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and Pondkeeper

AUGUST, 1962



MONTHLY  
Vol. XXVII No. 5

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## Editorial

FROM time to time we are asked to suggest a list of suitable items to form the contents of a "medicine chest" for the fish house, such requests coming quite often from beginners with only two or three aquaria. Our first desire when a question of this sort is asked is to challenge the advice-seeker's attitude to aquarium-keeping, for to our way of thinking the question discloses a wrong approach. It is unfortunately true that the same wrong attitude to human health is all too prevalent to-day; a vast variety of drugs and preparations is urged upon us all for ourselves and our pets by advertising with the aim of "maintaining" or "promoting" health, as if this were some precarious state from which all living things are likely to deviate at any moment unless they are purged, fortified, cleansed or given "tonics" and are otherwise chemically doctored regularly. In a tragic way the results of an over-readiness to prescribe drugs have been disclosed only recently, in the example of thalidomide, and it is to be hoped that some new thoughts about this whole matter will be the result.

The healthy state is the normal and most frequently found condition in fishes and the properly managed aquarium. It should be a matter of regret for the aquarist if conditions are such that he is driven to use chemicals to right something that has gone wrong, for in most instances it will be mismanagement that is the cause, not a propensity of Nature to foster ill-health and death. To keep a stock of chemicals by one's aquaria is to be tempted to make use of them when some simple change of feeding or other technique may be all that is required. Obviously, treatment involving the use of chemicals may become necessary if recognisable disease breaks out, but the use of "preventives" is not to be recommended. Infectious disease is best avoided in the aquarium by the adoption of quarantine procedures for new fishes. Many aquarists are too ready to see disease where there is none, and they most of all should absolutely renounce the notion of a "medicine chest".

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## Electric Fishing on Trout Streams

by N. L. GOODLAND

Photographs by JAMES H. SMITH

WE all know, of course, how the needs of housing, water, sewage, impinge more and more heavily on the English countryside. We country lovers are watchful of this—and it is right that we should be. We use all sorts of arguments and guile, to “preserve” it as best we can. But, in these arguments, we should be careful when we declaim upon such matters as “changing the balance of Nature”.

Ever since man made a stone axe, or dug a pit for a sabre-toothed tiger, his whole effort has been devoted to “changing the balance of Nature”. This is his main occupation and, indeed, his means of survival. Sometimes he does it for the worse, sometimes for the better. We surely realise that the English countryside as we know it to-day, with its woods and fields, its hedges and lakes and the appearance of its rivers, is in fact largely due to man's success in effecting this change. If he had not interfered with the English scene, it would be unrecognisable.

The famous Hampshire rivers, the Test and the Itchen, are typical examples of man's interference. Both their appearance, and their excellence as trout streams, are due to this cause. In the whole of these two valleys, it is possible to see what they were like long ago, possibly only at one place. This is at Longparish, where for about half a mile, the Test remains untouched from primordial days. The cause is a high cliff on the left bank, which has made impossible the creation of such things as the traditional water meadows, with which the valley was not so long ago

familiar. From the top of this high bank, one looks over acres of stream and reed bed—winding, gin-clear streams passing between reed and sedge, here in rippling shallows, there cutting at right-angles through the sedge to join another branch. An area beloved of coots and duck and snipe, and also of the fat Hampshire trout which breed in its broad shallows. From the top of this bank, a most exciting place, one can see the trout lying, clearly visible in the crystal water, and one can also see the grayling.

Now the grayling is an interference with the balance of Nature indeed! It is an underprivileged member of the family to which salmon and trout belong. It was introduced to our two rivers from the Avon 100 years ago, and, like the grey squirrel, it has spread. It competes severely with the trout for the same food, and, given a chance, breeds prolifically. There is no doubt that without control, the trout would suffer the same fate as our beautiful red squirrel, now rarely seen in the county where, when I was a boy, it was so widespread.

Grayling are not, of course, the only fish that have to be controlled if the game fishes—salmon, trout, sea trout, are to thrive. All coarse fish competing for food—chub, roach, dace, carp, eels and so forth, must be controlled, as must that voracious freshwater shark, the pike, which actually

preys on other fishes—including the trout. Pike do not necessarily, as some suppose, subsist upon weak or sickly fishes and thus act as scavengers of the river. This is true only up to a point. Pike are intelligent. If they can seize a good trout, they will. They will certainly snap up the sickly fish no longer viable enough to outwit them—but they also pick out the best of the trout they can see, and hunt and secure it if they can. Any observant water-keeper will confirm this fact.

Where pike are allowed to breed unchecked, the river can become practically denuded of all other fish life, and the pike themselves reduced to preying upon each other. It is due to the "interference" of man since before Norman William came, who has speared and wired the pike, and caught the eels, and controlled competing fishes, that the trout, and the salmon who spawn in these rivers, are present in the numbers and quality that to-day make the Hampshire Test and the Itchen the Mecca of all trout fishermen. No one pretends that the "balance of Nature" is not here interfered with by man—it is: quite deliberately. Coarse fishes are removed wherever the opportunity presents itself; the result can hardly be described as other than beneficial. In co-operation with the Hampshire River Board, fishery owners and the Test and Itchen Fishing Association have spent fantastic sums to make these rivers internationally famous as trout streams, as they have been for many years and as they are to-day. The River Board co-operates for the simple reason that the activities of fishery owners in maintaining such valuable trout streams go a long way towards covering the huge expense of maintenance and control of these rivers, which would otherwise be the responsibility of the nation. The man-created streams of this valley, wherever designed for milling or irrigation, run slightly above the level of surrounding farm land at normal flow—so one can see what a considerable call on the national resources there would be if we had to control it ourselves.

Removal of coarse fishes is but one small field of man's interference with the "balance of Nature", as this hint given of the maintenance of these two rivers implies. But even so—it is a beneficial operation to the public in other respects. It is the enormous cost of maintenance, and rarely the fishery owner's eye to profit, which places the raring of a rod on these trout streams beyond the pocket of the ordinary man. But, almost in step with the work proceeding on these two famous rivers, coarse fishing waters have been and are being developed that are within the reach of the city dweller who enjoys the supreme relaxation of

angling. These waters are stocked with the coarse fishes removed from the game-fishing rivers. Nothing is wasted, therefore, and nothing destroyed.

However, the process of coarse fish removal from the Test and the Itchen has not remained static. Netting is, of course, still widely practiced, but you don't have to be an angler to realize that netting cannot always be effective, in areas where there are obstructions such as weed, wide shallows, stretches that are alternately deep and shallow. A rather novel method of coarse fishing has therefore been evolved, which, properly handled, is extremely efficient. This is the electric fishing apparatus, which attracts or stuns the fishes, thus enabling the game fishes to be left, and the coarse fishes to be lifted out. Like any new method, it has had its difficulties in the past, but it seems certain these have been overcome. In skilled hands, the procedure no longer damages or "stuns" the fishes, game or coarse, as it was once suspected that it did.

Electrical fishing outfits can use A.C. or D.C. current. They are used up and down the country by River Boards and fishing associations. The A.C. current has a "stunning" effect; the D.C. attracts the fishes to the positive pole, causing the minimum of momentary inconvenience, and for this reason the Test and Itchen Fishing Association prefers the use of the D.C. current. Their headquarters is at Saddlers' Mill, Romsey; a famous salmon-leap just above Headlands, the home of Admiral of the Fleet Lord Louis Mountbatten of Burma. The outfit is easily described. It consists of a Land Rover, which carries the portable engine to drive the generator, and various other small items of equipment. A light trailer is attached, to carry the 12 ft. flat-bottomed boat, the electrodes, the landing nets and the bin to receive the coarse fishes.

At the scene of operations, the procedure is as follows. The flat-bottomed boat is manoeuvred into the water. The petrol engine is unhooked from the Land Rover and carefully lowered into the boat. The negative pole of the apparatus is a strip of copper encircling the boat, and into this a lead is plugged. The positive electrodes are two 8 ft. poles, terminating in a round wire frame rather like a tennis racket. These are attached to their appropriate joints, and connected to the engine by a rubber-covered flex. The two landing nets are again on the end of 8 ft. poles. A dustbin half full of water is used to hold the catch temporarily. Two men climb into the boat, one forward and one aft the engine, to handle the electrodes, and two more join them to handle the landing nets. There is not a great deal



In these pictures coarse fishes removed from the trout streams are shown being transferred to new waters



Oxygenated water tanks in a van are used to transport the coarse fishes.

of room, therefore, and the buoyancy tanks fitted along the sides of the boat are indeed necessary!

The engine is started up—with the result that no one can hear a word anyone else says, so that the team controlling the boat must know what is required. These "rope holders" may consist of interested onlookers, or presiding water-keepers who sometimes actually wade in the stream. They stand on or near each bank, and by means of the ropes, drift the boat broadside downstream, and zig-zag it at the same time from bank to bank. This is done slowly and carefully, all the way down the beat, to be sure the area is thoroughly covered.

The "catchers" swing their electrodes backwards and forwards in the water, carefully searching each likely point. The two netters lift coarse fishes attracted to the electrodes, and pop them in the bin. Game fishes are pushed gently aside to ensure that they do not get too frequent doses of electricity.

Bailiffs, or River-Board men from the coarse fishing waters, will be present, and organised to carry the catch away. They do this by means of oxygenated tanks on lorries or other transport. They do not keep the fishes in these tanks longer than necessary, so, as the team takes them out of the water, the coarse fishes are held in "keep-boxes" until the actual moment of moving off. These keep-boxes are slatted wooden cages lowered into the river, and have a sharp bow so that they can be towed to follow the fishing team as required.

I well remember the day I acted as "rope-holder". Mr. Raymond Baring, Secretary of the Test and Itchen Fishing Association, and his son were the two catchers, and his bailiff, Reggie Wells, and another keeper were the "netters". His second bailiff, Joe Sullivan, was on my side of the bank, helping to direct operations. Owing to the noise of the

engine, and the fact that Mr. Sullivan's accent is not quite the same as mine, I could not grasp what he had to say. He placed his mouth against my ear and shouted "Pull!" I did. The men in the boat lurched suddenly, and seemed annoyed. The rope holders on the other side were pulling as well. Mr. Baring's polarised lenses were directed towards me, but behind them was the patient expression of a man who had experienced this before.

I slacked off. My opposite number did the same. The boat was now pointing bow upstream. The team in the boat stood resignedly, silhouetted against the water rather like immensely superior and dignified storks. Then, using commendable initiative, I got my pull in first, and the zig-zag course from one bank to the other was successfully launched.

Let no one suppose that the rope-holder's job is a simple one. This zig-zagging business requires—intelligence. An instinctive understanding with your opposite number on the other bank is required as to where the "zig" should finish, and the "zag" begin. Your post cannot be deserted, be it faced with quagmires, brambles, ditches, or nasty-looking cattle. Before you come to each waterside tree or bush, foresight is required. You work out your plan of how to get the rope round them long before you get there.

You must be firm about this. Others will offer to help you round—but they will confuse matters, because they will have a better plan. If you get scratched or torn, or have to step into the water up over your waders or boots—never mind. You must keep manfully on. The boat must be kept upon its zig-zagging course. After the first hour, you will begin to look round to see if anyone else would like to be a rope-holder. Only the greenest of the green will be able to hear you if you make any such suggestion.

The fishermen have their problems, too. It looks an easy, leisurely task, holding the electrodes in the water, swinging them across the stream so that every point is covered. But the river quietly and persistently registers its resentment against the obstruction, however mild, you are causing. The gentle pull on the bat-like wire frame at the end goes on and on. Your muscles tire—but you must



Photo

Trout

W. J. Howes

not lift out to relieve the aching strain for fear of losing your catch. And you must be constantly manœuvring to avoid too much current playing upon the trout.

