other prizewinners were Mr. Arnold and Mr. Campkin with *Corydoras paleatus* and *Aprocheilichthys bivittatus*, respectively. Two firsts were awarded in the Breeders' Labyrinth. One to Mr. Johnson for his well-developed Leiris and another to Mr. Campkin for his evenly-grown and nicely-coloured Dwarf Gouramies. Mr. Petto won a first in the breeders' Goldfish class with well-grown Shubunkins which showed variable fin development.

CLUB TROP. FURN. AQUARIA (5): 1, Marble Arch A.S.; 2, Hornchurch & District Aquarium Society; 3, Bethnal Green A.S. CLUB COLDW. FURN. AQUARIA (4):

1, Bethnal Green A.S.; 2, Hendon A.S.; 3, Marble Arch A.S. SENIOR TROP. FURN. AQUARIA (1): 1, C. H. Welling. SENIOR COLDW. FURN. AQUARIA (2): 1, F. A. Petto; 2, A. G. Duckett. GUPPIES (TOP, BOTTOM, DOUBLESWORD AND LYRETAIL) (9): 1, W. J. Layzell; 2, W. Haddiss; 3, Mrs. B. L. Petto. ROUND, COFER, SPEAR, PINTAIL AND ROBSON (13): 1, 2 and 3, R. C. Dowling. VEIL AND SCARFTAIL (4): 1, R. C. Dowling; 2, W. C. Layzell; 3, C. R. Looker. FEMALE GUPPIES (21): 1, E. Smith; 2, A. J. Holloway; 3, R. C. Dowling. PLATIES (10): 1, P. S. Campkin; 2, H. Law; 3, A. E. Harding. MOLLIES (8): 1, A. E. Harding; 2, R. Johnson; 3, H. Law. SWORDS (15): 1, W. F. Hylton; 2 and 3, R. C. Dowling. A.O.S. LIVEBEARER (7): 1, C. H. Welling; 2, S. H. Bond; 3, A. J. Holloway. BLACK WIDOWS AND BUENOS AIRES TETRAS (9): 1 and 3, W. Haddiss; 2, R. C. Dowling. GLOWLIGHTS, BEACONS, NEONS AND FLAMES (17): 1, Mrs. L. C. Holloway; 2 and 3, R. C. Dowling. SERPÉ, ROSACEUS, SCHOLZEL, ETC. (17): 1, J. Gibson; 2, W. Haddiss; 3, H. J. Law. BARBS (13): 1 and 2, Mrs. L. C. Holloway; 3, C. H. Welling. RASBORAS, DANIOS AND WHITE CLOUDS (10): 1, P. S. Campkin; 2, A. G. Duckett; 3, W. Haddiss. CICHLIDS (11): 1, E. Arnold; 2, C. R. Looker; 3, R. Johnson. PANCHAX, RIVULUS, ETC. (10): 1, H. J. Law; 2, D. A. Spoor; 3, P. S. Campkin. CORYDORAS PALEATUS (8): 1, R. C. Dowling; 2, R. Johnson; 3, F. Arnold. A.O.S. CORYDORAS (6): 1, 2 and 3, F. Arnold. FIGHTERS (6): 1, H. J. Law; 2, J. Gibson; 3, W. J. Layzell. DWARF AND THICK-LIPPED GOURAMIES (4): 1, P. S. Campkin; 2, C. H. Welling; 3, R. Johnson. A.O.S. LABYRINTH (14): 1, C. R. Looker; 2, H. Law; 3, C. H. Welling. COMMON GOLDF. (11): 1, Miss C. Bomser; 2, F. A. Petto; 3, A. G. Duckett. SHUS (6): 1 and 3, F. A. Petto; 2, Miss C. Bomser. FANTAILS (7): 1, T. King; 2, A. G. Duckett; 3, Mrs. B. L. Petto. FOREIGN COLDW. (6): 1, A. G. Duckett; 2 and 3, A. J. Holloway. LARGE PLANTS (9): 1, F. Arnold; 2, F. D. Gill; 3, P. S. Campkin. SMALL PLANTS (21): 1 and 2, P. S. Campkin; 3, F. A. Petto. BREEDERS' LIVEBEARERS (22): 1 (2), P. S. Campkin; 1, R. C. Dowling; 1, H. J. Law; 2 (2), C. H. Welling; 2, J. Gibson; 2, H. J. Law; 3, C. R. Looker. BREEDERS' LABYRINTHS (4): 1, P. S. Campkin; 1, R. Johnson; 3, F. D. Gill; 3, A. E. Harding. BREEDERS' A.O.S. EGG-LAYER (23): 1, P. S. Campkin; 1, F. Arnold; 1, H. J. Law; 2, F. Arnold; 2 (2), H. J. Law; 3, P. S. Campkin; 3, F. Arnold; 3, J. Gibson. BREEDERS' GOLDF. (5): 1 and 2, F. A. Petto.

## Coventry's Well-supported First Public Exhibition



Some of the tropical furnished aquaria staged at the Coventry society's show.

COVENTRY P. & A.S. staged its first public aquaria exhibition recently. In the four competitive classes, judged by Messrs. W. L. Mandeville and T. L. Dodge, there were 95 entries. Bradbury Cup for the best fish in show went to Mr. H. Beecham with a Harlequin. Mr. S. Shorter's coldwater furnished aquarium, containing Shubunkins, was the best furnished tank and won the Hogarth Cup. Non-competitive exhibits at the three-day event were nine aquaria in which the history of the Goldfish was traced, four tanks containing herpetological specimens, a pond layout, a display of succulents

and jars containing livefoods and predators. COLDW. FURN. AQUARIA (9): 1 (67), S. Shorter; 2 and 3 (73 & 63), G. Glover. TROP. FURN. AQUARIA (23): 1 (71), G. Stone; 2 (70), C. J. Grant; 3 (69), Mrs. H. Court. TROP. FISH (43): 1 (81), H. Beecham (Harlequin); 2 (79), G. Bailey (*Aplochelilus lineatus*); 2 (79), L. Fullerton (Guppy); two thirds (77), R. G. Stock (Tiger Barb and *M. viliferus*); 3 (77), Mrs. H. Court (*M. sphenops*). COLDW. FISH (20): 1 (69), G. Glover; 2 (67), Mrs. C. Essam; 3 (63), Mrs. M. D. Bradbury. All Shubunkins.



## Kingston Wins Club Trophy at A.S.L.A.S. Show

SUPPORT from a wide area with high quality amongst the interclub and individual exhibits combined to make the second annual exhibition of the Association of South London Aquarist Societies a success. The venue at Sutton again permitted the organisers to lay out an attractive display and the only possible adverse criticism is that the hall is, perhaps, not quite big enough to do justice to the amount of support the Association is receiving. It is of interest to note that the judging was carried out by members of the A.S.L.A.S. panel, plus, in the Guppy Section, those recognised by the F.G.B.S., the standards accepted being those of the F.B.A.S.

This year, Kingston A.S. (72 pts.), again won the Association's interclub shield comfortably, though not with such a big margin as last time, Mitcham A.S. (54 pts.), being able to put down a good team. Other club points were:—Sutton & Cheam 31, N.S. Guppy Breeders 25, Study 24, Balham 20, S.L.A. 19, Croydon 17, Horley 16, Streatham 14, Sydenham & Penze and Wallington & Carshalton 11 each, Merion 9, Battersea 8, S.L. Guppy Breeders and Clapham 7 each, Friends and Wimbledon 6 each, Chelsea 5, Brixton and C.T.B.C. 4 each and Paces 2.

The prizewinners were as follows:—**CLUB FURN. AQUARIA (TROP.):** 1, Bental's Cup, S.L.A.; 2, Mitcham A.S.; 3, Sutton & Cheam

**A.S. CLUB FURN. AQUARIA (COLDW.):** 1, Coronation Cup, S.L.A.; 2, Croydon A.S.; 3, Study A.C. **INDIVID. FURN. AQUARIA (TROP.):** 1, J. E. Edwards Cup, P. Dec; 2, D. Huggatt; 3, Mrs. N. Lumley. **INDIVID. FURN. AQUARIA (COLDW.):** 1, G. O'Neill Cup, Mrs. A. Barber. **COMMON GOLDF:** 1, E. Ferris; 2, L. Ayres; 3, C. Minnette. **BRISTOL SHU.:** 1, E. Ferris; 2, K. D. Fawcett; 3, Mrs. A. Barber. **FANTAILS & COMETS:** 1, A. R. Prince; 2, K. D. Fawcett. **A.O.V. GOLDF.:** 1, E. T. Farrance; 2, A. R. Prince; 3, C. Minnette. **BRITISH COLDW.:** 1, Ron Gregory Cup, Mrs. A. Barber; 2, E. T. Farrance; 3, E. E. Young. **FOREIGN COLDW.:** 1, Mrs. A. Barber; 2, J. Penny; 3, A. Hoare. **GUPPIES, SCARF AND VEIL.:** 1, P. C. Pavitt; 2, H. E. Stratford; 3, A. E. Beck. **LYRE-AND-SWORDTAILS:** 1, H. Pearson; 2, E. Fletcher; 3, I. Lake. **A.O.V. MALE:** 1 and 2, P. C. Pavitt; 3, A. E. Beck. **GOLD AND GOLD-LACED FEMALE:** 1, P. C. Pavitt; 2, H. Pearson; 3, E. Fletcher. **A.V. COLOURED:** 1, P. C. Pavitt; 2, J. Sweeney; 3, M. T. Pavitt. **GREY:** 1, F. Cooper; 2, J. J. Ketchell; 3, P. C. Pavitt. **PLATIES AND A.O.S. LIVEBEARER:** 1, N. Hill; 2 and 3, F. West. **SWORDTAILS:** 1, D. Taylor; 2, F. West; 3, J. Honeywood. **MOLLIES:** 1, Wimbledon Trophy and 2, A. R. Prince; 3, H. F. Will-

shaw. **FIGHTERS:** 1, Mrs. E. Holmness; 2, F. West; 3, D. W. Huggatt. **DWARF GOURAMIES:** 1, R. Walford; 2, F. West; 3, J. Honeywood. **LEERI GOURAMIES:** 1, F. West; 2, W. Penn; 3, C. D. Stoker. **A.O.S. LABYRINTH:** 1, F. West; 2, A. E. Blum; 3, A. J. Mayhew. **DWARF CICHLIDS:** 1, K. D. Fawcett; 2, H. E. Stratford; 3, Mrs. G. Kimler. **CICHLIDS:** 1, Barry M. Austen Cup, best fish in show, S. Strelley; 2, C. Stoker; 3, J. Sweeney. **CATFISH:** 1, Billings Cup, D. A. Gregor; 2, D. E. Taylor; 3, A. R. Prince. **B. CUMINGI, ETC.:** 1, Mrs. N. Lumley; 2, R. H. Wright; 3, E. Cookson. **A.O.S. BARR:** 1, D. G. Stoker; 2, Mrs. N. Lumley; 3, J. E. Searle. **HYPHESOBRYCON OR HEMIGRAMMUS:** 1 and 2, F. West; 3, J. Sweeney. **A.O.S. CHARACIN:** 1, A. Wharford; 2, A. G. Hart; 3, F. West. **DANIOS:** 1, C. D. Stoker; 2, A. Saly; 3, D. Bellinger. **W.C.M.M. AND RASBORAS:** 1, F. West; 2, Mrs. E. Holmness; 3, F. W. Radford. **A.O.S. TROPIC GAL:** 1, A. Hoare; 2, Mrs. G. Kimler; 3, G. Alexander. **BREEDERS' LIVEBEARERS:** 1, F. West; 2, A. Rogers; 3, J. Sweeney. **BREEDERS' EGGLAYERS:** 1, Breeders' Circle Cup, F. West; 2, R. Walford; 3, D. E. Taylor. **BREEDERS' COLDW.:** 1 and 2, A. R. Prince; 3, H. R. Silvertown. **PLANTS (VALLISNERIA, ETC.):** 1, Peter Hewitt Cup and 3, K. D. Fawcett; 2, J. E. Searle. **A.O.S. PLANT:** 1, Mrs. E. Holmness; 2, J. E. Searle; 3, J. Sweeney.

## Over 400 Tanks Comprise Portsmouth Club's Effort

BOTH Messrs. C. W. G. Creed and C. J. Saunders, B.Sc., remarked on the high quality fish shown at the second annual show of Portsmouth A.C. when they judged the event. Some 420 tanks were staged. Mr. Jack Anthony, well known on stage and radio, opened the exhibition and Mr. Jack Froggatt, England international footballer, presented the prizes.

### PRIZEWINNERS

**COMMON GOLDF.:** 1, G. Brown; 2, F. Lush; 3, C. Whitehead. **SHUBUNKINS (BRISTOL):** 1, A. A. Cousins; 2, G. A. Johnson; 3, E. A. Jupp. **SHUBUNKINS (LONDON):** 1, J. Stoodley; 2, G. A. Johnson; 3, T. Sykes. **FANTAILS:** 1, T. Sykes; 2 and 3, C. Whitehead. **VEILTAILS:** 1, 2 and 3, C. Whitehead. **MOORS:** 1, Collins; 2, C. Whitehead; 3, G. Brown. **TELESCOPIC-EYED GOLDF.:** 1, J. Stanton; 2, C. Whitehead; 3, T. Sykes. **A.O.V. FANCY GOLDF.:** 1, 2 and 3, C. Whitehead. **RIVER OR POND FISH:** 1, E. A. Jupp; 2, T. Bennett; 3, J. Stillwell. **GUPPIES (MALE):** 1 and 2, J. Robinson; 3, A. V. Taylor. **GUPPIES (FEMALE):** 1 and 2, J. Robinson; 3, J. Heppell. **SWORDTAILS:** 1, T. Bennett; 2, A. V. Taylor; 3, Cooper. **PLATIES:** 1, W. E. Smith; 2 and 3, J. Stoodley. **MOLLIES:** 1, F. Lush; 2, G. Moore; 3, J. Robinson. **BARBS:** 1, W. Bates; 2, J. Booth; 3, F. Lush. **A.O.S. CARP OR MINNOW:** 1, F. Lush; 2, A. V. Taylor; 3, M. Kingsnorth. **CHARACINS:** 1, G. Elverson; 2, A. V. Taylor; 3, J. Stoodley. **CICHLIDS:** 1, G. Pittman; 2, J. Heppell; 3, J. Robinson. **FIGHTERS:** 1, J. Heppell; 2, J. Robinson; 3, F. Lush. **A.O.S. LABYRINTH:** 1, J. Stillwell; 2, J. Stoodley; 3, Smythe. **A.O.S. EGGLAYER:** 1, C. Wilson; 2, W. Bates; 3, A. V. Taylor. **BREEDERS' COLDW.:** 1 and 2, C. Whitehead; 3, B. Cole. **BREEDERS' TROP. EGGLAYERS:** 1, E. C. Goleworthy; 2, J. Booth; 3, J. Stoodley. **BREEDERS' LIVEBEARERS:** 1, J. Robinson; 2, A. Birt; 3, J. Heppell.

### NOVICE CLASSES

**COLDW.:** 1 and 2, E. A. Jupp; 3, H. Hough. **TROP.:** 1, J. Stillwell; 2, C. Carroll; 3, J. Heppell. **PLANTS:** 1, J. Robinson; 2, E. Bishop; 3, J. Stoodley.

### SPECIALS

**Henry Luff Trophy (highest pointed coldwater fish),** G. Brown; **Taylor Trophy (highest coldwater points),** WATER LIFE Diploma (best coldwater fish), C. Whitehead; **Taylor Trophy (highest tropical points),** J. Stoodley; **Wm. Taylor & Sons Trophy (highest pointed tropical fish),** WATER LIFE Diploma (best tropical fish), G. Pittman; **Taylor Trophy (breeders' class,**

tropical), E. C. Goleworthy; **Taylor Trophy (breeders' class, coldwater),** C. Whitehead; **Taylor Challenge Cup (interclub furnished aquaria),** Southampton A.S.; **Louise Wilson Trophy (Individ. Trop. Furn. Aquaria),** J. Stoodley; **E. Knight Cup (Individ. Coldw. Furn. Aquaria),** J. Stoodley; **Nunn Senior Cup (best Labrynth),** J. Stillwell.

## Special Displays at Paisley's Second Annual Event

THE second annual show of the Paisley Aquarist Society was staged in the Town Hall as a three-day event with an attendance of over 8,000. The layout, with the added attractions of an aviary, Sea Horses, observation beehives, reptiles and a garden pond as special exhibits, assisted in making the venture a success. The eighteen classes were judged by Messrs. T. Beveridge and I. Cameron.

**WATER LIFE Diploma** was won by Mr. H. Selby with a Shubunkin. Other specials went to Messrs. W. Anderson (best Swordtail), F. Ritchie (best Fighter), A. Stobo (best Barb and best Characin), D. O. Carr (best White Cloud), J. Taylor (best Cichlid), F. Ritchie (best livebearers bred in 1953), T. Mullholland (best egglayers bred in 1953), H. Selby (best coldwater furnished aquaria), A. Kerr (best senior tropical furnished aquaria), and T. Stobo (best junior tropical furnished aquaria). Greenock A.S. showed the best interclub tropical furnished tank.

### PRIZEWINNERS

**COLDW. FURN. AQUARIA (8):** 1, H. Selby; 2, D. Kerr; 3, D. O. Carr. **TROP. FURN. AQUARIA (9):** 1, A. Kerr; 2, A. Stobo; 3, F. Ritchie. **TROP. FURN. AQUARIA, JUN. (5):** 1, T. Stobo; 2, I. Ritchie; 3, G. Stobo. **CLUB TROP. FURN. AQUARIA (9):** 1, Greenock A.S.; 2, Glasgow Eastern A.S.; 3, Glasgow South A.S. **GUPPY PAIRS (4):** 1, F. Ritchie; 2, W. Spence; 3, A. Young. **PLATY PAIRS (4):** 1, J. Morton; 2, F. Ritchie; 3, T. Mullholland. **MOLLIE PAIRS (4):** 1, F. Ritchie; 2, A. Stobo; 3, W. Spence. **SWORDTAIL PAIRS (8):** 1, W. Anderson; 2, W. Spence; 3, I. Shaw. **GOURAMI PAIRS (2):** 1, R. Stewart. **MALE FIGHTERS (12):** 1, F. Ritchie; 2, D. Watson; 3, D. O. Carr. **BARB PAIRS (20):** 1, 2 and 3, A. Stobo. **DANIO PAIRS (3):** 1, A. Stobo; 2, F. Ritchie; 3, D. O. Carr. **WHITE CLOUD PAIRS (6):** 1, D. O. Carr; 2, G. Stobo; 3, A. Kerr. **CHARACIN PAIRS (20):** 1, A. Stobo; 2 and 3, F. Ritchie. **CICHLID PAIRS (6):** 1, J. Taylor; 2, S. B. Kos; 3, D. O. Carr. **A.O.S. TROP. PAIRS (2):** 1, D. O. Carr; 2, A. Young. **LIVEBEARERS, BRED 1953 (7):** 1 and 2, F. Ritchie; 3, A. Stobo. **EGGLAYERS, BRED 1953 (14):** 1 and 2, T. Mullholland; 3, F. Ritchie.

## Lack of Accommodation Restricts Entry at Blackpool

THE third annual show of Blackpool & Fylde A.S. was held in the Congregational School-rooms, Victoria Street, Blackpool, from September 14-19. The number of entries (224) was a record for the society. It was unfortunate that owing to lack of space many entries had to be refused from as far afield as Surrey in the south and Carlisle in the north. The club hopes to have overcome the accommodation difficulty by the time of next year's event. The official opening was undertaken by Charlie Cairoli, Blackpool's famous clown, the chair being taken by the President, Councillor Clifford Cross. The Mayor of Blackpool (Councillor Edwin Smith, J.P.) presented the prizes.

The quality of the fish was very high, and the club received many congratulations from visiting southern fanciers and in particular from the chairman of a London society. The furnished aquaria, both coldwater and tropical, were of a good standard. Gold, silver and bronze medals were presented in all fish and aquaria classes. Best fish in show was a Black Widow shown by Mr. J. R. Shaw. It won the Tower Co. Trophy. Ladies' special for the best furnished aquaria went to Mrs. J. Higginson.

### PRIZEWINNERS

**INDIVID. COLDW. FURN. AQUARIA:** 1 and Club Silver Trophy, V. Fletcher; 2, J. Dodsworth; 3, Master J. Horrocks. **CLUB FURN. AQUARIA:** 1 and Councillor C. Cross Trophy, Blackpool & Fylde A.S.; 2, Bury A.S.; 3, Southport A.S. **INDIVID. TROP. FURN. AQUARIA:** 1 and Blackpool Corporation Trophy, A. Wardle; 2, V. Sharp; 3, N. Hadley. **COMMON GOLDF.:** 1 and Norman Jackson Trophy, H. Horrocks; 2, Master J. Horrocks; 3, R. L. Thurst. **SHUBUNKINS:** 1, L. G. Wilson; 2, A. R. Thompson; 3, V. Fletcher. **FANCY GOLDF.:** 1, V. Fletcher; 2, L. G. Wilson; 3, N. Brown. **LIVEBEARERS:** 1 and Club Trophy, Miss N. Hadley; 2, D. Ince; 3, T. Smith. **CHARACINS:** 1 and Walter Robinson Trophy and 2, J. R. Shaw; 3, A. W. Perrie. **LABYRINTHS:** 1 and Club Trophy, Mr. and Mrs. Wardle; 2, C. Newton; 3, Mrs. J. Woodcock. **FIGHTERS:** 1 and Norman Hadley Trophy, J. Woodcock; 2, L. Wardle; 3, T. Whalley. **MINNOWS AND BARBS:** 1 and Arthur Partington Trophy and 3, Mrs. E. Perrie; 2, D. Ince. **A.O.S. TROP.:** 1 and Fylde Cinemas Rose Bowl, T. Whalley; 2, Mr. and Mrs. Wardle; 3, J. Woodcock. **BREEDERS' CLASS:** 1 and Lyndene Tropical Aquatics Trophy, J. Woodcock; 2, J. Peck; 3, V. Fletcher. **VIVARIA AND TERRARIA:** 1, T. Whalley; 2 and 3, B. Conroy.