On this particular occasion we were on Michael Dodson's boat on the Itchen, and just before we reached the bridge carrying the Winchester by-pass, a cry of "Pike!" went up from the opposite bank. Mr. Baring shouted to be pulled back; Joe called "Pull up!" Reggie bawled "Pull down!" Young Mr. Baring shouted "My way!" and excited friends and relatives who had turned up to follow the fun pointed in all sorts of directions, calling "There he is!" But at last, Reggie Wells made an inspired scoop with his big net, and in less than no time Mr. Pike, with his nasty, vicious jaws, was safely deposited in the bin.

Serious as the intent of the operation may be, therefore, it is regarded as a sport in itself, and never lacks its host of followers and advisers. However, as before mentioned, the excellence of these two trout streams is not achieved merely by the removal of coarse fishes. Weed and silt have to be controlled, for trout thrive in clear water. For this operation, after removal of coarse fishes, the River-Board's paddle-beat is frequently employed. This boat has cutting blades a yard and a half long, which can be adjusted according to the depth of the stream. The paddles are driven by a petrol engine. They not only propel the boat and sweep it, but they are an extremely effective means of bringing silt into suspension, and thus sending it on downstream. After this, beats are restocked, and the usual keeping goes on all the year through; maintenance of banks, bridges, hatches, formidably expensive after the immense damage caused so often by winter flooding.

Such is but a glimpse of some of the amount of "interference with the balance of Nature" that goes on upon such valuable waters as the Hampshire Itchen and Test. When you are next leaving over one of our bridges, and you can see trout 30 yards away, even though it be 4 ft. down in the water, and you are enjoying the infinite variety of greens which make up the tapestry of our lovely valleys, you may reflect that without this interference there would



Mr. James Robertson Justice is one well-known trout fisherman who fishes the Itchen waters

be no typical Hampshire scene as you are enjoying it. There would be a desolation of weed and tangle and broken banks and swamps, perhaps without foundation for a road such as you have traversed to get to the scene, or the bridge upon which you lean to enjoy it.

## Herpetological Queries answered by ROBERT BUSTARD

Please send me some information on how to keep the Reeves' terrapin (*Chrysemys reevesi*)

This species, which is very hardy and common in parts of China and Japan, is strongly recommended. Before the war it used to be regularly imported and it is only within the last few years that it has again been seen in this country. It is largely aquatic and seldom exceeds a shell length of 4 in. The head is streaked with bright yellow and the olive-brown to black carapace is intersected by white lines. In the vivarium Reeves' terrapin can be treated like the hardy European species such as the European terrapin (*Emys orbicularis*). If kept indoors the aquarium should receive plenty of sunlight, or artificial light placed just above it to provide bright light and also warmth. The water should have a depth of about 4 in. for a baby (2 in.) specimen or 6 to 8 in. for an adult. It is important that the tank be kept clean as uneaten food will foul the water and terrapins are susceptible to eye ailments from dirty conditions. The best food is earthworms, but small pieces of raw meat or raw fish are also suitable although they are messier as they break into small fragments. In season tadpoles may also be given. Small specimens may nibble vegetable matter such as aquatic plants, or lettuce leaves can be floated on the water surface from time to time. Vegetable food and sunlight are valuable in avoiding rickets as baby tortoises and terrapins need much calcium

for shell (bone) growth. In warmer weather the aquarium can be placed out of doors or larger specimens (3 in. upwards) are safe in a garden pond, where they should be treated as recommended for the European terrapins (see the Outdoor Reptiliary article in the June issue).

Please send me some information on the *Journal of Herpetology*, often mentioned by Mr. B. Bustard in his articles.

In reply to your query, the *British Journal of Herpetology* is published twice yearly by the British Herpetological Society. Membership of this Society is open to all those interested in reptiles and amphibians. Members can obtain advice and can use the library. Postal library facilities are available to members who, like myself, live well out of London. In addition there is a flourishing London group who hold regular meetings. Membership for country members, which includes the *Journal*, is 15s. per annum. The *Journal* contains articles and original contributions on all aspects of herpetology, although special attention is given to our native fauna and that of Western Europe. Recent herpetological book reviews are also valuable. Enquiries regarding membership of the *Journal* should be addressed to the Secretary, British Herpetological Society, c/o Zoological Society of London, Regent's Park, London, N.W.1.

# Does Your Back Ache When Gardening?

by Dr. R. O. B. LIST

**Y**OU may ask what this has to do with fish-keeping. I would reply in all seriousness that gardening should have a lot to do with the subject, and I would further venture to suggest that very few of us even regard the subject in any light whatsoever.

We tend to make a lot of mistakes and omissions when dealing with plants, and treat them very badly indeed. I hope to correct some of these faults in this article.

Let us go shopping for just a while. We have found a shop or some other source of supply of aquatic plants. We make our selection, consider the price and make our purchase. While our money is being handed over, the shopkeeper is dealing with the purchase. Take your choice and what do you get? Brown paper, newspaper, greaseproof paper or any old paper.

We may then go straight home or visit other shops. Eventually at home we put our plants on one side, it has been busy to deal with them immediately. If able to handle them right away, we find the aquarium for which they are destined, and with the aid of our fingers or planting sticks, make a hole in the compost and plant them. Didn't take long, did it?

When purchasing fishes, do we fail to take some sort of container? Be it a jam jar, sweet jar, vacuum flask or polythene bag, at least some form of container is taken. If we are surprised when out, by seeing a fish we would like, it is more than certain that the shopkeeper will oblige with a container.

We would never dream of taking home our fishes in newspaper, greaseproof or some other form of paper, would we? So why do we take our plants home in that fashion? Fishes and plants are both true aquatic subjects, and why we should differentiate between the two is just beyond me.

You may now ask, what difference does this make. The answer is a very simple one to test. When purchasing plants again, divide your purchase into two. Take one lot home in the way you have been accustomed and take the other portion home in a container with water. Plant both and mark where each lot is sited. In a very short space of time the plants brought home in water look infinitely better than the others.

What does the gardener do? He digs, prepares his soil, fertilises the soil, prunes and reaps the harvest. Do you dig in your aquarium? There is no need to. Do you prepare your soil? Probably not, but you should. Do you fertilise your soil? Again, you probably do not. Nor do you prune nor do you reap a proper harvest.

Consider the beautiful gardens in some of our show places and stately homes. Compare these gardens with the backyards sometimes found in industrial areas. In both you find trees, bushes and sometimes flowers. But the backyard flowers leave very much to be desired. Yet they come from bulbs, shoots and bedding plants. Then why the difference? The difference is in the soil preparation and fertilisation.

Consider the show tanks to be found in open-show furnished-aquaria classes, and compare them with some of yours. The show exhibits are in the main magnificent, and some of our home tanks are just plain miserable. The contrast is as great as between the stately home and the backyard.

When choosing your aquatic plants pay regard to the rootwork. Choose your white rooted plant as first preference;

if it is brown, it may be peat or loam grown. It may be grey and even black. Discard these two last-named types. I would prefer a 2-inch plant with white roots to a 6-inch grey or black. Your soil preparation is simple. Get the right type of compost, i.e. deep-sea washed sea sand of  $\frac{1}{4}$  or  $\frac{1}{2}$  in. grain. Wash it until it is clean and the soil is ready.

The next point is fertilisation. A gardener's shopping list might include items such as stable manure, hop manure, bonemeal, weed killers, hormones, and other chemical products to promote growth. The aquarist should not concern himself with any of these, except, of course, if he is a gardener as well.

Here you might say to me, wait just a moment. You mentioned weedkillers. Why can't we have weedkillers? I wish I knew that answer, as it would save a lot of worry with our algae, green, blue and brown, and blanket weed.

On the question of pruning, there is not a lot to say. You should, however, prune where necessary. Firstly discard your old leaf growth as soon as it is evident that it has had its day. Also prune some of your new growth when the plants have been purchased and before planting. Consider the plant which has a runner on which there is another plant. Usually we just snip the runner in two, making two separate units, each of one plant with a piece of runner. Rather make three units, two separate units of one plant each and the whole runner, which should, of course, be discarded. An odd question at this point. Do you cut your nails with scissors or do you file them? Scissor cutting makes for heavier growth. Heavier growth usually implies a coarser growth. Therefore I suggest that instead of cutting a runner with metal, just snip it with your fingers. Do you still disbelieve that there might be a difference? If so, make the test for yourself.

Our gardening publications give much space to the positioning of plants. Do we pay any regard to where the plant should go in our aquaria? No, we usually put them where we want them to be, purely for appearance sake. Consider the light factor, be it natural or artificial light. Consider those plants which require some shade or a lot of shade, as well as those which like plenty of light.

Instead of being envious of other aquarists who have good plants, let us now give consideration to suggestions that can put you in the front ranks of the plant growers.

Firstly choose your plants carefully. Take them home in the manner which I prescribe. Now take a little time for examination. You have purchased plants but what else have you got? Snail spawn and other objects which you can well do without. Cleanse your plants in a mild solution of potassium permanganate for a short while only. Hand-strip the leaves between thumb and first finger. Wash them in clear water and they are ready to be used. If you cannot deal with them immediately, keep them in water until you can.

Have you a spare aquarium? Then I suggest you use it in the same way as you would use it for keeping fish in, but leave out the fish. Make it simply a plant tank. Reflect a little on the shade to the tank. The number of incorrect shades one finds is infinite. Most of them are one-bulb shades, and most of them have laying bulb fixtures instead of hanging fixtures. If you have to purchase a new shade, give merit to the two-bulb shade wherever possible. This will give you light as well as shaded places.

Now plant your plants with regard to light and shade.

If weighting is necessary, rather use cotton and small stones in place of lead.

We wish to purchase an electric bulb. We know our voltage as well as the wattage. Is that all, you may ask. No, it is not. As far as I am aware there are nine types of bulbs, which could make a pretty fair permutation. You have a choice of clear or pearl, single coil, double coil, tungsten coil, gas-filled or vacuum-filled, an inside-coated bulb and a photographer's bulb. These nine deal with the usual hanging type of bulb. In addition you have the everyday shape or the new flat tops. In addition, we have strip light, neon and fluorescent bulbs. Having examined all of these types, I can only give you my preference.

Clear or pearl? My choice is pearl for its diffused light and lack of the glare that is found in the clear.

Single, double or tungsten coil? Here some difference in expense is involved. Tungsten is, of course, the dearer, but the filament gives you good plant growth. Double coil gives you a longer life to your coil.

Gas or vacuum filled? I prefer the gas-filled. When the bulb does pop, the gas-filled does not break up into the tank so readily as the vacuum filled.

Inside-coated or photographer's bulb? The latter is usually a much finer glass and does not stand up to water splashed as well as a normal bulb. The coated bulb usually sheds a fine powder into the tank when it does break, which, however, is not harmful but can be unsightly.

To sum up: pearl, double or tungsten coil and gas-filled. If you do insist on strip, neon or fluorescent, you will find that the initial cost is heavier owing to the special fittings required.

The positioning of some plants can also be important. How often have you seen a good specimen of *Cryptocoryna* in an aquarium, and after having purchased it and planted it, you get the thought that it has suddenly become somewhat bedraggled or even that the shopkeeper may have wrapped up the wrong plant? With this type of plant you should carefully fix in your mind's eye the position in which it was when you first saw it in its home aquarium. Try and simulate the same positioning when you plant it at home. You may not know that a *Cryptocoryna* has the facility of turning and twisting its leaves so that it gets the best of everything. If its position is altered on transplanting, you will find that the plant is using every means possible to get itself into the right position again, and looks dreadful doing it. Help it in the way that I suggest.

Further use can be made of small pots, of china or glass, as planting pots. Old cups are favourites with me. With pots a plant can be easily positioned and moved from tank to tank quite readily. Unlike terrestrial plants, they do not tend to get pot-bound. One of my favourite types of pots are the plastic containers used by the firm who give Nescafe away in sample pots ready for drinking. These are always scrapped after use and may be had for the asking at any of the various Exhibitions up and down the country. I originally got the idea from a dear old lady who asked for some for her cacti seedlings. Incidentally, these particular pots do not go limp when in water as some plastic products do.

Now we come to the matter of fertilisation. There are two forms in which to do this: the natural way and the artificial way.

We will examine the former, which is really quite simple. You will probably have noticed that muck tends to collect round the bases of some plants. This happens even when the top surface of the compost is quite level. This appears to be due to the fact that some plants tend to attract muck towards them. The accent is on "some" plants, and refers to those plants which have a greater ability to feed. More about this later on.

If you feel that a certain plant requires that little bit extra

in the way of nourishment in the form of muck, just draw a circle with your forefinger in the compost around the particular plant that you have in mind, and thereby make a small circular indentation around the plant. This will give the plant that much extra space and form a trough of food for it.

To go back to the "some" plants. This will not work for each plant. Plants have the facility of breathing and taking in minute forms of life ever present in water. Naturally some plants breathe in a greater capacity than others. Among the heavy breathers we find the *Vallisneria* and *Najasaria*, and the slow breathers embrace such plants as *Cryptocoryna*.

The artificial way that I mentioned is by means of other forms of food. I prefer to use just two methods: meat and manure. Quite often, and when it is available, I cut a very small piece of raw liver, and prod this down into the compost near to the plant that I wish particularly to nourish. The piece should not be larger than the garden pea. In a very short space of time the liver will have been assimilated and is not to be found. It has been taken into the plant. What type of liver, you may ask. It must be raw and I rate them in this preference: first, chicken or poultry (but not game), then calf, sheep and lastly pig. Ox liver is a trifle too coarse for my taste.

For artificial manure, I always use the rabbit pellet. Not from a wild rabbit, however, but from a hutch rabbit. The pellet must be washed under a tap, to take off some of the chemical content, and some of the scraps of straw and bran. The average pellet should be cut in two and one half is sufficient for each plant. Prod this towards the root and leave it there. It will send up a fine cloud, similar to an *Infusoria* cloud, when it enters the water, but the matter being heavy in content, soon settles.

Both liver and pellets can be used in an aquarium with fishes and do no harm, and are also eminently suitable for plant aquaria with no fishes. If you do not care to use the two means to nourish your plants in an aquarium in which there are no fishes, then you can use the muck which you siphon off from tanks in which there are fishes.

In your fish-free tank, it is recommended that you also exclude snails, with the exception of the Malayan live-bearing, which performs very useful work as it burrows around under the compost and prevents it packing.

You should restrict your light to a large extent, so as to discourage algae, but here again I find a very useful tip, which you may have in your pockets. Take a penny, but not one later than Edward VII. Edward VII and Queen Victoria pennies do the job for you. Punch a hole into the coin and suspend it with a piece of nylon thread, so that the bottom edge of the coin is not quite resting on the compost. Tape the free end to the tank with a piece of adhesive cellulose tape and leave it. A simple form of copper sulphate will come off the coin and fight the algae for you. One word of warning. If you have not got a penny, do not use two halfpennies. This has been tried and found fatal.

Even a dead fish, provided that it is not too large, will fertilise plants. The flesh will go to the plant and the skeleton is, after all, nothing more than a crude form of bonemeal.

If you have your old copies of *The Aquarist*, I would recommend you to look at the February, 1949 issue. This contains drawings and explanations for an aquarium cover, one that completely fills the requirements that I have mentioned for covers, and I can do nothing but strongly recommend it.

Now get to your gardening and pay more attention to your old plants as well as your new purchases. Your back will not ache, but your chest can swell with pride when you see the results you have achieved by paying more attention to your plants that you have been paying in the past.

# Long-legged Iguanas

by ROBERT BUSTARD, B.Sc.



Beautifully camouflaged long-legged iguanas

**T**HE long-legged iguanas of the genus *Polydora* are fascinating lizards which are at home among the vegetation in the forests of tropical South America. When one thinks of lizards adapted to an arboreal existence the chameleon group springs to mind at once, and it is interesting to see how in some ways the long-legged iguanas have independently achieved many of the chameleons' advantages. They are beautifully camouflaged, as the photographs of my specimens (of the closely related species *Tropidurus semitaeniatus*) show. It is not hard to imagine them among the tropical lianas being mistaken for a vine stem or piece of dead bark.

### Camouflage

Their camouflage, like that of the chameleons, is composed of three principles, colour, form and behaviour. The colour is camouflaging in itself and, although they do not have the chameleons' propensity for colour change, they possess a colour scheme that blends well with their surroundings. My specimens were a drab grey-brown with some darker shadings. Many of these lizards are said to have a greenish suffusion. The form of the animal is such as to aid its concealment. It looks stick-like.

A part of the animal which is often difficult to disguise and which tends to give it away are the eyes. Many animals use stripes passing across the region of the eye to break it up and so disguise it, and the photographs show that these lizards are no exception. But the photographs also show that the long-legged iguanas, like the true

chameleons, have covered all the eye with skin with the exception of a tiny opening directly over the pupil. The two eyelids have fused together and are covered by scales, making the eye most difficult to discern. Lastly the behaviour, as in the chameleons, helps in their camouflage. These lizards normally move slowly and spend many hours at a time absolutely motionless. They have an advantage over the slow-moving chameleon, which only has to be seen to be caught, because they can move rapidly when necessary. They are excellent jumpers and, like some arboreal mammals, they use the tail for balance. They cling on to branches with the hind legs with the head and body thrust out in front and balanced by the extremely long tail behind. The value of the hind legs is seen when they jump—by a sudden extension of the legs like frogs—from branch to branch.

The long-legged iguanas live well in the vivarium. They are docile creatures, in my experience, and allow themselves to be handled without resistance. In taking the accompanying photographs I had to exercise great patience to get them to assume natural positions, because they did not move when I placed them on the branch but remained exactly as I had set them. A long time passed before they took up the natural positions illustrated.

### Vivarium Conditions

The long-legged iguanas, being arboreal lizards, require a vivarium similar to that provided for chameleons. They seldom descend to the ground. My specimens were provided with a water dish but the vegetation was also



sprayed from time to time. Ventilation should be adequate to prevent the humidity becoming excessive, but, of course, they are accustomed to a fair degree of humidity in their natural tropical jungle. My specimens fed very well, particularly on winged insects. Gentles and mealworms were provided from time to time but blueberries comprised the bulk of the food. The day temperature for these lizards should be about 75°F (24°C) and can safely fall to 55° to 60°F (13° to 16°C) at night.

My long-legged iguanas were housed in a vivarium measuring 36 in. by 24 in. by 30 in. high. The lizards themselves measured somewhat over a foot in total length, of which the tail accounted for between a half and two-thirds. *Tropidurus* species (illustrated) require the same treatment as discussed for *Ptychocheilus*.

It is difficult to predict the price likely to be charged for specimens, as it is most variable. They may be obtained for as little as 30s. They are certainly a most interesting and unusual lizard species to keep and I can strongly recommend them from my own experience. They are especially suitable for the discerning collector who wants "something different", yet the ease with which they can be kept brings them within the range of the comparative amateur to semi-tropical reptiles.



The long tail and inconspicuous eye are features to note about the long-legged iguana.



Photo:

Barry R. James

The snake plant is suitable for most positions in the fish house.

**SANSEVIERIA**, of which there are several species, are indigenous to Africa, but have been introduced to many other tropical and sub-tropical countries. *Sansevieria trifasciata laurentii* is the most popular species and thrives in shade as well as in sunny positions.

As may be readily appreciated from the photograph, the snake plant has a striking appearance and gives a vertical accent when used in a mixed arrangement of house-plants. The leaves are thick and fleshy and originate from a creeping rhizome. They are attractively mottled with shades of

#### HOUSE-PLANTS IN THE FISH HOUSE

## The Snake Plant

(*Sansevieria trifasciata laurentii*)

by BARRY R. JAMES

light and dark green, with a yellow band running along each side of the leaf.

The plant may attain a height of 4 feet under ideal conditions but is normally seen at around 18 inches, with the leaves some 2 inches wide, although this may seem to be less as the edges of the leaves tend to curl slightly towards the centre.

One should resist the temptation of being too kind to these plants. Watering in winter should be reduced to an absolute minimum, as overwatering will cause the leaves to rot at the base. In the summer months once a fortnight is sufficient as a rule, the liquid fertilizer being administered at the same time. *Sansevieria* seem to do best when slightly pot-bound and stand up well to low humidity, bad light and general neglect.

Propagation is simple as the plant produces offsets, which grow quite quickly and may overhaul the parent plant in time. Leaf cuttings may be taken at any time but need a high temperature to take properly. Leaf cuttings are also unsatisfactory because the resulting plants do not possess the yellow bands down either side of the leaf. When mature and well-established snake plants bloom annually. The flowers open at night and have an attractive scent.

These plants need a heavy compost, a suitable mixture being: 2 parts of loam, 1 part of leaf-mould, 1 part of sand. As with other house-plants, re-potting should only be practised on healthy plants and then at the commencement of the growing season.

## (7) The Moor

by A. BOARDER

**I**N all respects the moor resembles the veiltail except that it is quite black and has telescopic eyes. This fish is invariably advertised as the black moor, but mention of the colour is quite superfluous as all moors are black and any fish of any other colour would not be a moor. Since the publication of the standards for the moor it has been decided that a fantail moor is now to be recognised.

The veiltail moor must have a very deep body with the divided flowing tail or caudal fin of the veiltail. The ends of this fin should not be forked but should hang almost straight at the bottom. The dorsal fin is held high and is very large. The other fins should be well developed to conform to the general pattern. The anal fins must be paired and a fish with a single anal fin should be disqualified. The distinguishing feature of this fish is its colour. This should be a dull, matt black with no traces of bronze. The fine, sooty black seen in some good quality fish is outstanding but any definite bronzing will lose many points for the fish at a show. The eyes must be telescopic, standing out well from the head. The cornea should be quite clear and the eyes should protrude equally. The nasal flaps are usually well developed in this type of fish.

The fantail moor conforms mainly to the form of the fantail except that it is all black and has telescopic eyes. A short, full body is required and the tail is divided. The ends of the tail, however, are well forked and this is a distinction from the veiltail, where the ends must not be forked. The colour should again be a dull sooty black with no signs of bronzing.

The moor is suitable for a furnished tank but is not a very good specimen for the open pond. In the first place it will not show up very well except in very clear water and the protruding eyes would be rather liable to be damaged if any sharp rocks were in the pond, or they could be harmed in a concrete pond when spawning is taking place. The flowing fins of the veiltail moor would also be liable to damage in a pond during a severe winter. It is sometimes thought that if the moor is kept in too-warm water there is a strong tendency for black colour to turn to



bronze. This has been my own experience but I would not say that it will happen in all cases.