### Birmingham Show Attracts Large Crowds

THE excellent publicity given in the local press helped to draw the large crowds who attended the tenth annual exhibition of the Midland A. & P.S. at Bingley Hall, Birmingham. Well over 400 fish were staged, including over 180 in the coldwater classes and nearly 250 in those for tropicals. This is the third event to be staged at Bingley Hall and just as last year's was an improvement on the first, so this time the staging was better and the overall appearance was improved. Experience has shown the organisers that an event of this year's proportions is about the maximum that can be conveniently handled by the hard-working band of voluntary helpers. With that knowledge they will be able to make plans well in advance for subsequent events and can, no doubt, do still better so far as layout is concerned. The hall is spacious and the combined efforts of the promoters, the traders and the exhibitors made a display worthy of this hot-bed of the fishkeeping hobby.

Of the officials responsible for the show, Mr. T. L. Dodge (secretary and show secretary), Mr. W. L. Mandeville and Mr. D. A. Attewell looked after the overall planning. Others were: Show Committee—Mr. W. E. Barratt (President), Mr. J. C. Froggatt (Show chairman) and Mr. W. V. Jones (Show treasurer), assisted by Mrs. T. W. Pegg (the society's treasurer), Messrs. N. W. Gilbert, F. Kennard, T. W. Pegg, C. H. Shaw, F. E. Varelman and G. Jackson. The judges were:—Coldwater Section—Messrs. Z. Webb, H. Cope, J. Graham Keys and R. Frisdom. Tropicals—Messrs. H. G. Heath, J. J. Brady, R. Marshall and H. Bowyer. Winners of WATER LIFE Diplomas were: Inter-Society Coldwater Furnished Aquarium, Midland A. & P.A., ditto Tropical, Walsall A.S.

#### COLDWATER CLASSES

COMMON GOLDFISH AND COMETS, 5 IN. (12): 1, E. G. Perrett (72); 2, F. Hodkinson (67); 3, J. Isaacs (65). BREEDERS' A.V. FANCY FISH (13): 1, D. S. Paul (82); 2, T. W. Pegg (81); 3, T. G. Sutton (80). SHUS, 5 IN. (16): 1, R. Oxenham (78); 2, J. G. Sutton (77); 3, E. A. Mason (75). CALCICO VEILS, (14): 1, Graham Keys Cup, Eversden Cup and 2, W. Butler (81); 3, D. S. Paul (75). CURRENT-YEAR SHUS, (28): 1, Rowatt Cup and Taylor Cup, D. S. Paul (81); 2 and 3, R. Oxenham (80 and 78). SCALED VEILS, (8): 1, 2 and 3, R. B. Raven (59, 58 and 54). MEMBERS' CURRENT-YEAR SHUS, (8): 1, T. G. Sutton (56); 2, T. W. Pegg (54); 3, E. A. Mason (52). CURRENT-YEAR CALCICO VEILS, (12): 1, Keeling Cup and 2, T. W. Pegg (72) and 71); 3, T. G. Sutton (66). SHUNKIN PAIRS, 5 IN. (9): 1, D. S. Paul (78); 2, E. A. Mason (68); 3, R. Oxenham (66). GRANDAS AND LIONHEADS (2): 1, R. B. Raven (70); 2, T. G. Sutton (62). MOORS (8): 1 and 2, T. G. Sutton (73 and 72); 3, T. W. Pegg (71). NOVICE SHUS, 5 IN. (7): 1 and Webb Cup, F. Cadby (80); 2, T. Bates (79); 3, P. L. English (78).

Roberts (68); 2, S. R. Raven (66); 3, K. Simmons (50). MEMBERS' SHUS, 3 IN. (15): 1 and Cadby Cup, E. A. Mason (76); 2, G. Hoban (71); 3, L. Naylor (67). A.O.V. COLDW. FISH (12): 1 and 3, T. G. Sutton (76 and 68); 2, D. S. Paul (72). JUNIOR A.V. AQUARIUM FISH (7): 1, S. R. Raven (73); 2, P. T. English (65); 3, M. E. Perrett (63). INDIVID. COLDW. FURN. AQUARIA (2): 1, and WATER LIFE Cup, E. A. Mason (59); 2, C. C. Roberts (57). INTER-CLUB COLDW. FURN. AQUARIA (2): 1 and Society Shield, Midland A. & P.A. (59); 2, W. Bromwich A.S. (55).

#### TROPICAL SECTION

BARBUS TITTEVA, OLIGOLEPIS AND CUMINGI (6): 1 and 2, F. H. Sutton (78 and 75); 3, G. E. Burden (74). B. TETRAZONA, NIGROFASCIATUS AND TICTO (9): 1 and 3, F. H. Sutton (79 and 69); 2, G. E. Burden (73). A.O.S. BARB (8): 1, F. Holloway (82); 2, D. Yates (81); 3, F. H. Sutton (79). DANIOS AND WHITE CLOUDS (11): 1, S. Prior (76); 2, F. E. Varelman (73); 3, A. A. Beardsley (72). HYPHESSO-BRYCONS, BLOODFINS AND PRISTELLAS (10): 1, Mrs. M. Hemming (75); 2, L. W. Male (72); 3, L. Naylor (69). HEMIGRAMMUS AND THAYERIA (8): 1, E. Bagnall (74); 2, C. J. Grant (71); 3, P. S. Dugmore (67). A.O.S. CHARACINS (12): 1, F. T. Rooke (75); 2, R. A. Peck (73); 3, Mrs. M. Hemming (71). MALE FIGHTERS (17): 1 and Mrs. Gilbert Cup, 2 and 3, A. Rundle (82, 78 and 76). A.O.S. MALE ANABANTID (9): 1, P. T. English (80); 2, F. E. Woodall (78); 3, A. A. Beardsley (76). ANGELS (7): 1, E. Boffey (78); 2, A. L. Judge (77); 3, T. W. Pegg (72). A.O.S. CICHLID (8): 1 and Capener Cup, S. J. Hughes (81); 2, F. H. Sutton (78); 3, E. N. Baughan (77). GUPPY PAIRS (16): 1 and 3, K. Simmons (58, 57 and 54); 2, E. N. Baughan, winner of the T. G. Sutton Cup in this class. MOLLIE PAIRS (3): 1, E. Bagnall (63); 2, A. A. Beardsley (56); 3, G. E. Burden (47). PLATY PAIRS (9): 1 and Coleman Cup, A. Rundle (70); 2, A. A. Beardsley (66); 3, G. E. Burden (60). SWORD-TAIL PAIRS (10): 1, A. E. Turvey (67); 2, P. L. English (61); 3, E. Bagnall (60). A.O.S. TROP. FISH (24): 1, Gilbert Cup, 2 and 3, Mrs. M. Hemming (86, 85 and 84). BREEDERS' EGG-LAYERS (22): 1, A. Rundle (84); 2, E. Boffey (81); 3, P. S. Dugmore (74). BREEDERS' LIVEBEARERS (8): 1, C. J. Grant (77); 2, H. Pike (75); 3, P. L. English (69). NOVICE CHARACINS (13): 1, W. V. Jones Cup and 2, Mrs. J. C. Richards (77 and 75); 3, E. Boffey (74). NOVICE BARBS (10): 1, Novice Tankard and Dodge Cup, C. E. Field (84); 2, R. A. Veck (79); 3, H. J. Hathaway (78). NOVICE LIVEBEARERS (12): 1, C. E. Field (65); 2, F. Holloway (64); 3, R. W. Parker (63). NOVICE ANABANTIDS (3): 1, F. E. Varelman (79); 2 and 3, S. J. Hughes (78 and 74). INDIVID. TROP. FURN. AQUARIA (3): 1, F. H. Sutton (70); 2, P. T. English (66); 3, L. W. Made (61). INTER-CLUB TROP. FURN. AQUARIA (9): 1 and Society Shield, Walsall A.S. (81); 2, Shirley and S. Birmingham A.S. (79); 3, Wolverhampton A.S. (77).

### Bethnal Green A.S.

THE fourth annual show of Bethnal Green A.S., an affiliated society of the F.B.A.S. and one of the organisations attached to the Bethnal Green (L.C.C.) Men's Institutes, proved a well staged and equally well supported event. The variety of the exhibits was good and some high quality fish were on view. Particularly interesting were the entries in the breeders' classes and those in the championship class for Fighting Fish (open to the London area). The team of Veils, exhibited by J. H. Franklin in the open breeders' coldwater class was outstanding for body shape and even development. In the class for breeders' livebearers, it was Mrs. Franklin who led with some nice *Platycephalus* varieties, whilst Mr. R. E. Churchman put in two good teams in the egg-layer class, some colourful Serpæ and equally interesting *Nannostomus aripangensis*. The premier award of best member's fish in show, was gained by Mr. C. Loudon with his well-known Saffin Mollie that earned 86 points. The judges were Messrs. S. Harker and R. G. Mealand.

CLUB TROP. FURN. AQUARIA (5): 1, Marble Arch A.S.; 2, Watworth A.C.; 3, Bethnal Green A.S. CLUB COLDW. FURN. AQUARIA (6): 1, Stoke Newington A.S.; 2, Goldfish Society of Gt. Britain; 3, Bethnal Green A.S. LONDON AREA FIGHTER CHAMPIONSHIP (27): 1, Silver Challenge Cup and 3, G. B. Thornton; 2, H. Law. BREEDERS' LIVEBEARERS (14): 1 and WATER LIFE Diploma, Mrs. E. Franklin; 2, G. E. Boyles; 3, F. H. West. BREEDERS' EGG-LAYERS (18): 1, J. H. Franklin; 2 and 3, A. Defelice. B R E E D E R S ' COLDW. FISH (7): 1, J. H. Franklin; 2 and 3, A. Defelice. SWORDS, (21): 1 and 3, J. Taylor; 2, C. Heywood. MOLLIES (10): 1, WATER LIFE Diploma and Silver Challenge Cup for best fish in show, C. Loudon; 2 and 3, H. Law. PLATIES (12): 1, J. R. Belcher; 2, H. Law; 3, F. Gaffney. GUPPIES (16): 1, G. Boyles; 2 and 3, G. Williams. CHARACINS (33): 1, H. Law; 2 and 3, E. Springthorpe. BARBS (14): 1 and 2, G. Mills; 3, E. Springthorpe. DANIOS, RASBORBAS AND WHITE CLOUDS (10): 1, W. A. Richardson; 2, V. Bell; 3, R. Gibbs. CICHLIDS (9): 1, G. Mills; 2, J. Taylor; 3, R. Belcher. A.O.S. LABYRINTHS (19): 1, H. Law; 2, G. Mills; 3, A. Lowe. A.O.S. TROP. FISH (22): 1 and 2, H. Law; 3, H. Nicholson. COLDW. FISH (5): 1, A. Tilly; 2 and 3, R. Harvey. MEMBERS' COLDW. BREEDERS (1): 1, R. Harvey.