One of the main complaints I have against this fish at exhibitions is that the veiltail type will not display well in its tank and so is very difficult indeed to judge. Many a good fish has been passed by because of this. Many exhibition fish just sit on the bottom of the tank and cannot be made to move. It is then almost impossible to see if the tail is completely divided let alone whether the anal fins are paired. Many years ago, after judging a large class of moors I was told by one person that one of the fish to which I had awarded a prize had a single anal fin. As this fish, like some others, had remained firmly sitting on the bottom and there was another tank above it that prevented me from moving the fish with a planning stick, and the water was very cloudy, it was an easy mistake to

*Continued on facing page*



Moor goldfish seen from above and (right) the characteristic appearance of telescopic eyes and nasal flaps of fancy goldfish (from the Federation of British Aquatic Societies "Show Standards")



# Aphyosemion calliurum

by L. COLLINS

**O**FTEN we read that the breeding of egg-laying tooth carps is as simple as the breeding of guppies. This, of course, is not true, but with the co-operation of the fish, and on being familiar with a few necessary details, it is nevertheless quite simple to breed *Aphyosemion calliurum*, as will be seen from the following account.

11th April. Bought a pair of 2 in. fish and placed them in a 24 in. by 12 in. by 12 in. tank. The water in the tank had been drawn from the tap 3 weeks before and contained no additions such as peat or rain water; the depth was 6 inches and temperature was maintained at 76°F (25°C). The tank contained no base material such as gravel, had no top artificial lighting, and relied for light entirely on the daylight passing through a window in the roof of the fish house. For the sole purpose of receiving the spawning, two Indian fern plants, weighted just above the roots, were dropped into the tank.

## First Eggs

12th April. At evening time (this being the only period of the day I can give attention to my fishes), I removed the Indian fern plants and submitted them to a very close inspection and found six eggs. The eggs were all found in the same area; none at all was on the leaves of the plants, but all were on the roots, close to the plants' base. Again I must emphasise the need for a very close inspection, for although we now know where to look for the eggs, unless we know what we are looking for they can very easily be missed. The eggs are approximately 1½ millimetres in diameter and are perfectly clear, giving the impression of miniature dew drops. On removal of the eggs from the plants they were placed in a clear plastic box (as used for carrying sandwiches) floating in the tank with water in it at a depth of half an inch. The plants were then returned to the tank. On gently fingering the eggs they were found to be quite firm. Added to the water in the plastic container were two drops of 1 per cent. methylene blue, this being to stop the eggs from developing fungus whilst awaiting hatching. It is essential to remove the eggs from the plants each day to the hatching receptacle. The Indian ferns are brittle and delicate to handle, so I replaced them with boiled nylon wool, the ends trailing on the bottom of the tank, and I awaited results.

13th April. Extremely close inspection of the nylon wool did not reveal any eggs and therefore I replaced the wool with the more successful plants.

14th April. Found four more eggs. I removed them from the plants and placed them in the plastic container along with previous six eggs.

15th April. Six more eggs were found and placed in the container.

16th April. Six more eggs were found. However, I was not satisfied with the number of eggs forthcoming and decided to attempt another experiment. The two plants had been quite close to the tank heater, so that when the heater was in operation the immediate area of water had a temperature in excess of that of the rest of the tank. Therefore I placed the two plants at the opposite corner of the tank to the heater, and again awaited results.

17th April. The repositioning of plants to a cooler position certainly showed results, for on inspection of

plants 20 eggs were found and removed to the container. This made a total to date of 42 eggs.

18th to 26th April. On each of these days eggs (10, 8, 1, 30, 3, 7, 9, 6 and 2 respectively) were found and placed in the container.

27th April. Two small fry were observed swimming in the plastic container. I removed the parent fish to another tank, and removed fry from the container with a teaspoon and placed them into the tank where the eggs were first laid. Again, the fry are very difficult to see as they can easily hide in the small pieces of plant removed at the same time as the eggs. It may have been possible that fry have been hatching for a few days and going unnoticed have subsequently perished. On placing the fry into the tank, feeding was commenced with Infusoria. Total number of eggs in spawning amounted to 118.

28th April. Six fry hatched.

29th April. Four fry hatched.

30th April. One fry hatched.

1st May. Thirty fry. The fry were actually seen hatching whilst I was in the process of removing others, their lengths varying from 2 to 3 millimetres.

2nd May. Twenty-three fry hatched.

8th May. No more fry have appeared, which means that about 50 per cent. of the eggs were unaccounted for. The only explanation I can think of is that I noticed, while the eggs were in the plastic box, very small maggot-like creatures passing through the water; these I think could have been feeding on and destroying the eggs. To combat this, I would suggest using more plastic containers; by this I would hope to reduce the risk of putting the eggs into solutions in which the creatures are already existing.

Now feeding on brine shrimp, the young are quite healthy and active, their length being 5 to 6 millimetres.

## The Moor

*continued from facing page*

make if that was a true statement. Since then I have been very wary in judging such fishes and so would recommend any exhibitor to make sure that his fish is well trained to move around and that the water in the tank is clear enough for the fish to be seen.

Having judged many classes of moors I can say quite definitely that the main fault is with the colour. Instead of the dull matt black many fish have too much bronze showing and so have to be marked down for points. I find that the fantail moor moves around much better than the veiltail moor when in a tank, and so in a mixed class, which is often found, it may be the fantail type that beats the veiltail. Provided that all points are equal I would award the higher marks to the veiltail moor, as I consider that this variety is harder to breed true than the fantail moor, but if the latter fish moves around well it can easily beat a good veiltail moor that remains still during the whole judging and fails to display its good points.

The food for these fish is similar to that of ordinary goldfish; a good mixed diet is the best, that is one with an occasional feed of live food, garden worms, white worms or *Tubifex*.

## Some Causes of Possible Failures

by A. BOARDER

ONE of the most disappointing phases of goldfish breeding is when the fish just refuse to spawn in the pond. They may look in good health and everything may seem normal and yet nothing will induce them to make a start. What can one do to encourage them to spawn? Sometimes one thing will do so and yet at other times the same treatment will not bring the desired result. One can say with a fair amount of confidence what the required conditions for a good spawning are but there seems to be some almost magic condition which starts them off.

One thing is certain, the fish cannot be expected to spawn unless they are in good condition. Unhealthy fish are likely to be a disappointment. Also the water should be in good heart. Plenty of oxygen must be available as nothing is more likely to put fish off spawning than impure water. It seems that if the sun shines on the pond in the early morning the fish are livened up and will spawn, and the weather does have some effect as well. A cold east wind will often prevent them from spawning and I have known a change of wind to stop the activities once spawning has actually commenced. The temperature of the water has some bearing on the problem, but it is not too important as I have had many spawnings at varying temperatures. The average one is in the lower eighties (°F).

One thing that is worth trying is to change a quantity of the pond water for fresh, as there is no doubt that the water in many ponds becomes very foul through the winter. The fresh well-oxygenated water will do wonders in encouraging the fish to start to spawn. Introduction of a fresh bunch of water plants for them to spawn on is also a good tip. Once the eggs are laid what are the causes of bad hatchings? One can be that the eggs are too numerous on the bunch of weeds and the container is too small. The eggs will then get insufficient oxygen and the embryos will not develop. If the water gets too hot the eggs may not hatch. If they get too cold this will only delay hatching, but it is better to try to maintain a temperature of somewhere about 70°F (21°C), as the colder the water the longer will it take for the eggs to hatch.

Another reason for bad hatchings is that there may be pests present on the bunches of weed that can eat the eggs. These range from water snails to the larvae of various flies. No snails should be allowed in the breeding pond. Another hazard is when water newts have been in the breeding pond and have laid eggs on the water weed. The tadpoles will hatch in the breeding tanks and as they grow they are capable of eating the young fry. The newts' eggs are easily seen in the weed as they are larger than fish eggs and have a distinct yellow centre.

Once the fry have hatched it should be possible to rear many of them. In the first week they can exist on Infusoria and free-floating algae. If there are a large number of fry in a hatching tank it must be realised that what food there is there will soon be eaten up and so an almost unlimited supply should be available. The tubed liquid food now on the market for rearing fry is very good and I find that it encourages the formation of Infusoria in the water.

When the fry are about a fortnight old they will take fine dried food. My method of feeding is to make a mixture

of Bemax, dried shrimp and dehydrated meat as used for cat food. This I put through a coffee grinder to bring it to a fine powder. I use twice as much Bemax as dried shrimp and a little less of the dehydrated meat. I sift this through a silk stocking stretched over the bottom of a tin. The coarse food is put into a jar for larger fry and the fine is used for the small ones. One must be careful not to overdo this feeding, for just because you can see the fish eating the food it does not mean that you can go on giving it *ad lib*. If any of this food remains uneaten for a couple of days it will pollute the water and the fry will soon be in trouble. A sure sign of this is when tiny white tufts appear on the pectoral fins, or near the gills. This is a sure sign of foulness in the water and if something is not done immediately some losses can be expected. If I see any signs of this I add some salt to the tank. About a heaped teaspoonful to a gallon of water does not seem too strong and usually soon brings a cure.

When the fry are about a month to 6 weeks old they can be attacked by gill flukes. These can be very worrying, both for the fry and the pondkeeper. The signs are that the fins fold up, the fry go off their food, although they appear to be feeding sometimes because they mouth at the surface. Later stages of the trouble show fine blood streaks on the body and the fry become emaciated and eventually die. It is very difficult to see the flukes without a magnifying glass. If an attacked fish is examined with a glass the flukes can be seen as almost transparent worm-like creatures which can move about on a fish with the actions of a looper caterpillar. I have always found that the Dettol bath will rid the fry of these pests. The treatment consists of immersing the fry in a solution of a quarter-teaspoonful of Dettol to a gallon of water. The fry can be left there for 15 minutes. Never leave them in the solution unattended as they can turn over and be in trouble. Larger fishes can have a stronger solution but must not stay in as long. When returned to fresh water the fry soon recover. I have never known the Dettol treatment to fail.

One of the most important points to watch when rearing fry is that they have sufficient space in which to develop. I consider that space is almost as important as food. I have found a fish in a tank I thought to be empty and which had been there for months without any food whatsoever from me, yet which appeared to have grown larger than the fish of the same breed that I had fed every day. Also do not be afraid to change part of the water in the fry tanks fairly often. The old idea of keeping the same water year in year out is out of date and is more likely to cause trouble than to prevent it. Take notice how the fry react to fresh water. They feed much better and grow on well. Try to give plenty of live food and small garden worms can be threaded for fry even a few weeks old. White worms and *Tubifex* can also be used, but see that the *Tubifex* are cleaned before feeding them to fry.

*Daphnia* are an ideal food for young fish provided only that the small ones are given at first and larger ones as the youngsters grow on. If an almost unlimited supply of *Daphnia* can be obtained the rearing of your fry will be easy. Any surplus live food of this type lives on and so does not pollute the water as would excess of dried food.

# Further Observations on Tail Rot and its Treatment with Kanamycin

by DAVID A. CONROY

THE author has recently described a series of studies from which he has been led to conclude that tail rot in fishes may be caused by *Aeromonas punctata*, or bacteria closely resembling it (Conroy, 1961a, b). In the present article the successful treatment of two cases of tail rot with kanamycin is reported, and a few notes are added on the condition itself.

## Treatment of Two Fish

The first case is that of a goldfish kept as a "family pet". This fish had been maintained for several months in a glass tank of ample proportions, being fed at regular intervals with *Tubifex*, raw chopped meat and a prepared fish food.

One day, whilst the water was being changed, the fish jumped out of its tank and landed in the sink. From here it was instantly recovered and returned to the tank apparently in good shape and unharmed. A macroscopical examination revealed no obvious external damage. By the

end of 7 days, however, the presence of numerous red spots on the caudal fin came to be observed. The extremities of this organ became whitened, and a marked ecchymosis was formed on the mandibular surface (Figs. 1a and 1b). At this point the author was called upon to treat the condition, and in view of the relatively advanced state of the disease it was decided to inject the fish with kanamycin sulphate. An aqueous solution of this antibiotic was used, the fish being given an injection via the intraperitoneal route, by the technique described by Conroy and Hughes (1960), at a dose of 30 micrograms/gram of body weight. Forty-eight hours later the fish had been returned to perfectly normal health, and no further symptoms were visible.

The second case concerns a goldfish of the veiltail variety, one of a number maintained on exhibition in a large public aquarium. When first seen this fish showed a number of red spots on the tail, the borders of which were coloured white (Fig. 2). None of the other fish in the same tank was affected.

This fish was treated in a manner similar to that described above, save that a dose of 20 micrograms/gram of body weight was used. The red spots and whitish border had completely disappeared by the end of 24 hours after the injection, and a careful examination of the tail revealed no permanent damage.

## Discussion

From the results given above it is seen that the effect of kanamycin upon bacterial fish pathogens *in vivo* described by Conroy (1961c, d) is corroborated *in vivo* against the causative organism of tail rot, as evidenced by its effective action in two distinct cases.

It is a source of regret, however, that in neither case was it possible to make any bacteriological studies to determine the precise cause of the disease or to verify previous findings on the same. The removal of sections of the tails in this instance would have reduced the intrinsic "decorative value" of the diseased individuals.

Notwithstanding the lack of bacteriological findings, it is possible to suggest a way in which the first of the two cases might have arisen. As was pointed out in the case history, the fish had jumped out of the tank into the sink some days previous to the appearance of the symptoms described. Whilst no gross injuries were produced externally, it is likely that minute lesions of the skin were caused which allowed the entry of bacteria present in the slime. The work of Evelyn and McDermott (1961) has shown that the skin of normal healthy fish contains varying numbers of fish pathogens (either obligate or facultative) in the slime, and among these are included types of *Aeromonas*. In a similar way, Eddy and Kinshell (1959) and Eddy (1960)

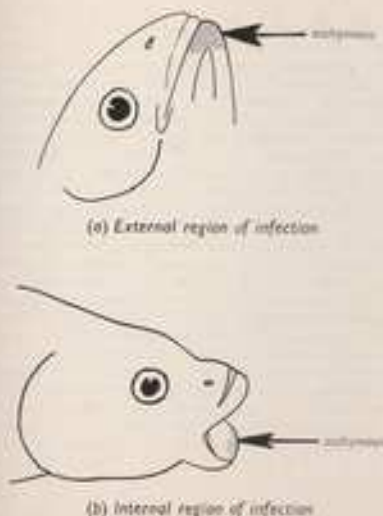


Fig. 1

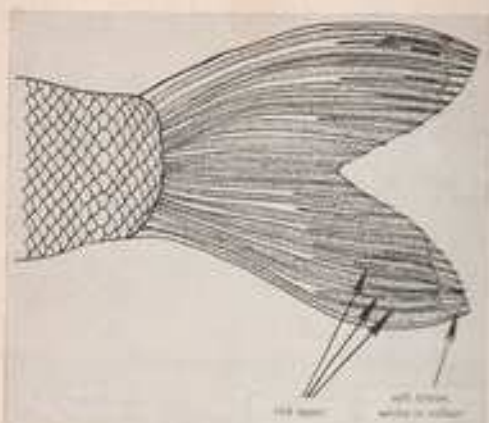


Fig. 2

have reported the isolation of strains of *Aeromonas* from meat and a mixture of fish food and goldfish faeces respectively. From this it is not too difficult to presuppose the occurrence of such organisms in the present case. Smetacek (1958) points out that *Aeromonas* spp. have also been shown to occur in the intestinal tract of parasitic trematodes (e.g., *Gyrodactylus* sp.), which rasp the skin, permitting the entry of such pathogens. Jacobs (1955) stresses the importance of those organisms which he terms "low grade pathogens", that is to say bacteria which do not cause serious epizootics but produce scattered cases when conditions permit. In a similar way the work of Brisou, Tyssel and Valente (1960) has shown that such pathogens may occur at times as harmless saprophytes in the blood stream. It is therefore concluded that in the case mentioned above the fish caused minute lesions on the skin when it jumped into the tank and that the pathogen entered the body through one such lesion producing the infection described. The author is of the opinion that tail rot corresponds to a mild infection by a strain of *Aeromonas punctata* or a similar organism, since all fish inoculated with such isolated organisms under experimental conditions die within 2, 3 or 4 days.

It is of interest to consider the symptoms produced in relation to the pathogenic action of the causal agent of an outbreak of tail rot described earlier (Conroy, 1961B). In this latter instance the injection of the bacterium into healthy goldfish produced typical symptoms of tail rot, and at the same time, ecchymoses of the mandibular region. The occurrence of such symptoms in the natural infection described herein therefore leads one to suspect that a similar agent was responsible, even though the supposition cannot be supported by bacteriological findings.

The veiltail goldfish was one of several maintained together in a large tank. It was the only one, however, in which such symptoms were displayed. From this one may assume that tail rot is not necessarily an infectious disease, at least where the fish are kept under ideal conditions of lighting, temperature, feeding etc.

The author wishes to acknowledge the continued interest in this work of Prof. Dr. Luis C. Verma, head of the Department. Likewise he expresses his gratitude to Srta. Haydée di Palma and Sr. Juan Renaudo, both of the "Gran Acuario Internacional", Buenos Aires, for having provided the veiltail goldfish for study. Finally, he thanks his wife for the illustrations which figure in the text.

The author is anxious to correspond with readers who have had experience of tail rot, dropsy, haemorrhagic septicaemia, red spot, red pox, desquamation etc. in their fishes. His address is:

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#### REFERENCES

- Brisou, I., Tyssel, C. and Valente, L. (1960). Contribution à l'étude de deux formes de peste *Pseudomonas aeruginosa* d'espèces d'un élevage (Espagne) (Brisou Tyssel). *Ann. Inst. Pasteur Alger*, 36, 500.
- Conroy, D. A. (1961A). La producción de la paraflebotomía de la aleta caudal en los peces por la acción de *Aeromonas punctata*. *Microbiol. argent.* 14 (4).
- Conroy, D. A. (1961B). Las causas de un brote de paraflebotomía de la aleta caudal en peces y su tratamiento con hexamida. *Microbiol. argent.* 14 (4).
- Conroy, D. A. (1961C). Estudio in vitro de la acción de la hexamida sobre bacterias zoonóticas para los peces. *Microbiol. argent.* 14 (7), 147.
- Conroy, D. A. (1961D). La acción in vitro de la hexamida sobre *Aeromonas punctata*. *Microbiol. argent.* 14 (3), 203.
- Conroy, D. A. and Hughes, M. C. (1960). Notes on the handling of fish for infection. *J. Animal Tech. Assoc.* 11 (1), 5.
- Edley, B. F. (1946). Cephalothorax, fermentative Gram-negative bacteria: the genus *Aeromonas*. *J. appl. Bact.* 23 (2), 216.
- Edley, B. F. and Kitchell, A. G. (1950). Gold tolerant fermentative Gram-negative organisms from meat and other sources. *J. appl. Bact.* 22 (1), 57.
- Evans, T. P. T. and McDermott, L. A. (1961). Bacteriological studies of freshwater fish. 1. Isolation of aerobic bacteria from several species of Ontario fish. *Canad. J. Microbiol.* 7.
- Jacobs, D. L. (1955). An introduction to diseases of aquarium fishes. *The Southwestern Fisherman* 6, 16.
- Smetacek, S. F. (1958). Freshwater fish diseases caused by bacteria belonging to the genera *Aeromonas* and *Pseudomonas*. *U. S. Dept. of the Interior, Fisheries and Wildlife Service, Fisheries Bulletin* no. 459.

## Infusoria

by R. E. MACDONALD

**E**VEN the most apparently clear pond water will probably contain millions of living animal and plant organisms. These forms of life are known as Protozoa, of which there are some 12,000 known species on our planet, and which are generally called wrongly by the name of Infusoria. Actually, Infusoria refers only to the many unicellular species called Ciliata, which are the most highly developed forms of cysoid.

Most Infusorians feed mainly on the bacteria produced by decaying vegetation. They develop so fast in infusions (i.e. vegetable cultures) that it becomes practicable to breed them as a food for newborn fishes. Breeding is achieved simply by placing a small amount of "green water" from a pond (if this is not available a piece of decaying lettuce will do) in a glass jar containing water. After some 48 hours a culture of Infusoria will have developed and may be fed to the fry with the aid of an eye-dropper or dip-tube.

It is not uncommon to find the water in an aquarium cloudy because of the presence of unwanted Infusoria, caused to develop by over-feeding the fishes. This condition, sometimes known as "grey water", may be cleared by the introduction of plenty of *Daphnia* (which eat Infusoria) to the water in the tank. Sometimes a light solution of potassium permanganate introduced after removing the fishes, helps to clear this trouble. By far the surest method of clearing grey water is simply to change the water in the tank and refrain from over-feeding in the future!

# Rock Pool Exploration

by HENRY TEGNER

**T**HERE is excitement in an expedition to the sea-shore just as there is in the search for some rare bird or the observation of a shy, wild animal. Here, in the British Isles, we are fortunate in the wide variety of our coastline. All along the fringe of our islands there is a vast abundance of sea life as well as a great variety of marine vegetation. The botany of the ocean is as interesting to those who wish to study it, as that of the land. The amateur marine biologist will find ample scope for his enquiring mind along the shore-line just as the amateur field naturalist does in the fields and woodlands of our countryside.

To explore the sea-shore it is not necessary to be a skin-diver in the style of Hans Haas with his paraphernalia of rubber suits, spears, under-water cameras, goggles and oxygen apparatus. In summer a bathing suit, or shorts and a shirt, a metal rake and a sack for your catch are all that is required for a good rock-pool hunt. A pair of light canvas shoes are almost a necessity as the best prospect of a successful maraud is nearly always in rocky terrain. In winter, rubber thigh-boots and a thick sweater are advisable. Gait-length gum boots can sometimes let you down especially should you inadvertently step into a deep pool.

The exploration of the sea-shore, during the winter months, can be just as profitable as it is in summer and, sometimes, it can be even more so as the coast then is so often uninhabited by other human beings and so you will have the place all to yourself, and solitude is, frequently, an advantage when you are investigating Nature and its many woodroos ways.

Some of the finest shores, for those who are interested in our coastal fauna, are the coasts of Cornwall, Devon, the Welsh tide-lines and the extensive sea-lochs and rock-strewn coves of the west coast of Scotland, but there are other places as well, such as the shores of the north-east of Scotland, Northumberland, Yorkshire, East Anglia—in fact, there are few places along Britain's sea coast that cannot provide both interest, and a form of sport, to those of us who love the sea and all its constantly changing moods. The sea is never still and the strip of land between the high- and low-tide marks is a place of great interest in the abundance of its marine life.

You may want a basket of periwinkles or perhaps an edible crab or two, or you may wish to discover the many varieties of brilliant sea anemones in the glass-clear pools left by a receding tide; whatever your choice may be they are all there to be found along the shores of Britain.

Most of my sea-shore hunting has been done along the coast of Northumberland; it is a varied shore-line representative of many others in this country. The weather of this north-eastern county may not be always as salubrious as that of Cornwall, Devon or Argyll, but weather seldom troubles me now that I have learnt, through the use of proper clothing, to keep the wet and cold from penetrating to my body.

Rain and high winds, however, make shore-hunting difficult for they disturb the surface of the rock pools, which are some of the best places to search in, and so prevent one from being able to see into them. Even these

disturbances, however, may be overcome by the use of a box with a glass bottom to it, as this smooths the water's surface to allow a view of what is below.