Bethnal Green's Fighter Trophy.

Bethnal Green's Fighter Trophy. The trophy is a silver cup with two handles, standing on a dark base. It is filled with water and has a small fish inside. The trophy is awarded to the winner of the Fighting Fish competition.

### New Venue for the Nottingham Club's Event

WITH memories of the shows held previously, in different rooms, at different floor levels, in the Regent Hall, we went to the seventh annual display at the Albert Hall Institute, wondering how the new venue would look and whether the 1953 show would be up to the usual high standard. We need not have worried, for although accommodation was limited, the more compact exhibition was equally well staged, the fish on view were again of high order and good variety and the showmanship was such that the event appealed to the lay public and the discerning aquarist.

#### Furnished Aquaria Main Motif

The general motif was furnished aquaria and, although there was a good percentage of space devoted to competitive classes, much was given over to tanks for exhibition only, tropical, coldwater, marine and herpetological sections, each contributing to making the event a success.

Work put into the show by the committee and officials led by Mr. H. Lynn (President) and Mr. W. C. Webley (show secretary) was long and unceasing and the resulting effort kept Nottingham in the front as promoters of one of the

leading events of the Midlands. Mr. J. Carnell judged the competitive classes.

#### PRIZEWINNERS

MALE FIGHTERS: 1, F. H. Woollatt; 2, E. C. Preedy; 3, A. Saxton. A.O.S. LABYRINTH: 1, L. Pearson; 2, J. E. Clark. PLATIES: 1, E. C. Preedy; 2, A. L. Cast; 3, F. H. Woollatt. SWORDS: 1 and 3, J. Lloyd; 2, Miss V. Christian. MOLLIES: 1, 2 and 3, R. Tompkin. CHERRY & CHECKER BARBS: 1 and 2, D. Pollon; 3, S. B. Land. A.O.S. BARB: 1, J. Lloyd; 2, D. Pollon; 3, L. Kirchin. MALE GUPPIES: 1, S. B. Land; 2 and 3, A. Saxton. COMMON GOLDFISH: 1 and 2, A. E. Adcock; 3, A. Ford. LONDON SHUS: 1, Mr. A. E. Adcock; 2, Mrs. Johnson; 3, M. Welch. BRISTOL SHUS: 1, H. H. Ede; 2, A. E. Adcock; 3, H. H. Ede. A.O.V. FANCY GOLDFISH: 1, W. C. Webley; 2, M. Welch; 3, Mrs. Town. BREEDERS' COLDW. FISH: 1 and 3, M. Welch; 2, A. E. Adcock. BREEDERS' LIVEBEARERS: 1, L. Pearson; 2, F. H. Woollatt; 3, J. G. Wood. BREEDERS' TROP. EGG-LAYERS: 1, H. S. Miller; 2 and 3, E. C. Preedy. JUNIOR TROP. FURN.

AQUARIA: 1, J. Pell; 2, Miss M. Challans; 3, Miss T. Martin. SENIOR TROP. FURN. AQUARIA: 1, J. G. Wood; 2, E. C. Preedy; 3, H. S. Miller. COLDW. FURN. AQUARIA: 1, M. Welch; 2, W. Town; 3, J. G. Wood. FURNISHED VIVARIA: 1 and 2, H. Walker; 3, L. Kirchin.

Mr. W. C. Webley took the award for best coldwater fish in show and best fish in show. The best tropical fish was owned by Mr. J. Lloyd.

### Blackburn Prizewinners

SUCCESSFUL exhibitors at the show of Blackburn A.S. were: LIVEBEARERS: 1, R. Yates; 2, T. Wood; 3, J. Grace. EGG-LAYERS: 1, S. Walsh; 2, A. Hoyle; 3, G. Ainsworth. FURN. AQUARIA: 1, J. Shorrock; 2, E. Abbott; 3, A. Willan. The best fish in show was owned by Mr. S. Walsh and this exhibitor received a WATER LIFE Diploma. Judges were Messrs. Legge and Loder.

The large number of show reports received has meant that those of Accrington A.S., Banbury A.S., Bristol A.S., Chester A.S., E. Midlands Guppy Section and Warrington A.S. are unavoidably held over until our next issue.



## Duke of Bedford

An Appreciation by Capt. L. C. Betts

THE death of the Duke of Bedford came as a great shock to members of the Goldfish Society of Great Britain, particularly as it occurred within a few days of the death of the President of the Society, Mr. Strachan Kerr. The Society was thus robbed of its President and a vice-president in a matter of days. The Duke was a shy, diffident man, an attitude no doubt brought on by the reaction of the public to his pacifist views which he held very sincerely and firmly.

It cannot be said that he was a regular attendee at G.S.G.B. meetings, but when he did go to them he showed a lively and authoritative interest in Goldfish and the larger Carp family. We remember well his arrival one Saturday afternoon complete with a bucket containing specimens of the blue Carp (for which the ponds at his Woburn estate were famous). We remember, too, with pleasure, the visit to his country estate in Bedfordshire where he showed us over the estate. His deep interest in all the natural phenomena which abounded there could not but be noticed. His end was sudden and tragic and all coldwater fish hobbyists have lost a great champion. The Goldfish Society pay their tribute to a gentleman and a great naturalist.

## Death of Strachan Kerr

Arthur Derham Eulogizes his Qualities

STRACHAN KERR, who has passed away, aged 60, has, by his death, stirred real grief and regret in the hearts of fanciers, all over Great Britain. It is doubtful if the loss of any other leading aquarist could have caused such a void. This, in itself is an eulogy of his life and work. Here was a man who gave unstintingly of his best, in the service of the hobby that he loved. When he first took over the reins of the Scottish Aquarium Society in the twenties, it was struggling to its feet, *sans* money, *sans* equipment, *sans* renown, but when he had finished with it 25 years later, it was the most powerful society in the aquaria world. Some of us—the

writer for many years—have partaken of his unlimited, generous hospitality and any Sassenach going North was welcome in the lovely home of S.K., especially if he were an adept in the world of aquatics.

Any mention of his qualities made in his presence was always received with a self-deprecatory grin, which lighted up his grim fighting face, and the individual was accorded some half facetious, almost mocking comment, which was intended to hide the very real love and interest Strachan had for any form of fishkeeping. It is for few men to be missed from every sphere in which they moved but Strachan Kerr will be missed as husband, father, employer, loyal friend and aquarist as well as guide and mentor to so many young people who he started on the road to aquatics, even if he had to find all the wherewithal himself. Scotland has lost its greatest aquarist, and those who were around him will have a hard task to find his equal.

## Good Publicity

Spratt's Patent Ltd. Show Initiative

THE M.G.M. film "Scandal at Scourie" has a pleasing theme which incorporates the trials and tribulations of a little orphan girl whose only worldly possession is a Goldfish. Messrs. Spratt's Patent Ltd., have co-operated with M.G.M. by preparing showcards which jointly advertise the film and Spratt's Fish Foods. Local aquarium clubs have been given an opportunity to liaise with local cinema managers, loaning a complete aquarium to be displayed in the cinema lobby or foyer whilst the film is being shown. A card inviting patrons to join the society, thus helping to get new members, has been permitted.

The remaining showing dates for 1953 include the following:—Regal, Darlington, Dec. 7 onwards (6 days); Elite, Middlesbrough, Dec. 21 (five days); Savoy, South Shields, Dec. 21 (five days).

Another form of publicity by Spratt's which will help societies as well as the firm is the issue of posters, bearing details of some of their products, but leaving a plain area 16 in. wide by 15 in. deep which can be used by societies to

## South Bank Aquarium

LONDON'S new aquarium at South Bank, site of the Festival of Britain Exhibition, opened on November 19 when a full complement of tropical, coldwater and marine fish, as well as other forms of aquatic life, was on view.

Attractively laid out, with the many tanks, of differing sizes, all furnished with appropriate types of plants, rockwork and compost to show off the fish to the best advantage, the plan makes it possible to see each exhibit in comfort.

As an addition to what London has to offer to visitors, it should prove a popular "must" for the lay public as well as experienced aquarists and makes another place for clubs to make for when they pay visits to Town. The aquarium is open from 10.30 a.m. to 8.30 p.m. Monday to Friday and 10.30 a.m. to 10.30 p.m. Saturdays and Sundays. Admission 2/-, children half price.

overprint details of events such as shows, special meetings, lectures, etc. The firm, whose address is 41-47, Bow Road, London, E.3, is willing to supply aquarium clubs with up to 100 copies of the poster, free of charge, provided they can arrange, at their own expense, to have the overprinting done locally.

## Nature Photography

AN exhibition of Nature Photography organised by the Royal Photographic Society as part of its Centenary Year celebrations, is on show in the Society's house, 16, Princes Gate, London, S.W.7, from 1 to 22 December. There are prints and transparencies, in monochrome and colour, and stereoscopic exhibits, of fish, reptiles, mammals, birds, insects, flowers—and other forms of natural life, contributed by most of the outstanding nature photographers. This exhibition provides a fascinating cross-section of the width and variety of the nature photographer's interests after some fifty years of development.

The exhibition is open from 9.30 a.m. to 5.30 p.m. (Saturdays, 5 p.m.) but not on Sundays. Admission is free.

## Magnificent Combined Show at Rotterdam Zoo

THE clubs of Rotterdam held their second combined show ("Aquavero") in the Riviera Hall of the Rotterdam Zoo, last September and October. The show was opened by Mr. L. A. Kesper, Commissaris of the Queen in the Province of Zuid-Holland, in the presence of a very large gathering of the members with invited friends from other parts of Holland, and also from England, Germany and Belgium. After the opening speech, Mr. Keller from Germany and Mr. Creed from England addressed the gathering.

The Riviera Hall is a very large hall and lends itself for a spacious show. It allowed the show committee plenty of scope. The committee set out a very large pond in the centre of the hall, about 50 yards in length and varying in width from a couple of yards to about ten yards. This pond was surrounded by a six foot grass verge resplendent with palms and other tropical growing plants. Over the pond was a large rustic bridge, and into the pond on one side of the bridge there poured a very high waterfall. In the other end of the pond Goldfish were swimming. All the plants were lit by subdued and coloured flood-lighting. Round the sides of the hall were spaced 129 tanks housing collections of fishes, broods of one variety, marine fishes, and vivariums.

Some of the fishes were of exceptional size, and nearly all were showing very fine colouring especially those with red, such as Cherry and Tiger Barbs. All the aquariums were tastefully decorated to suit the inhabitants, and to make them into attractive pictures. Each club was responsible for certain tanks, and also for setting up part of the show. Some of the most attractive fishes were the very large albino Swords; they were the largest of their kind I have seen. As mentioned earlier, the Barbs were also perfection. Their colours were extremely bright. This is probably due to the water. It is not only very soft but it usually is rain water which has been filtered through peat, which gives it a lovely golden tint, and suits the fishes. There was also an exhibit described as *Hypessobrycon ornatus*, both parents and their young, of a

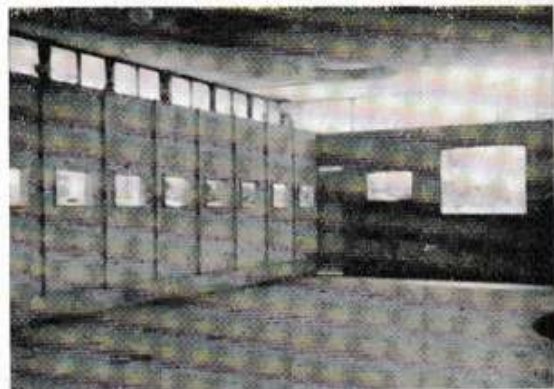
new type a lovely golden colour but still showing the red. This variety the Dutch people think may be the true *Rosaceus*. Another tank had a fine collection of *Cynolebias nigripinnis* fry which were just beginning to colour.

One large tank of five feet square housed several hundred Angel Fish of all sizes and undoubtedly the large size of the tank allowed these fish to be seen at their best. Six tropical sea-water tanks housed some very fine coral fish and Sea-horses. Several very large aquariums had collections of Cichlids which were appearing to live together in perfect harmony, and one especial tank with six very large *Symphysodon discus*, was a perfect gem. The colours of these fishes were near perfect. Not far from these Pompadours, was another tank housing about twelve small Discus that had not long arrived from America where they had been bred. Another tank had some large Black Swords. These fishes were of a good black with full length swords and were about five inches long. The Tooth-carp Group was represented by some very fine broods of *Aphyosemion australe* and *A. bivittatum*, in full colour. It was interesting to note that the hardness of the water as demonstrated to me was 2 degrees of hardness (Alfloc system).

One other exhibit calling for special mention was a tank with over five hundred pearl Kissing Gouramies, and I was

assured by the members that the count of this spawning was actually over five thousand. What a family to feed, out collecting *Daphnia* twice a day! The vivaria were represented by about twenty tanks showing various species of amphibia, skinks, lizards, snakes and alligators. Two tanks held some young boa-constrictors and the other viper's eggs, which were obliging the large crowds by hatching; it was extremely interesting to watch the baby snake's head gradually emerging, followed by its long body, and one wondered where all the body was stowed away in the small egg.

Also in the hall was a fine collection of tropical birds, and two living rooms tastefully set out to show the use of a decorative aquarium as a centre piece. A hospital ward was set up to show the use of aquaria for helping sick patients. On the Sunday, 600 aquarists arrived by motor-coach from Belgium and about 400 from Germany and the total attendance was over 13,000.—C.W.G.C.



Photograph]

[C. W. G. Creed

A corner of the "Aquavero" display in the Riviera Hall.



## Creating Natural Surroundings for Fishes

### Wing-Commander Marsack Tells of Conditions in their Native Haunts

ON an all-too-brief visit to England, Wing-Commander Alfred H. Marsack, M.B.E., F.Z.S., spent several evenings giving lectures to London area clubs recently. Wing-Commander Marsack is one of those rarely seen and even more rarely heard individuals who has an interest in studying tropical fish and other exotic fauna and flora in their natural habitats. He pointed out that he was not a scientist but he had examined the locations of many aquarium-kept tropical fish and thus his information formed a link between the fish in its natural state and the same fish successfully kept in aquariums. Virtually the whole of the Wing-Commander's talk was given over to the theme that if the aquarist would go to some trouble to simulate the natural surroundings of fish he would be rewarded with results—particularly with regard to breeding.

Wing-Commander Marsack was well qualified to give his lecture, having lived for twenty-three years in the Middle and Far East, spending some of his leaves in Siam, Borneo, Burma and Malaya. It was only a few weeks before his lectures in this country that he had returned from his fourth Far Eastern fish investigation trip in post-war years. During the war, and particularly whilst on a spell of duty in blacked-out Jaffa, the Wing-Commander's interest in the infinite beauty of tropical fish was aroused and it was then that he resolved, when circumstances permitted, to study fish in their native haunts. His trips are made into a lasting record by extensive use of colour photography. Wing-Commander Marsack showed numerous colour slides to illustrate his lectures. Some beautiful colour negatives of orchids, snakes, natural habitats of fish and a few tropical fish species (the latter mainly taken by Mr. Gene Wolfbeimer) were seen.

The lecturer found that in certain areas the presence of bandits had prevented native collectors from operating for some time—this did not deter Wing-Commander Marsack, however. When going on expeditions he carries equipment for tusting the temperature, flow and make-up of the water. For catching specimens he uses a shallow kidney-shaped net with no seams. A small plastic tank (7x7x4 in.) is carried for examining purposes.

The attractive red variety of *Rashora hetero-*

*morpha* he found in water with no perceptible taste or odour. It flowed over sandstone gravel and there was possibly an iron content. Two unusual attributes are the ease with which this species can be caught in its native waters and the low water temperature. Wing-Commander Marsack estimated that the temperature was "something under sixty". From his observations on the species he suggested water on the acid side with a low iron content for breeding. He recommended a tank so set up that it provided areas of shallow water, i.e., an aquarium with an extension at the top of one end so that water there approximated to the shallows of pools or rivers. Water dripping from a filter set up in the shallows could be helpful.

Wing-Commander Marsack thought vertical aeration in aquariums was unnatural and suggested that apparatus should be arranged to give approximately horizontal currents. He is a firm believer in occasional agitation of the water surface as a stimulant to breeding and described how the fish react when the surface of the water is lightly sprayed. This appears to simulate tropical rains which he believes acts as a breeding stimulant as also does occasional changes in temperature. Plants overhanging into tanks were another field for experiment as in the fishes' native locations plants do encroach considerably on areas of water.



Wing-Commander  
A. H. Marsack M.B.E.

The Chocolate Gourami (*Sparichthys ophromenoides*) he had found in waters of vastly differing make-up ranging from still and deep water of a dark brown colour to clear, swift-flowing streams.

This résumé of Wing-Commander Marsack's lecture was gleaned from the talk he gave to E. London A. & P.A. members on November 6 although similar topics were discussed at other meetings addressed by him during his short stay.—L.W. Ashdown.

## G.S.G.B. Advisory Service

THE committee of the Goldfish Society of Great Britain has circulated to societies throughout the country details of a new advisory service, hoping, thereby, to cater for the interests of members of those societies interested in Goldfish. Such members are sometimes in a minority and it is thought that there are too few talks on Goldfish culture in the average club programme. Members of the G.S.G.B. will visit various clubs, giving participants in the scheme at least one speaker a year. A minimum charge of one guinea is to be made but except in cases of long distance the lecturer's expenses will not fall on the Society taking advantage of the G.S.G.B. service. Further details can be obtained from the secretary, Mr. C. J. Saunders, B.Sc., 300, Southbourne Grove, Westcliff-on-Sea, Essex.

The committee is making plans for the Society's display at the forthcoming WATER LIFE Show. Arrangements are also well under control for the annual dinner on December 12. Mr. E. G. Weatherley, technical director, has recently visited Miss D. Morris of the Hants and Sussex Section to get information on experimental crossings between fishes of the known scale groups.

## Guppy Federation Judges

TRAINEE judges who have recently qualified Class A under the Federation of Guppy Breeders' Society scheme are: Messrs. H. Pearson, W. Howe, C. Collins, A. Littlewood, W. G. Layzell, C. R. Looker, C. Farmer, R. Elgar, H. Esterbrook, E. L. Matthews, E. H. Riddle, J. Gibbons, A. P. Stanley, J. Little, and R. A. Foster. Mr. R. Rawlinson has qualified as a B Class judge.

Schedules have now gone out for the Federa-

tion's Breeders' Furnished Aquaria contest to be held in conjunction with the WATER LIFE Show on January 7-9. Closing date for entries in this Section only is January 1, and completed entry forms should be sent to Mr. W. Howe, 24 Kerfield Crescent, Grove Lane, London, S.E.5, as early as possible because space is limited.

Persons interested in the formation of a West Midland Guppy Section should contact Mr. M. G. Davis, 120, The Broadway, Walsall, Staffs., whilst those residing in the Reading or Oxford area and interested in forming a Guppy Section should contact Mr. Lawn, 27, Chester Street, Caversham, Reading, Berks.

An amendment has been made to the standard for Gold-laced Females. This now reads "fins should be streaked with black, not blotched and no other colour is permitted". This is a clarification of the original description of fin patterning for the variety which read "the rays of all fins may be streaked with black".

## M.A.A.S. Judges

MEMBERS of societies affiliated to the Midland Association of Aquarists' Societies who have completed a training course in 1953 and have received certificates of competence as judges are as follows: Tropical species—Mrs. G. Sturmes, Messrs. F. Adams, E. Bagnall, A. A. Beardsley, W. V. Jones, R. Marshall and V. Whiting. Goldfish varieties—Messrs. H. Cope, J. Graham-Keys and R. Pleadon. Each has been given a special grounding in allocating points in furnished aquaria classes and have stated the species or varieties they prefer to be asked to judge in fish classes. This panel, like that of other area organisations, should help to relieve the growing demand for F.B.A.S. judges. The Federation is not finding it easy to fulfil engagements outside the London area.

## F.B.A.S. Assembly

### New Council Member Elected

THE report of the treasurer at the last Assembly, at which 37 societies were represented, showed the balance in hand to be in the region of £233. With affiliation by Feltham A.S. and Nairobi A.S. (presumably "British" in the Federation's title is all embracing to include societies in the Commonwealth as well as Great Britain, and the constitution is sufficiently elastic) plus the re-admission of Colindale A.S. and Croydon A.S., the roll of member societies totalled 115. Mr. G. G. Willis (Southend) was elected to the Council.

Mr. T. S. Hobday (Hendon) was congratulated on winning the F.B.A.S. trophy in 1952. A report on the World Union of Aquarists was given and Mr. Campkin reported that a journal was to be available to its members.

Details of the forthcoming WATER LIFE Show were given and a sub-committee consisting of Messrs. J. P. Mitchell, A. Fraser-Bruiner, T. A. Leighton, E. Russell and J. R. Herbert was elected to liaise with the promoters and arrange the F.B.A.S. exhibit. Details of the flood fund (Gt. Yarmouth asked to be given only £20 instead of the £30 originally allocated to them), insurance scheme, hospital tanks, and badge sales, were given.