Before venturing on a marine expedition of this sort it is advisable to check your equipment, for nothing is more annoying than to arrive at one's destination, perhaps miles from anywhere, to find that you have left your rake or your sack. The rake is your essential weapon and upon it largely depends success or failure. My present rake is made of a 1-inch soft iron bar shaped exactly like an old-fashioned walking stick with an L-shaped handle, but I have, on occasion, used an ordinary ash-plant walking stick, with a crooked handle, with success, for all you really need is something with which to poke and scrape beneath the ledges of the rock pools and around the jungles of seaweed so as to get any of the crustaceans, hiding there, on the move.

Some people use a form of spear, but personally I prefer to tackle my quarry with my bare fingers; it is that much more exciting and you can quickly learn how to pick up a crab or a lobster without getting nipped! All the crab family are great fighters, battling constantly amongst themselves, and the commonest crab of all (*Carcinus maenas*) is called in French *le crabe sauvage*, which is an excellent description of this creature's temper.

I do not like the spear because it so frequently mutilates something you may not want to hurt. For some species, however, spears are necessary. I once spent a delightful holiday shore-hunting in the Balearic Islands, which are now very popular places for the holidaymaker to visit.

In Majorca, Minorca and Ibiza there is good hunting everywhere. Spearfishing octopuses with a weapon, shaped rather like the trident carried by Britannia on the back of a penny-piece, was fun, and the octopuses, cooked as the Majorcans can prepare them, were delicious. I still have a lovely sponge I took whilst shore-hunting in the grand bay of Pollensa in the island of Majorca.

In this country we do not really make anything like as much as we could of the harvest of the shore-lines. The French and the Mediterranean peoples eat a far greater variety of sea food than we do and they prepare this most expensively—even sea urchins and certain anemones are regarded as luxuries abroad and taste delicious, but so do snails and frogs, although this may sound horrible to those who have not tried them.

The sea urchin (*Echinus esculentus*) is one of the most beautiful of all our coast-line creatures. Its colour seems to vary from a brilliant mauve to a deep purple and it can be as big as an orange. It needs careful handling as it is as prickly as a hedgehog. The Romans, when they occupied Britain, used these sea urchins for the dye they provided for their gorgeous purple ceremonial togas.

There is an immense variety of sea anemones and their collection can be a fascinating pursuit for those who have aquariums. Anemones have been called the flowers of the sea and it is a true description, for living anemones are like chrysanthemums with a wide selection of colours.

Continued on page 103

## our readers

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



## write

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

### Nymph Goldfish

AFTER reading Mr. A. Boarder's article (*The Aquarist*, April) under "The Goldfish and its Varieties: No. 3. Nymph Goldfish", I would like to comment on his "little say", as he puts it. Referring to his mention of nymphs being throw-outs from fantails, the point missed in my opinion is that an effort must be made to produce a pure nymph to the standard set. Otherwise we can say his or any strain of fantails are throw-outs from veiltails and so on. In most strains genes remain from using this fish for fin-development or body shape and it is natural to revert back. If the standard was only for the scaled variety this would narrow it down. Many strains from Europe are true, being the scaled variety, and having bred them and found them true.

The nymph is a good swimming fish and when in motion sports a 4- to 6-inch spread of caudal fin. It is a handsome fish and deserves a place on the show bench. To those anxious to produce a pure variety, in my opinion accent should be on the strength and rigidity of the caudal fin; thus producing a fish that would have to be a product of selection.

H. G. BRADY,  
Barkingide, Ilford, Essex.

### Fahrenheit and Centigrade

I FULLY concur with Mr. A. Boarder on his views (*The Aquarist*, April) on the centigrade scale. England has used Fahrenheit since the year dot, and to now try to replace it with centigrade is as repugnant as substituting a decimal coinage for the old pounds, shillings and pence. I submit that all foreigners arriving in England should carry on as before. They should learn the Fahrenheit scale with the same readiness with which they learn to speak English. I hope we shall see no more of the centigrade scale.

JOHN BOURN,  
El Salvador, C.A.

### Society Journals

THERE are 48 members in this Society, of which 14 are members of the aquatic biology groups—keeping cold-water and tropical fishes, amphibians and reptiles and British marine creatures. The group produces two widely read publications—*Darwinia*, the organ of the general natural history society, and *Nemo*, which is entirely produced by the aquaria section. Of the former, over 80 copies have been issued of the initial number and owing to further requests from public libraries, schools and Universities, plus private individuals both here and abroad, another

impression is in course of preparation. When *Darwinia* II is published at the end of this year it is hoped there will be a sale of some 200 copies. *Nemo*, now in its third year, continues to be popular among aquarists and zoologists and the production rate remains steady at 45 copies, of which 33 are sold outside the Society.

H. J. VOSSER,  
Secretary, Lewisham Natural History Society,  
London, S.E.27

### Plecostomus and Low Temperatures

I WAS interested in Mr. Rockall's letter (*The Aquarist*, June), about his *Plecostomus* and the effect of a low temperature. I have had, unfortunately, two similar experiences. The first started with an accidental switching off of a heater unit. The temperature went down to 55°F (13°C) in the night and in the morning the fishes in this community tank were lethargic and sluggish, as one might expect. *Plecostomus* was apparently dead, lying on his back. The temperature gradually rose and he revived up; he lived a few days and then died.

Exactly the same pattern emerged with a similar accident some time later. The *Plecostomus* rallied, but the shock had apparently been too great and he died. It occurred to me that one of the lessons gained from these extravagant errors is that *Plecostomus* cannot stand low temperature or sudden changes of temperature. In this respect they are more delicate than, for example, the angel, neon, sword-tails and several others, all of whom survived. I wonder if Mr. Rockall's *Plecostomus* is dead yet?

J. E. THOMAS,  
Feltham, Middlesex.

### Hawaiian Mouthbreeder

I WOULD like to say that I agree with the account of the spawning of the Hawaiian mouthbreeder reported by T. Lea in *The Aquarist* (April). My own pair spawned recently, the male digging a large pit in which the female laid her eggs. After fertilisation, the female picked up the eggs. The spawning was carried out in a 23 gallon tank. At the time, the tank also contained a variety of large cichlids and gouramies.

I removed the female, her mouth still holding the eggs, into another tank. The male did not seem to upset her in any way. After 14 days, 103 young fish appeared swimming by the side of the mother. At this time I started feeding with brine shrimps, prepared beforehand. After 4 days I removed the female, and started feeding with micro worms and small dried food for 2 weeks. Shortly

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after the young were fed on white worms and *Tubifex*, and were  $\frac{1}{2}$  inch in length. I hope this letter will help other hobbyists to breed and rear this fish in the future.

M. BAPPOD,  
Dewsbury, Yorkshire.

#### Tank Pollution by *Tubifex*

ON Saturday, 22nd June, my wife bought *Tubifex* from my local tropical dealer, as she has done for me in the past, when I have been unable to get them myself (although she always grumbles about handling them and placing them in the feeder!). I arrived in late and did not see the fishes until Sunday morning, when to my shock and sorrow my beautiful tank (30 in. by 15 in. by 12 in.) was a mess. It was polluted and stank and all the fishes were at the top gasping for air. I quickly aerated the tank, emptied to one-third and refilled. Thankfully I saved most of the fishes but not without a casualty list of seven dead and three struggling.

Now I began to give my wife the Third Degree. Her way was that the *Tubifex* she bought was handed to her from under the dealer's counter wrapped in newspaper. When she opened it, it was a soggy, stinky mass, but not knowing they were deadly in that state as I would have, she dropped them in the feeder. I believe she was blameless, as she was ignorant of the state of these worms and, as she said, she had bought them from the shop not expecting them to sell the worms in that condition.

Now, Sirs, the dealer I say is 100 per cent. to blame; he is responsible for the death of my fishes. The worms as we all know should be kept in fresh running water until still, then fed to the fishes as soon as possible. I can guess at the idea of the dealer—a Saturday, a lot of customers, so dozens of loes of *Tubifex* are wrapped up in the morning, still being sold in the late afternoon, as in my case. By then they are dead and rotting, and some people are innocent of this fact, namely tropical fish enthusiasts' wives like mine. It is the same as selling dog's or cat's food that is poisonous. Surely these pet and fish dealers must be checked from time to time to see that the pet food they sell is safe to buy?

I would like you to print this letter if possible so that other readers can be cautious that they do not suffer the same calamity as I from irresponsible dealers.

J. W. WILSON,  
Peckham, London, S.E.15.

#### Small Amount of Skill?

AS an angler as well as an aquarist I have been known to over-elaborate on different subjects, and I thought that I was very good at this until I read *The Aquarist* (June) and saw Mr. Porter's letter. In his letter he referred to "The relatively small amount of skill needed to breed them", namely the fishes I had mentioned as being preferred to the guppies. The fish I named were *P. lescheni*, pike cichlid, silver shark, black sword, *Eosodus parvulus*, pompadour, *Nothobranchius*, phantom tetra, dwarf gourami and the ramirezi.

Of the ten fishes that I named, in my opinion it is possible for the average aquarist to breed five of these species: *P. lescheni*, black sword, phantom tetra, dwarf gourami and ramirezi. Now, taking the remainder. It takes an expert with plenty of time, money, equipment and knowledge to breed the pompadour. As for the pike cichlid, I haven't heard of any one in England breeding them; the same applies to the silver shark. The *Nothobranchius*: any fish that takes up to 75 days to hatch out needs a — of a lot of care!

That leaves us with *Eosodus parvulus*. If Mr. Porter knows any person with any of these fish he would learn that it is impossible to keep two of them in the same tank. It was tried here in Hurnley with the result of the

sudden death of the female. According to Mr. H. Axelrod this fish has never been bred in captivity. So if Mr. Porter knows some one who has bred these would he please let me know, and then I would sell the T.V. and send for a pair.

L. LEWIS,  
Secretary, Burnley Aquarist Society.

#### "Vivarium Life"

THE review that I wrote of Mr. Alfred Leutscher's book *Vivarium Life*, which was published on page 62 of the June issue of *The Aquarist*, has been somewhat abridged and I feel is less favourable than as I wrote it. I would like the final paragraph of my review as written—but which was not published—to be on record. After listing the contents I wrote:

"The above list shows that the contribution to the cold-water aquarium is considerable in itself and it must be emphasised that the subjects selected are, in the main, those which are seldom written about. The book is valuable for these sections alone."

ROBERT BUSTARD,  
Alyth, Perthshire.

#### A History of Fishes

WE thought that your readers might be interested to know that the price of *A History of Fishes* by J. R. Norman has now been reduced to 12s. 6d. We hope you will agree that this well-known book, which is a comprehensive survey of fish life, represents outstanding value at this new price.

We are publishing a new edition of this book, completely re-written and greatly expanded, early in 1963. The price will be 45s.

OLIVER P. BENN,  
Ernest Benn Ltd., London, E.C.4.

## Rock Pool Exploration

*continued from page 101*

Starfish, too, are colourful and interesting in their habits and make delightful inhabitants for an aquarium. However, to those of us who are beginners in the exploration of the tidelines it is, perhaps, the winkles, mussels, crabs and the occasional lobster which are most attractive. Periwinkles (*Littorina littorea*) are very good to eat but they need to be soaked, overnight, in fresh water before they are boiled otherwise they can be very gritty. I like to kill a crab before I cook him and this is easily and quickly done by skewering him through the bottom of the back with an ordinary meat-skewer. Beware of mussels, for they can carry disease. I avoid them now like the plague since I was subjected to a dish of *muscles marinières* at Dunkirk; it took me several days to recover. Mussels, however, make good bait if you are a keen sea-angler. Perhaps next to the winkle, the limpet is one of the commonest forms of rock-life. *Patella vulgata*, to give him his scientific name, is a tough customer in more ways than one and yet the foreigner eats him and likes him; as bait the limpet is useful because his toughness enables him to be kept on a hook for a long time, although he may not be as fetching to a fish, shall we say, as the softer-hearted mussel.