Business conducted by the finance committee (from which Mr. M. R. Salmon has resigned), the services committee, and judges and standards committee, was reported on and approved. Mr. S. T. Jelly, the services secretary, said that the facilities of the Federation are being put to good use although there had been some lack of co-operation between some societies and lecturers and judges. Mr. J. H. Gloyne, Judges and Standards Committee secretary, referred to the Star Scheme, the fact that judges were finding the time to fulfil the duties at some shows was too short, a new ruling on Sunfish and the issue of a standard for Red-eyed Red Swordtails.

## Grading Show Exhibitors

LETTERS on page 326, selected from a number received, show different reactions to the suggestion made by WATER LIFE that champion and novice categories should be introduced for exhibitors at aquaria shows. In general, the idea has been favourably received.

So far as the F.B.A.S. is concerned, we understand that the Council have accepted the idea in principle and have referred the matter to its Judges and Standards Committee, to work out details. Hints have been dropped that the committee are meeting snags but none should be insurmountable. A bold and simple scheme is required. Any fear that show promoting societies will be put to extra expense by having classes duplicated should be offset by the bigger entries likely to be forthcoming.

More than one society has already started to encourage newcomers by putting on trophies for beginners or novices. Forest Hill A.S. goes further by introducing an experimental points system for their cup competition. Exhibitors at 1954 shows who, last season, gained two or more 1st places at table shows, will be "starred entrants" able to gain only the normal pointings. Others, if their fish come 1st, 2nd or 3rd, will gain bonus points of 5, 3 and 2, respectively.

This could result in the addition of one or two exhibitors to the "starred entrants" list each year and so have the dual effect of continuing to attract entries from the previously unsuccessful (the bonus points giving them an incentive to try and win) and encouraging those who have made the grade to be on their toes the whole time knowing that they must do well to win the cup in view of their handicap. It will be of interest to have details of other ideas that are being tried out.

## Extra-Mural Studies

FOLLOWING a successful study of Course Fishes last October, a series of Extension Week-end Courses of biological and geographical interest has been arranged for the ensuing season by the University of London. On June 18-20 next, "Pond Life" will be the subject for study at Haselemere Educational Museum. Full details of these courses can be obtained from the Director, Department of Extra-Mural Studies, University Extension Courses, University of London, Senate House, London, W.C.1.



## Club Notes and News

The Editor invites clubs to send brief reports of meetings and announcements of forthcoming events for publication. Items for the February-March issue should reach this office by January 11.

**NEW** address of the **Hull A. & P.S.** secretary, Mr. A. T. Rimmington, is 51 East Park Avenue, Hull.

**MRS. I. BAKEWELL**, 43 Upland Road, Dulwich, London, S.E. 22, is the recently-elected secretary of the **Friends A.S.** Meetings are held weekly at St. Jude's Hall, Ralton Road, Herne Hill.

**PRESENT** secretary of **S. London Aquarists** is Mr. R. H. Dew, 29 Dorien Road, Raynes Park, S.W. 20. Another newly-appointed official is the treasurer, Mr. F. Olson.

**TWENTY** members attended the first meeting of **Yeovil A.S.** Secretary is Mr. D. H. Silver, 24 Seaton Road, Yeovil, Somerset, and the society meets on the first Thursday of each month at Adams Dairy, Middle Street, Yeovil.

**ON** November 14 the **Lancashire Aquarists' Breeders' Society** staged an open show at which a **WATER LIFE** diploma was given for the best furnished aquaria and another for the best exhibit in show.

**WATER LIFE** diploma winners at the **Bury A.S.** open show were Messrs. J. Dodsworth and J. Smith.

**THE Peterborough A.S.** is staging a show on December 5 in the Boroughby Methodist Church Hall, Russell Street, Peterborough. Two **WATER LIFE** diplomas will be up for competition. It is hoped to arrange a social evening for December 21.

**IN** the open tropical table show staged by **W. Surrey P. & A.C.** on October 14 Messrs. Aylott and Maynard were the first prizewinners. Mr. R. Fitzgerald spoke on "Reptiles and Amphibia" at the November 11 meeting. Mr. D. M. McInerney is booked to give a talk on "Tropical Fish" at the December 9 fixture.

**A MEMBER** of the Visual Aid Society showed films at the October meeting of **Leicester A.S.** At the November gathering the President, Mr. Scorgill, interviewed six members, asking them questions about their fish-houses and ponds. A display of furnished aquaria was put up at the local Chrysanthemum Show on November 12-14.

**THE** Deputy-Mayor presented a furnished aquarium to the Church of England Children's Home, Bexhill, on behalf of the **Bexhill A.S.** recently and a further aquarium has been installed in Haldane House. A small party of members visited the London Zoo Aquarium during the Autumn. The Borough Water Engineer, Mr. A. W. Bristow, spoke on "Water" at a recent meeting and, on October 29, a three-class table show was held with Mr. Walker judging the exhibits. Mr. J. Willcocks won the next prizes in all three classes. At the December 17 meeting a colour film will be shown.

**MR. N. PUTTOCK** has been elected secretary of **Maidstone A.S.** His address is 38 Beaconsfield Road, Tovil, Maidstone, Kent.

**THE North-East Lancs. Section of the F.G.B.S.** has been formed. Meetings are held on the third Friday of each month at Rawtenstall. Further information can be had from Mr. F. Howe, 8 North Street, Newchurch, Rossendale, Lancs.

**THE Walworth A.C.** now issues a monthly bulletin. Recent activities have included talks on "Plants," "Show Standards and Judging," and "Collecting Livefoods," table shows for Guppies, Swordtails, Mollies and Platies, and a quiz. Meetings are held on alternate Wednesdays in Lorrimore Hall, Olney Road, London, S.E. 17.

**FOURTH** annual show of **Pontypool P. & A.S.** was held on October 23-24. The owner of the best fish in show was awarded a **WATER LIFE** diploma.

**SECRETARY** of the **Medway A.S.** is Mr. R. Brittain, 161 Sturlia Road, Chatham.

**MR. H. J. VOSPER**, 23 St. Asaph Road, Brockley, London, S.E. 4, is now acting as secretary of the **Forest Hill A.S.** with the assistance of two other officials. Winner of the Home Furnished Aquarium Competition

### Insurance Scheme for Fishes

**SUPPLEMENTING** the details given in our last issue, the cover given is to aquarists whose aquaria, accessories, and aquatic contents are contained within their private residences in Great Britain and Northern Ireland. The assurance company, which is working in close co-operation with the F.B.A.S., will issue policies of insurance with the usual proviso, "subject to satisfactory proposal". The restriction that the company shall not be liable for the first £1 of any loss or damage means "not due to fire or thieves" (instead of "theft").

There is still a little doubt about the premium payable. It is the low one of 25 shillings per cent, i.e., cover for £100 costs 25/- per annum, for £50, 20/- per year. Proposal forms can be obtained from the F.B.A.S. Secretary, Mr. R. O. B. List, 1, Coronation Court, Willesden Lane, N.W. 6. The scheme is open to all aquarists, whether members of societies affiliated to the F.B.A.S. or not.

is Mr. T. Martin and the table show points cup has been won by Mr. R. Whitlock. The society's magazine is now produced as a news-letter. During the winter session informal meetings will be held in members' homes.

**PRINCIPAL** officers elected at the A.G.M. of **Chingford A.A.S.** were:—President, Mr. G. Wrenn; vice-president, Mr. Kanarens; chairman, Mr. L. Roberts; show secretary, Mr. R. Jones and secretary, Mr. R. W. S. Macfadzean, 46 Nevin Drive, Chingford.

**ALL** retiring officers were re-elected at the A.G.M. of **Swansea A.S.** The chairman reported a successful year and it is hoped to stage the club's first competitive show in the summer of 1954.

**GOOD** progress was reported at the first A.G.M. of the **Hastings & St. Leonards A.S.** Dr. F. N. Ghadially's nim of the Brown Acara was shown at a recent meeting.

**AT** the Christmas social of **Riverside (Hammersmith) A.S.** on December 12 cups and shields will be presented. A varied programme has been enjoyed by members in recent months.

**DR. F. N. GHADIALLY**, of Sheffield University, gave a lecture and a film show at the Oct. 27 meeting of **Nottingham A.S.**

**FILMS** of aquatic life and allied subjects were shown at the October meeting of **Accrington A.S.**

**INCLEMENT** weather prevented a better attendance of **Norfolk & Norwich A.C.** members when Mr. W. L. Mandeville gave an excellent talk on October 28.

**RECENTLY** formed **Lowestoft A.S.** meets at the Esplanade Hotel monthly. The secretary is Mr. G. Howard, 132a Brown Street, Lowestoft, Suffolk. New members invited.

**A NOVEL** programme was arranged for the October 2 meeting of **E. London A. & P.A.** when members of the local angling society were invited to participate in a debate. On November 6 Wing-Commander Marwood paid the club a visit and the annual show judges gave their reports.

**THE Todmorden A.S.** has been inaugurated with Mr. J. R. Horsfall, 76 Industrial Street, Todmorden, as secretary.

**FIRST** prizewinners at the last two table shows of the **E. Midlands Section of the Guppy Federation** were Messrs. Matthews, Burwell, Slack and Rodkin.

**DURING** September Mr. Dryer spoke at a meeting of **W. Middlesex A.S.** First prizewinners in the table show for aquarium plants were Messrs. Langridge and A. Charles. Mr. P. Hewitt judged the annual breeders' competition on October 20 when Messrs. M. Langridge, G. J. Eastop and T. N. Wood were first prizewinners. During the same evening Mr. Winsley spoke on "Labyrinths."

**A TANK** of tropical fish was shown by the **Southern Amateur Aquarists (Brighton)** at the local horticultural society's autumn show. Premier prizewinners in the society's show tank competition were Mrs. Dean and Mr. J. Wright. On November 2 the competition for the best current-year fish was judged by Mr. S. Mason. First prize went to Mr. R. Goldman with a Beacon. He wins the Richardson Cup which will be presented along with other trophies at the annual social on December 12.

**OFFICERS** elected at the annual meeting of **Bournemouth A.C.** were:—chairman, Mr. Wright; treasurer, Mr. Foden and secretary, Mr. R. Matley, "Breezealand," Deansway Crescent, Parkstone, Dorset. Winners of the coldwater and tropical points trophies were Mr. B. Coombes and Capt. E. Howarth, respectively.

**AT** the highly successful exhibition staged by **Hartlepool A.S.** Mr. T. Atkinson won the **WATER LIFE** diploma for the best cold-water exhibit in show.

**LECTURES** heard by members of **Shirley L. & S. Birmingham A.S.** recently have been on "Catching and Keeping Marine Fish," "Electrical Apparatus," and "Freshwater Biology."

**MR. J. W. SOUTHALL** spoke on Mr. "Speckled Mollies" at the October 9 meeting of **Tottenham A.S.** A table show has been arranged for January 23.

**THERE** are now 30 members in the **St. Anne's Society of Aquarists (Belfast)**. Meetings are held on the first Thursday of each month and the secretary is Mr. A. McCurdy, 88 Donegal Avenue, Belfast.