No mention has, as yet, been made about the seaweeds, sponges and corals, many species of which are to be found along our coastlines; here again their variety is considerable and their colouring gorgeous. The study of such marine fauna can be a fascinating pursuit.

A day of pleasant weather, in summer or in winter, spent on the sea-coast amongst its rocks and pools, with rake and sack, can be an adventure one will often wish to repeat.

# News from AQUARISTS' SOCIETIES

Monthly reports from Secretaries of aquarists' societies for inclusion on this page should reach the Editor by the 5th of the month preceding the month of publication.

AT the recent table show of the Bradford section of the Fancy Guppy Association the results were as follows—Guppy class: 1, Mr. Chas. Macross (Silver Star); 2, Master A. Lawrence; 3, Mr. Dalton; 4, Mr. Preston. Fanzuki: 1, Master A. Lawrence (Silver Star); 2, Mr. Edmond; 3, Mr. Rudworth; 4, Mr. Bates. Veilfish: 1, Mr. Preston; 2, Mrs. Kelly; 3, Master A. Riding; 4, Mrs. Kelly. Coloured Males: 1, 2, 3 and 4, Mr. F. Whitman (Silver Star) also best male in show. Coloured Females: 1, Mr. Rudworth; 2, 3 and 4, Master A. Riding. American Females: 1 and 2, Mrs. Kelly; also best female in show; 3 and 4, Master A. Lawrence. Matched Pairs: 1, Chas. Macross. Non P.G.A.: 1 and 2, Mr. Holmes.

THE Independent Aquarists' Society, were hosts to the five other clubs in the North West London Group of Aquarists' Societies, this being the first match of the next round. Though Independent were not the winners on this evening, the occasion was marked by the presentation of the group trophy to the local society for being joint winners with the Hendon A.S. in the last season. Also on show were two new trophies, the Club invitation shield, which was won by Independent a week ago, in competition with seven other local clubs at Hendon, and the club's own trophy, which was presented by a local teacher of Holloway Road, and is to be called the "Mitsell Trophy". It is to be used as a runners-up prize in the yearly competition. The position of the clubs is as follows—Riverdale 34 points, Willesden 24 points, Independent 4 points, Hendon 4 points, Hampstead nil.

AT the July meeting of the Northampton and District Aquarist Society, members took part in a fish identification competition run by Mrs. Upton. The Table Show Results for Egg-Laying Toad Carp were as follows—1, 2 and 3, Mr. R. Shuster. The East Midlands Inter-Society Competition results were: 1, Northampton; 2, Bedford; 3, Cambs. The Oxford Trophy for the best fish in the Competition went to Mr. R. Flynn, and the Best in Breeding Pair to Mr. R. Shuster, both of Northampton.

THE Freelance Aquarist Society has now found new headquarters at the Brockley Social Club, 245, Brockley Road, S.E.14, and will be meeting every first (then Monday) of each month. The Club sitting in the Goldfish Bowl Oxford, took place recently and the programme has also included a visit to Mr. John Edwards at Sutton and Inter-Club shows with East District and Erith. New members are welcome and can apply to the Secretary, R. A. Thomas, 34, Benezet Road, Crofton Park, S.E.14.

DECLINED in the recent activities of the Bristol Tropical Fish Club has been a visit to the Hendon and District A.S. Show held at the Beechwood Hall and the members were greatly interested in the exhibits on show. At their Club meeting, the second "Round" of the Inter-Club Table Show, was held, which is an annual competition held between the local aquarist societies. With two further "Rounds" to be held in September and October, the position is at present—Bristol A.S. 65) pts.,

Weston Tropical P.C. 33 pts., and Bath A.S. 12) pts. While judging was taking place, Mr. R. Dees from the Central Electricity Board showed Slides depicting the habitats of some of the African Tropical Fish, all taken during his visit to that country and also gave a talk entitled "Fish in Warm Waters". Sketches and Entry Forms for the Club Open Show to be held on 1st August and 2nd September are now available from the Show Secretary Mr. J. D. Brown, 36, Pearl Street, Bristol 1.

The Club meets every 2nd Thursday of each month at the Old Duke Hotel, King Street, Bristol at 7.30 p.m. New members are welcome and should apply to Mr. L. Linton, 8, Little Stoke Road, Stoke Bishop, Bristol, 8, who is Club Secretary.

AMONG recent events in the Guest Keen and Nettlefold Pond and Aquarium Society programme has been a visit to Dudley Zoo Aquarium and an Inter-Society table show with Walsall Pond & Aquarium Society. At the Aquarium, the members were able to see some excellent fish on show and they were given the opportunity of seeing the setup at the tank. Questions on anatomy, feeding, cleaning and general maintenance of the tanks, were very ably answered by one of the Aquarium assistants. Also present were members of the Dudley Aquarist Society and there was an interesting exchange of general information and points of view between the members of the two societies.

The results of the table show, the Society shows for Lilliputia and the Inter-Society contest were as follows: Fighters: 1 and 2, Mr. H. Fellows A.O.V. Lilliputia: 1, Mr. J. Taylor; 2, Mr. H. Fellows; 3, Mr. E. Hyde; Mr. J. Taylor's Guppies was Best Fish in Show. Inter-Society Table Show: Barbs: 1, Mr. C. Hubbard (GKN); 2, Mr. L. Watson (Walsall); 3, Mr. S. Duggarfield (GKN); 1 pt. Lilliputia: 1, Mr. H. Fellows (GKN); 2 pt. 2, Mr. W. Jordan (GKN); 2 pts., 3, Mr. N. Pinches (Walsall); 1 pt. Characins: 1, Mr. J. Watson (Walsall); 3 pts.; 2, Mr. H. Fellows (GKN); 2 pts.; 3, Mr. N. Pinches (Walsall); 1 pt. Mr. Fellows's Green Sulphur Mollie was Best Fish in Show and the match was a win for GKN with 11 points to 7 points for Walsall. While the fish were being judged members of both Societies took part in a "Puzzle Cut-out Quiz" and all photographs from the "Aquarist" and questions devoted to Mr. S. Duggarfield.

THE Officers elected at the special general meeting of the High Wycombe & District Aquarists Society were as follows: President, Mr. R. Gibber; Chairman, Mr. S. Prager; Treasurer, Mr. T. Wilkinson; Vice-Chairman, Mr. E. Morgan; Secretary, Mrs. A. Greenhill, 799, London Road, High Wycombe; Show Secretary, Mr. R. Barnett, 246, Highwood Road, High Wycombe; Committee, Messrs. G. Howard, N. Nicholson, A. South, J. Walslow, B. Weston and Mrs. M. Wilson; Librarian, Mr. E. Chantland; Publicity Officers, Mr. W. Lyke. This year the High Wycombe and the Three Counties Open Shows are to be staged together on the Eve, High Wycombe on Saturday, 1st September. The most successful member this year had

unofficially been Mr. A. South with a total 39 points at the Table Show. Mr. E. Barnett came a close second with 34 points. An exhibition of tropical and cold water fish was staged in the High Wycombe Public Library, twenty-three tanks being on view for two weeks and were seen by many of those visiting the bookshop. All but five were loaned and considerable interest was shown by the public. Secretary Change: Mrs. A. Greenhill, 799, London Road, High Wycombe, Bucks.

AT the Annual General Meeting of the Hild & District Aquarists & Pondkeepers' Society, the following officers were elected for the coming year: President, Mr. E. Ashby; Vice-Presidents, Messrs. J. Jarvis, J. Nees, J. Chantry; Chairman, Mr. A. Strickling; Secretary, Mr. V. Price; Treasurer, Mr. D. Patisbury; Show Secretary, Mr. H. Birge; Vice-Chairman and Press Secretary, Mr. L. Smith; Librarian, Mr. Ellis; Committee, Mr. and Mrs. Ruff, Mr. Brill. A talk was given at the last meeting by the well-known naturalist Mr. A. Lawrence. His subject was reptiles and amphibians. There was also a table show for any variety of tropical or cold water plants. Further information concerning the Society may be obtained from the Secretary, Mr. V. Price, 1A, Horner Road, Buntingford, Hild.

THE fourth annual Open Show of the Oswestry Aquarists Society was held recently, and there were over 200 entries. The Best Tropical Fish in the Show was a Silver Shark which has been reared by Mr. C. Walker of the Oswestry Society. The Best Coldwater Fish in the Show was a Black Mousse which has been bred and reared by its owner Mr. G. J. Bennett of the N.G.P.S. The Awards were presented by Councillor E. Will, J.P., Chairman of Cravenston Council who has been a member of the Society since its formation. Results were as follows: Freshwater Aquarists: 1, R. Peckall (Oswestry); 2, J. E. Shore (Oswestry); 3, H. Peckall (Oswestry). Amateurs: 1, C. Walker (Oswestry); 2, J. Wharmston (Oswestry); 3, W. Smith (Oswestry). Fighters: 1, H. Stockton (Oswestry); 2, J. Hallon (Sheffield); 3, T. E. Jerran (Derby). Small Barbs: 1 and 2, R. Collins (Oswestry); 3, R. Crook (Blackpool). Large Barbs: 1, R. Collins (Oswestry); 2, M. Chappell (Middleton); 3, C. Walker (Oswestry). Sharks: 1, V. C. Walker (Oswestry); 2, M. Chappell (Middleton); 3, F. Duffell (Oswestry). Small Characins: 1, A. Cox (Northampton); 2, R. Whinaker (Oswestry); 3, J. Hodgson (Ayrington). Madras Characins: 1 and 2, F. A. Finiger (Derby); 3, J. A. Taylor (Oswestry). Large Characins: 1 and 2, R. Collins (Oswestry); 3, H. Goodwin (Oswestry). Rainbow: 1, R. Whinaker (Oswestry). Danos: 1, R. Collins (Oswestry); 2 and 3, H. Smith (Ayrington). Dwarf Goldfish: 1, J. Hodgson (Ayrington); 2, K. Whinaker (Oswestry); 3, J. G. Dyer (Nottingham). Angel Goldfish: 1, R. Crook (Blackpool); 2, M. Chappell (Middleton); 3, A. Cox (Nottingham). A.O.V. Goldfish: 1, K. Whinaker (Oswestry); 2, and 3, A. A. Posting (Sheffield); 3, and 4, W. Yaffe (Sheffield); 2, R. Crook (Blackpool); 3, R. Collins (Oswestry). Loaches: 1, C. Walker (Oswestry); 2, J. E. Shore (Oswestry); 3, A. Warwick (Sheffield). Catfish: 1, D. Grundy (Oswestry); 2, R. Collins (Oswestry); 3, J. Wharmston (Oswestry). Swordtails: 1, J. Hodgson (Ayrington); 2, E. Dyer (Nottingham); 3, J. Thomas (Middleton). Mollies: 1, C. Walker (Oswestry); 2, M. Holland (Ayrington); 3, J. Heath (Sheffield). Platy: 1 and 2, J. Hudson (Sheffield); 3, R. Collins (Oswestry). Guppies: 1, C. Whalley (Oswestry); 2, J. R. Shaw (Oswestry); 3, R. Collins (Oswestry). Breeders—Breeders: 1, K. Whinaker (Blackpool); 2, R. Collins (Oswestry); 3, J. H. Young (Ayrington). Breeders—Live-bearers: 1, J. E. Shore (Oswestry); 2, F. A. Finiger (Derby); 3, R. Collins (Oswestry). A.O.V.: 1, F. A. Finiger (Derby); 2, J. Hodgson (Ayrington); 3, T. E. Jerran (Derby). Pair—Egg-layers: 1, C. Walker (Oswestry); 2, T. E. Jerran (Derby); 3, R. Collins (Oswestry). Pairs—Live-bearers: 1, A. Warwick (Oswestry); 2, J. Ashworth (Oswestry); 3, F. A. Finiger (Derby). Junior Members—A.O.V.: 1, 2 and 3, R. Duff (Oswestry). Goldfish: 1, L. and R. Baxter (N.G.P.S.); 2,

J. G. Burton (N.G.P.S.); Shubunkins: 1 and 2, J. G. Burton (N.G.P.S.); 2, 1, and B. Barrett (N.G.P.S.); Yuccas: 1 and 2, C. J. Bennett (N.G.P.S.); A. W. H. Bamford (N.G.P.S.); Characins: 1 and 2, C. J. Bennett (N.G.P.S.); C.L. and B. Beatty (N.G.P.S.).