**A NUMBER** of well-known aquarists have visited meetings of **Southampton A.S.** They include Messrs. J. Bartlett, J. Carnell and A. Boarder and Mr. and Mrs. H. Russell Holland.

**THE Northolt A.S.** has been formed and local fanciers should get in touch with Mr. D. S. Ross, 78 Kingshill Avenue, Northolt, Middx.



## Club Notes and News—contd.

**A**N outing on Boxing Day has been arranged by the **Rochdale A.S.** Mr. Snape was a recent lecturer.

**T**HERE were almost 500 entries in the 1953 show of **Kingston A.S.** The establishment of Messrs. Whitwell & Smykala was visited in the Autumn. Secretary for the current year is Mr. Buckman, 47a Twickenham Road, Teddington, Middx.

**W**INNER of the **WATER LIFE** diploma at the display put on by **Standard-Koister Sidcup, Kent Social & Athletic Club Aquarist Section** as part of the firm's Fête Day, was Mr. A. Larkby. Meetings are now held on alternate Tuesdays.

**T**HE new secretary of **Crewe A.S.** is Mr. H. J. Eden, 48 Cherry Tree Road, Crewe, Cheshire.

**W**INNERS of **WATER LIFE** diplomas in the aquarist section of the **Willesden Borough Show** were Mrs. A. Wingrove and Mr. H. Batey. The aquarists' section was staged by the **Willesden A.C.**

**F**IRST prizewinners in the recent breeders' show arranged by **Brighton & Hove A.S.** were Miss D. Matriss and Mr. C. Sparshott. The 30 entries were judged by Mr. Ayton. The club's new meeting place is Emery's Hotel, Queens Road, Brighton.

**I**N the Autumn **Crawley A.S.** put on a display of furnished aquaria and single fish entries in conjunction with a local pet-show. Judging was performed by Mr. A. Lambert.

**B**Y 20 points to 16, **Slough A.S.** won the first round of the S.W. Middlesex Aquarists' Association challenge trophy contest against **Feltham A.S.**

**A**NOTHER society to enjoy a lecture given by Dr. F. N. Ghadially was the **Oldham A.S.** At the society's exhibition **Bury A.S.** and Mr. C. G. Bennett won **WATER LIFE** diplomas. Leading exhibitor in the table shows held throughout the year was Mr. J. R. Shaw with 20 points. The December meeting will take the form of an unusual social evening.

**O**VER 8,000 people attended the **Paisley A.S.** exhibition for which there were 402 entries. Best fish in show was a **Bristol Shubunkin** shown by Mr. H. Selley. He won a **WATER LIFE** diploma.

**A** **VIVARIUM** Society has been started in the **Oldham** area. Interested herpetologists should contact Mr. G. M. Barbrook, 23 Eric Street, Oldham, Lancs.

**T**HE annual show of **N. Birmingham P. & A.S.**, held from October 22 to 24, resulted in a number of new members being enrolled. The **W. Bromwich A.S.** won a **WATER LIFE** diploma for the best furnished aquarium and Mr. T. Roberts with a Common Goldfish received a similar award for the best juvenile entry.

**O**FFICERS elected at the A.G.M. of **Scarborough (Scarale) A.S.** were:—chairman, Mrs. A. E. Davison; treasurer, Mr. G. E. Lyson and secretary, Mr. C. J. Cox, 30 James Street, Scarborough. Members' queries on fishkeeping will be answered at the December 7 meeting.

**R**ECENT activities of **Tyneside A. & B.S.** have included a talk on "Aquarium Gadgets" by Mr. L. Wilson, a show of

aquarium plants, a lecture on "Aquarium Science" by Mr. O. Teifer, and an inter-society show. A social evening is scheduled for December 8 and a quiz for January 5.

**M**EMBERS of **Stourbridge A.S.** participated in a quiz on October 8. Three days later they visited Bristol Zoo and on October 22 Mr. I. Digger gave an illustrated lecture on "Dragonflies." Mr. Poole addressed the November 5 meeting on the topic of "Pond Construction."

**I**N an interclub show between **Wimbledon A.S.** and **Lotus A.S.** the Wimbledon society won a **WATER LIFE** diploma for the highest aggregate of points.

**M**EETINGS of **Worthing A.S.** are held on the second and fourth Tuesday of each month in the Clubroom, Warwick Hotel, Worthing. Mr. Nichols spoke on "Diseases of Fish" at the November 24 gathering and a Christmas social has been arranged for December 8.

**T**HE last of a series of four table shows was held by **Kettering A.S.** on October 20. Final placings were Mr. Simons first, with 20 points, and Mr. Brigstock second, with 15. Mr. Hunt spoke on "Livebearers and P.B.A.S. Show Standards" at the November 3 meeting. Members visited the opening social of **Corby A.S.** on November 4 and an inter-society quiz with **Wellingborough A.S.** was arranged for November 17.

**M**R. J. LESTER visited the **Aylesbury A.A.** on October 14 and gave a talk on "Amphibia and Reptiles." A coldwater table show, consisting of 10 classes, had been arranged for November 11.

**P**RESENT secretary of the **Hornchurch and District Aquarium Society** is Mr. A. Brooks, 116 Sulton Avenue, Hornchurch, Essex.

"**UNUSUAL Aquarium Fish**" was the title of an interesting talk given by Mr. T. Whalley at the November meeting of **Southport A.S.** The first annual dance was arranged for November 25.

**T**HE following officers were appointed at the A.G.M. of **Plymouth A. & P.S.**:—chairman, Mr. M. Summers, vice-chairman, Mr. Henderson; treasurer, Mrs. Ryder and secretary, Mrs. V. Coslett, 180 Bodmin Road, Whiteleigh, Plymouth. Guppies were shown in a table show at the next meeting. Mr. Coslett was the judge and during the evening Messrs. Marshall, Lovell, Easterbrook and Rodmore gave their fish breeding experiences. Members visited the Marine Biological Association's premises on November 11. A display at the **Plymouth Schoolboys'** exhibition will be made from December 21-28 and on January 14 the annual dinner will be held in Dingle's Restaurant.

**A** **PETS' Club** has been formed in the **Priory Secondary Boys' School**, Barton Road, Newport, Isle of Wight. Enquiries interested should contact Mr. J. R. Higgins at the above address.

**N**EW officers elected at the A.G.M. of **Surrey A.C.** were chairman, Mr. C. Parslow; treasurer, Mr. W. Walters and show secretary, Mr. R. G. Fowler.

**F**OLLOWING the A.G.M. of the **Guest Keen & Nettelfolds (Midlands) Ltd. P. & A.S.** Mr. A. Harris is the secretary. Address of the firm is Atlas Works, Darlaston, S. Staffs where Mr. Harris may be contacted.

**A** **FILM** show was given at the October meeting of **Blackburn A.S.** In November the members heard an illustrated talk and a quiz. The December meeting will be a social gathering.

**A**T a meeting on October 28 the **Skipton A.S.** was inaugurated with Mr. J. Jessop appointed chairman; Mr. F. Smith, treasurer and Mr. F. Cherry, 88 High Street, Skipton, Yorks, secretary. Meetings are held each month at the Craven Cafe.

**O**N November 13 the **Midsomer Norton A.S.** staged an exhibition.

**A**T the October 17 show of **Bolton A.P. & M.S.** Mr. A. T. Johnson's furnished aquarium was awarded a **WATER LIFE** diploma.

**M**R. H. RUSSELL HOLLAND travelled down to Southend on November 3 to speak to the **Southend, Leigh A.S.** Members gave short talks on November 17 and there was also a table show for Characins.

"**E**NVIRONMENT and the Aquarist" was the intriguing title of a successful talk given by Mr. W. L. Mansfield at the October 12 meeting of **Bristol A.S.**

**T**HE **Inverness A.S.** has been formed with Mr. J. A. Mackintosh, 20 Dochfour Drive, Inverness, as secretary.

**N**OVEMBER 4 was the date of the inaugural meeting of **Corby A.S.** Its chairman is Mr. D. F. Harstock and its secretary, Mr. L. S. Relf, 92a Rockingham Road, Corby, Northants.

**D**R. COLE of the Heath Lane Hospital, West Bromwich, spoke on "Rearing Fish" at the October 14 meeting of **Coventry P. & A.S.** Members promised to supply Dr. Cole with fish to stock his hospital aquariums.

**F**IRST annual show of **York A.S.** was held from October 11 to 17. Mr. R. J. Sowley's coldwater furnished aquarium was adjudged best furnished aquarium in show.

**A** **N**EW society has been formed in the **Bristol** area. It has the title of **Bristol Tropical Fish Club** and by October 30 it already had a nucleus of over 30 experienced aquarists. This new body will cater exclusively for the tropical fishkeeper and meetings are held on the third Thursday of each month at the Old Duke, King Street, Bristol. Secretary is Mr. W. E. Ridler, 9 Friendship Road, Knowle, Bristol 4.

**T**HE proposed new club in the East London area, mentioned in our last issue, has now been formed under the title of **Aquarist Society "Pisces" (E. London)**. Already members have heard talks on the breeding and rearing of Barbs, Characins and Cichlids. Table shows, which include breeders' classes, are held each meeting. Applications for membership should be sent to Mr. F. King, 14 Lonsdale Avenue, East Ham, E.6.

**N**EW secretary of **Catford A.R. & P.S.** is Mr. W. B. Iles, 8 Derrick Avenue, Sanderstead, Surrey.

**A**N attendance of over 1,300 was recorded for the first annual show of **North Bucks A.S.** The club's October meeting was addressed by Mr. W. Dacre.

**C**URRENT officials of the **Colindale A.S.** are chairman, Mr. G. Hagg; treasurer, Mr. A. Newark and secretary, Mr. G. F. Smith, 19 The Ridgeway, Kingsbury, London, N.W.9.

## Display at Flower Show

**M**R. S. S. BARKER of Scawby, Doncaster, set up a display at the Chrysanthemum Society's Show held recently at Woodlands, Doncaster. His collection included tropical and coldwater fish and an indoor pond.



## Innovations at East London's Twelfth Annual Show

### Close Competition in Many Classes—Tooth-carp Best Tropical Fish

THE proven standard pattern of E. London A. & P.A. annual exhibitions was not strictly followed for the 1953 event. For one thing the catalogue had a more modern appearance, for another, flowers bedecked the show hall. In addition more classes were shown in pairs and illustrated lectures were given during the Friday and Saturday. From an overall viewpoint all these innovations spelt improvement. As last year the show was of three days duration in the spacious St. Margaret's Hall, Barking, with judging taking place the evening prior to opening. It seemed strange to be visiting the E. London "annual" late in the show season instead of near the beginning, but a September date enabled the breeders' show, usually a separate event, to be combined with the main show.