AT the recent meeting of the **Stroud and District Aquarist Society** members had the privilege of listening to members of the Bristol Tropical Society Group giving short talks on various Aquatic subjects. Mr. Thomas pointed out the varying conditions of water and the effect on an aquarium and Mr. Jones answered some very interesting points on native aquatic reptiles. Results of the table show were: Cichlids: 1, 2 and 3, W. G. Gray A.O.V.; 1, W. G. Gray; 2, G. Dancer; Barbs: 1, W. G. Gray; 2, B. Isaac; 3, B. Hensler; Characins: 1, B. Isaac; 2, G. Bradington; 3, Mrs. J. Hart; Labyrinth: 1, G. Dancer; 2, B. Isaac; Catfish: 1 and 2, P. Dainty; 2, R. Isaac; Labyrinth: 1 and 2, W. G. Gray; 2, G. Bradington. Best in Show: a very fine Blind Cave Fish shown by Mr. B. Isaac.

Later in the month a very successful weekend Coach and Steamer trip with members of the Club was held.

Mr. I. G. Hinesy will be talking to the Society on **Hyacinth** at the 4th September meeting at the Archway School, Pagnall, Stroud. The Hon. Sec. is Mr. W. G. Gray, 17, John Daniels Way, Churchdown, Gloucester.

THE results of the Annual Show of the **Shipham and District A.S.** were as follows: (Guppies—Male): 1, Mr. Edmondson; 2, Mrs. A. Lawrence; 1, Mr. White; (Guppies—Female): 1, Mrs. Edmondson; 2, Mr. Hildre; (Swordtails): 1, Mr. Edmondson; (Acroparas): 2, Mr. Joseph Edmondson; 3, Mrs. Crick (Nelson); (Pigs): 1 and 2, Mr. C. R. Wilson (Bradford); (Mollies): 1 and 2, Mr. G. Holmes (Bradford); 3, Mr. Filinger (Derby); (Characins—Small): 1, Mr. Edmondson (Acroparas); 2, Mr. Goswami (Pearterson); 3, Mr. E. W. Parks (Acroparas); (Characins—Large): 1, Mr. Filinger (Derby); 2, Mrs. Crick (Nelson); 3, Mr. Ingham (Acroparas); (Rainbow and Danos): 1 and 2, Mr. Francis (Nelson); 3, Mr. Wainchester (Bradley); (Barbs—Small): 1, Mr. French (Derby); 2, Mr. Marshall (Bradford); 3, Mr. Hill (Tadcaster); (Barbs—Large): 1, Mr. Fairclife (Tadcaster); 2 and 3, Mr. Marshall (Bradford); (Amphipods): 1, Mr. D. Carr (Bradford); 2, Mr. Whyte (Nelson); 3, Mrs. Crick (Nelson); (Fishers): 1, Mr. French (Tadcaster); 2, Mr. Hinesy (Tadcaster); 3, Mr. South (Tadcaster); (Catfish and Loach): 1, Mr. Burton (Shipham); 2, Mr. Hill (Shipham); 3, Mr. Francis (Nelson); (Cichlids—Large): 1, Mr. M. Crook (Blackpool); 2, Mr. Rose (Derby); 3, Mr. Lewis (Bradley); (Cichlids—Small): 1, Mr. Hodgins (Acroparas); 2, Mr. D. Carr (Bradford); 3, Mr. Peys (Colton); (Cyprinodontids): 1, Mr. Greenall (Tadcaster); 2, Mr. Charnock (Pearterson); 3, Mr. Reynolds (Leeds); A.O.V.: 1, Mr. Hodgins (Acroparas); 2, Mr. Filinger (Derby); 3, Mr. D. Hill (Leeds); (Labyrinth)—(Breeder): 1, Mr. E. W. Parks (Acroparas); 2, Mr. Short (Oswestry); 3, Mr. Filinger (Derby); (Guppies)—(Breeder): 1, Mr. Isaac (Tadcaster); 2, Mr. G. Helton (Bradford); 3, Mr. Fairclife (Tadcaster); A.O.V.—(Cichlids): 1 and 2, Mr. Booth (Bradford); 2, Mr. B. North (Bradford); Best Fish in Show and A.Y.A.S. Diploma: Mr. C. R. Wilson (Bradford).

ONCE again **Bradford and District A.S.** report an all round increase both in membership and Table Show entries. The number of members entering their fish is still growing and this year as far as they can see all time high ever. At the last show the results were: 1, Mr. G. Helton; 2, Mr. P. Bentley; 3, Mr. C. R. Wilson. The Beginners Night was the first of two table show evenings and this was given by Mr. G. Helton. The August Table show is for cichlids. The Society is shortly visiting Chester by coach and bookings for the B.A.F. show at Belle Vue are already coming in fast. The Home Aquaria Competition which was started last year will be held once again and this year will be in November. At a recent P.G.A. (Piscine section)

Open Table Show, Mr. P. Rusworth was awarded one first, one second and two thirds and a consolation to the Breeder went to Mr. R. Billing.

A ONE day open table show is to be held by **Leeds and District A.S.** on the 28th October. An added interest will be in the finished aquaria in the Society's own 12 ft. x 8 ft. tanks which will be made available for the exhibition. The show will be held in the R.A.O.B. Hall, North Street, Leeds. The table show for fighters was won by Mr. D. East, second being Mr. A. Meyers and the Breeder—Eggs were won by Mr. J. Moss with Mr. D. East being second.

THE new Show Secretary of the **Independent Aquarists' Society** is Mr. D. Mann, 27, Parkhill Road, London, N.7. Tel. North 4941. Mr. Mann would like to receive show schedules from our society for the benefit of the members.

AT the first meeting of the season of the **Dunstable Aquarists' Society** the table show was won by Mr. J. C. G. Wood, 1st prize and Mr. P. W. Cockburn, 2nd prize in the Barbs, Mr. Wood being second and third. At the last meeting the show was for Dwarf Cichlids and the programme also included a Dinner Train.

THE Editor of the "Discus" which is the official organ of the **Blackpool and Fylde Aquarist Society** would like to hear of other societies publishing magazines regularly both in this country and abroad. His address is 14, Sandhurst Avenue, St. Ann's-on-Sea, Lancs.

RECENTLY the **Nottingham and District Aquarist Society** had a visit from Mr. Finch, the President of Derby Regent Aquarist Society and he spoke generally on trophies. The result of the table show for Characins resulted in a win for Mr. G. Wood, Mrs. Lindley being second. There is an Inter-Club show at Derby on the 16th August and at the assembly meeting on the 26th August Mr. Mansfield of Birmingham will lecture on Photography and Filmmaking.

#### NEW SOCIETY

A NEW society has been formed in Nottingham and the title is the **Nottingham Tropical Fishkeepers**. The chairman is Mr. J. Brazton, and the Treasurer Mr. A. Cox. The Secretary is Mr. I. G. Dyer, 50, Mill Street, Radford, Nottingham. The meetings are held at All Souls Church Hall, Radford on the first and fourth Friday of each month at 7.30 p.m.

#### SECRETARY CHANGES

Changes of secretaries and addresses have been received from the following societies: High Wycombe & District A.S. Mrs. A.

Greenall, 789, London Road, High Wycombe, Bucks.; St. Anne's Society of Aquarists (Mr. R. McInroy), 12, Anglim Street, Sandy Row, Belfast, 12.

#### AQUARIST CALENDAR

**22nd-25th August:** Midland Open Show, Bingley Hall, Birmingham. All enquiries to Mr. T. Edwards, 6, Amy Terrace, Odeon Street, Birmingham, 16.

**24th-27th August:** The North-Eastern Federation of A.S. Annual Show at the Exhibition Park, Newcastle-upon-Tyne. Schedules available shortly from the Secretary, Mr. R. Weston, 26, Douglas Terrace, Newcastle-upon-Tyne.

**31st August-1st September:** British Green A.S. Open Show. Schedules available from the Show Secretary, Mr. R. Frogley, 120, Gresham House, Globe Road, London, E.2.

**31st August and 1st September:** British Tropical Fish Club Open Show of Tropical Fish, Plants and Furred Aquaria will be held at the Temple Colston School, Vienna Street, Bristol, 1.

**1st September:** These Counties Group A.S. Annual Open Show and Three Counties Group P.G.S. Annual Open Show. To be held at High Wycombe & District A.S. in conjunction with Wycombe Show. Schedules and information available from the Show Secretary, Mr. R. F. Raynton, 248, Hightwater Road, High Wycombe, Bucks.

**18th-22nd September:** Leitch and District A.S. Open Show to be held at the Trinity Church Hall, Leeds.

**26th September:** Kingston and District A.S. Inter-Club Open Table Show. Schedules obtainable from Mr. H. Towell, 11, Balsom Terrace, Chiswick, W.4.

**30th September:** Blackpool, Fylde and A.S. annual show in conjunction with P.G.A. at Pavilion School of Dancing, 87, Station Road, Blackpool.

**1th October:** Bradford and District A.S. Open Table Show, at Unity Hall, Rawson Square, Bradford. Schedules from Show Secretary, R. Wrenshaw, 15, Woodhall Place, Thimbury, Bradford, 3.

**20th-21st October:** British Aquarists' Festival, Belle Vue Zoological Gardens, Manchester. Schedules available from Hon. Show Secretary, Mr. Geo. W. Cooks, "Spring Grove", Fieldhill, Bades, Yorks.

## British Aquarists' Festival 1962

The Closing Date for Entries is first post 17th September.

Schedules covering all varieties of Tropical and Coldwater Fish are now available from—

Hon. Show Secretary,  
Geo. W. Cooks,  
"Spring Grove", Fieldhill,  
Bades, Yorks.



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PLEASE NOTE.—All enquiries requiring a reply MUST be accompanied by S.A.E. Our premises are situated on the main Stratford-Birmingham road, 8 miles from Birmingham. Midland "Red" Bus No. 150 from Bull Ring, Birmingham, passes the door, alight at "The Crown," Monkspath.

HOURS OF BUSINESS—Weekdays 10 a.m.—6 p.m. Sundays 10 a.m.—12.30 p.m. (Sunday Afternoons May-July Only)

CLOSED ALL DAY EVERY MONDAY

TERMS OF BUSINESS—Cash with order please. Fish sent by rail. Tropical minimum order £5, insulated container and carriage 10/-. Cold water minimum order £2 plus 10/- cart and storage. Plants by post minimum order 10/- please add 1/6 post and packing.

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