Opening the show was Mr. George Camdale, Messrs. T. E. Butt (show organiser) and F. A. Petto (show secretary), with their show committee, are to be congratulated on their arrangements. Judging were Messrs. C. W. G. Creed, S. Harker, R. G. Mealand, H. Russell-Holland and C. J. Saunders, B.Sc. Vice-president A. Leutscher, B.Sc., staged an herpetological display and there was also a stand showing macroscopical aquatic life. Mrs. R. H. Wood answered queries on the F.B.A.S. stand.

Few other societies could stage a show of quality fish such as this with all exhibits (excluding interclub furnished aquaria classes) coming from members. That the quality of the fish and plants has been consistently high in post-war events—this year was certainly no exception—speaks well for the strength of the society.

Leading the tropical club furnished aquaria was a tank of unusual design (77 points) with the bottom layer dipping away to the back. Plant positioning was really good. Plants were intelligently used in the first prizewinning cold-water club furnished aquarium (81). The layout was a little unusual but the grey bottom layer did not give quite the desirable contrast. This exhibit won the Coronation Trophy and a WATER LIFE Diploma for Bethnal Green.

#### LIVEBEARER CLASSES

An 88-point Doubleword Guppy led its class. It was a very good fish. A well-proportioned and coloured Cofertail (88) headed the class for Round-, Cofert-, Spear-, Pintail and Robsons. The leading Scartail (81) did not have the desirable caudal length. A particularly well-coloured fish led the Female Guppies but its dorsal and caudal could have been better shaped. A pair of Red Platies (164 points out of 200) were the best of their group. Colour and body depth were good but body shape could have been better. Blacks (163), good in every respect except that the dorsal was not too developed, won the Mollie class. Swordtails were a good average lot with Blacks (158) leading. The combination of body shape, finnage development and excellent colour put a pair of *Limia nigrofasciata* (158) well ahead among the A.O.S. Livebearers.

Black Widows took all the places in the class for this species and Buenos Aires Tetras. The leader (82) was large and had good colour density for its size. A very fine *Hypheosobricon rosaceus* (85) led the class for *H. serpa*, *H. rosaceus*, *H. scholzei*, etc. Among the A.O.S. Characins a Neon was first (80). It was a fine fish but a trifle small. Cherries took first three places among the Barbs. The leaders (88) were well matched and had good colour. Second prizewinners were coarser. In the Rasbora, Danio and White Cloud class a pair of White Clouds (81), showing fineness of body and good colour, were first. A really brilliant *A. ramirezi* headed the Cichlids (86)—colour was absolutely stunning. A very nearly faultless *Apocheilichthys lineatus* (85) won the Strona Egg-laying Tooth-carp class, and was adjudged best tropical fish. Second was a well coloured *Rivulus cylindraceus* (83). Of the eight entries in the *Corydoras paleatus* class a fish of fine colour and size, shown by Mr. Dowling, was first prizewinner (80). Among the A.O.S. Catfish a *Corydoras melanostictus* of excellent size was the winner with 83 points. The first prizewinners in the Fighter class were well ahead with 85½ points. They were well matched Reds with fine finnage. The male's body was just a little dark and heavy. A quite exceptional Dwarf (90) was the best fish in the class for Dwarf

and Thick-lipped Gouramies. It had beautiful colour and markings. Another class of quality fish was that for A.O.S. Labyrinth. A Three-spot (83) of lovely colour density and fine condition was first.

Two quite good Common Goldfish were first and second in their class. The first prizewinner (76) had a better body contour. Shubunkins were not exceptional but the first prizewinner was well ahead with 64 points. Its caudal was narrow-forked. Winner of the Fancy Goldfish Cup was a good Fantail Moor with 69 points. A well-shaped Golden Orfe (80) came first among the A.V. Foreign Coldwater Fish.

An *Echinodorus radiatus*, a superb plant of magnificent size and condition, led the Large Home-propagated Plant Class. It was awarded the Crede Cup. Well grown Twisted Vallisneria with not over exceptional twisting won the A.O.V. Plant Class.

In the breeders' classes the entries were judged on merit with the result that several first, second and other prize-cards were given in each class. This is permissible in a members' show where the prime aim is to give acknowledgments to the exhibitors' success as fish breeders. Five firsts were given in the Breeders' Livebearers. Mr. Campkin gained two with beautifully coloured *P. variatus* and densely-coloured and well-conditioned *M. latipinna*. Another first went to Mr. Gibbons with some remarkably well-sized *M. sphenops*. Other first prizewinners were Mr. R. C. Dowling with well-coloured, nicely-matched but somewhat small Green Swords, and Mr. Law with Yellow Wagtail Platies, fine size and shape, but slight metallic colour of their bodies. Three firsts went to exhibitors in the Breeders' Eglayers. Pride of place went to a superb quartet of large and well-coloured Angels which won the Breeding Achievement Trophy and a WATER LIFE Diploma for Mr. Law. The other prizewinners were Mr. Arnold and Mr. Campkin with *Corydoras paleatus* and *Aphrosenion britzianum*, respectively. Two firsts were awarded in the Breeders' Labyrinth. One to Mr. Johnson for his well-developed Leiris and another to Mr. Campkin for his evenly-grown and nicely-coloured Dwarf Gouramies. Mr. Petto won a first in the breeders' Goldfish class with well-grown Shubunkins which showed variable fin development.

CLUB TROP. FURN. AQUARIA (5): 1, Marble Arch A.S.; 2, Hornchurch & District Aquarium Society; 3, Bethnal Green A.S. CLUB COLDW. FURN. AQUARIA (4):

1, Bethnal Green A.S.; 2, Hendon A.S.; 3, Marble Arch A.S. SENIOR TROP. FURN. AQUARIA (1): 1, C. H. Welling. SENIOR COLDW. FURN. AQUARIA (2): 1, F. A. Petto; 2, A. G. Duckett. GUPPIES (TOP, BOTTOM, DOUBLESWORD AND LYRETAIL) (9): 1, W. J. Layzell; 2, W. Hadkiss; 3, Mrs. B. L. Petto. ROUND-, COFER-, SPEAR-, PINTAIL AND ROBSON (13): 1, 2 and 3, R. C. Dowling. VEIL- AND SCARTAIL (4): 1, R. C. Dowling; 2, W. C. Layzell; 3, C. R. Looker. FEMALE GUPPIES (21): 1, E. Smith; 2, A. J. Holloway; 3, R. C. Dowling. PLATIES (10): 1, P. S. Campkin; 2, H. Law; 3, A. E. Harding. MOLLIES (8): 1, A. E. Harding; 2, R. Johnson; 3, H. Law. SWORDS (15): 1, W. F. Hylton; 2 and 3, R. C. Dowling. A.O.S. LIVEBEARER (7): 1, C. H. Welling; 2, S. H. Bond; 3, A. J. Holloway. BLACK WIDOWS AND BUENOS AIRES TETRAS (9): 1 and 3, W. Hadkiss; 2, R. C. Dowling. GLOWLIGHTS, REACONS, NEONS AND FLAMES (17): 1, Mrs. L. C. Holloway; 2 and 3, R. C. Dowling. SERPÉ, ROSACEUS, SCHOLZEI, ETC. (17): 1, J. Gibbon; 2, W. Hadkiss; 3, H. J. Law. BARBS (13): 1 and 2, Mrs. L. C. Holloway; 3, C. H. Welling. RASBORAS, DANIOS AND WHITE CLOUDS (10): 1, P. S. Campkin; 2, A. G. Duckett; 3, W. Hadkiss. CICHLIDS (11): 1, F. Arnold; 2, C. R. Looker; 3, R. Johnson. PANCHAN, RIVULUS, ETC. (10): 1, H. J. Law; 2, D. A. Spoor; 3, P. S. Campkin. CORYDORAS PALMATUS (8): 1, R. C. Dowling; 2, R. Johnson; 3, F. Arnold. A.O.S. CORYDORAS (6): 1, 2 and 3, F. Arnold. FIGHTERS (6): 1, H. J. Law; 2, J. Gibbon; 3, W. J. Layzell. DWARF AND THICK-LIPPED GOURAMIES (4): 1, P. S. Campkin; 2, C. H. Welling; 3, R. Johnson. A.O.S. LABYRINTH (14): 1, C. R. Looker; 2, H. Law; 3, C. H. Welling. COMMON GOLDF. (11): 1, Miss C. Bomser; 2, F. A. Petto; 3, A. G. Duckett. SHUS (6): 1 and 3, F. A. Petto; 2, Miss C. Bomser. FANTAILS (7): 1, T. King; 2, A. G. Duckett; 3, Mrs. B. L. Petto. FOREIGN COLDW. (6): 1, A. G. Duckett; 2 and 3, A. J. Holloway. LARGE PLANTS (9): 1, F. Arnold; 2, F. D. Gill; 3, P. S. Campkin. SMALL PLANTS (21): 1 and 2, P. S. Campkin; 3, F. A. Petto. BREEDERS' LIVEBEARERS (22): 1 (2), P. S. Campkin; 1, A. Gibbons; 1, R. C. Dowling; 1, H. J. Law; 2 (2), C. H. Welling; 2, J. Gibbon; 2, H. J. Law; 3, C. R. Looker. BREEDERS' LABYRINTHS (4): 1, P. S. Campkin; 1, R. Johnson; 3, F. D. Gill; 3, A. E. Harding. BREEDERS' A.O.S. EGG-LAYER (23): 1, P. S. Campkin; 1, F. Arnold; 1, H. J. Law; 2, F. Arnold; 2 (2), H. J. Law; 3, P. S. Campkin; 3, F. Arnold; 3, J. Gibbon. BREEDERS' GOLDF. (5): 1 and 2, F. A. Petto.

## Coventry's Well-supported First Public Exhibition



Some of the tropical furnished aquaria staged at the Coventry society's show.

COVENTRY P. & A.S. staged its first public aquaria exhibition recently. In the four competitive classes, judged by Messrs. W. L. Mandeville and T. L. Dodge, there were 95 entries. Bradbury Cup for the best fish in show went to Mr. H. Beecham with a Harlequin. Mr. S. Shorter's coldwater furnished aquarium, containing Shubunkins, was the best furnished tank and won the Hogarth Cup. Non-competitive exhibits at the three-day event were nine aquaria in which the history of the Goldfish was traced, four tanks containing herpetological specimens, a pond layout, a display of succulents

and jars containing livefoods and predators. COLDW. FURN. AQUARIA (9): 1 (67), S. Shorter; 2 and 3 (73 & 63), G. Glover. TROP. FURN. AQUARIA (23): 1 (71), G. Stone; 2 (70), C. J. Grant; 3 (69), Mrs. H. Court. TROP. FISH (43): 1 (81), H. Beecham (Harlequin); 2 (79), G. Bailey (*Apocheilichthys lineatus*); 3 (77), L. Fullerton (Guppy); two thirds (77), R. G. Stock (Tiger Barb and *M. veliferus*); 3 (77), Mrs. H. Court (*M. sphenops*). COLDW. FISH (20): 1 (69), G. Glover; 2 (67), Mrs. C. Essam; 3 (63), Mrs. M. D. Bradbury. All Shubunkins.