

The AQUARIST AND PONDKEEPER

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Editor: ANTHONY EVANS

Advisory Editor: A. FRASER-BRUNNER

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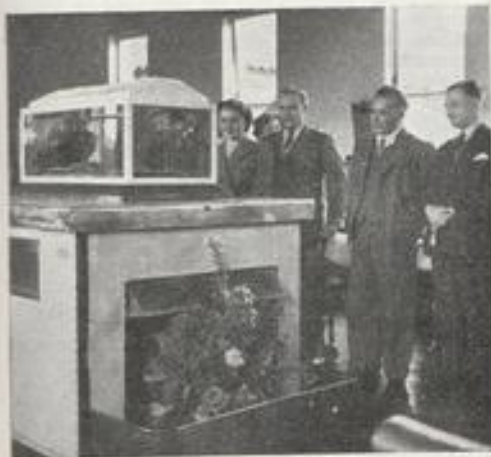


Photo:

R. Laid Gooden

Aquarium in the ward of High Wycombe Memorial Hospital presented by members of the High Wycombe and District Aquarist Society

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Editorial

FROM the tiny group of Comoro Islands, in the sea between the Portuguese East African coast and Madagascar, came news at the close of 1952 which excited students of fishes all over the world. The announcement of the discovery of another living specimen of a type of fish long believed to be extinct had been awaited since 1938, when a coelacanth which appeared in a fisherman's catch off Cape Province first renewed the interest of ichthyologists in these relics of many millions of years ago.

Neither of the specimens (each a different species) have been entirely satisfactory to Professor J. L. B. Smith, the ichthyologist working on them, for the soft parts of the first fish were completely lost and the latest one is damaged. However, it is now extremely likely that the capture of a third coelacanth will not be so long delayed, and that this time a more perfect specimen will be available for study. The reports of the examination of the coelacanth's soft parts are most eagerly awaited; the harder parts of the fish have been known to palaeontologists for some time, and their descriptions of the coelacanth based on fossil fragments have been triumphantly verified in the discovery of the living intact fishes. Fossil studies have also given some indications of what may be found within the coelacanth; it is said these fishes may be livebearers, which further whets the appetite for results of latest investigations.

It is thought that the present-day coelacanth's internal organs will show what the organs of animals were like at the time when the vertebrates were first established and land-living forms began to appear. Such knowledge is bound to shed additional light on the intricacies of animal evolution. But the awe-inspiring aspect of the coelacanth story is its re-emphasis of the mystery of the sea. This has yielded, only by chance, fishes shown to have been continuing their ancestry for some 300 to 350 million years. What other secrets does it hold from us—how many other links with the past exist in this most unexplored region of the world?

Can Aquarium Fishes be Tamed?

by

DR. J. L. CLOUDSLEY-THOMPSON

ALTHOUGH many people tend to describe the behaviour of animals as though their mental processes were the same as those of human beings, this is one of the first and worst mistakes that the serious naturalist learns to avoid. For "anthropomorphism" as it is called, is unjustified, misleading and invariably results in a mistaken interpretation of what in the first place may have been an accurate observation. People like to argue that the actions of their pets show logical thought, but they are usually only kidding themselves. No true lover of nature would knowingly falsify the truth with distorted emotions!

Aquarists are usually less reprehensible in this respect than people who keep soft, cuddly mammals and birds as pets—perhaps because a modicum of knowledge and skill is necessary if the inhabitants of an aquarium are to live at all! But even so, it is not always easy to distinguish between an objective and a subjective interpretation. For instance, a fish gulping at the surface of a stagnant pond appears to be "gasping for air." "Poore creature," you murmur as you imagine yourself struggling to the surface of those dark and muddy waters. There is no evidence, however, that the behaviour of fishes is at all purposive, and, as has been pointed out recently in *The Aquarist*, gasping is a physiological response to high concentrations of carbon dioxide in solution, not to a shortage of oxygen.

Again, many of the instinctive actions that animals perform have such an appearance of logic and thought that the "blindness" of the instinct can only be demonstrated by altering the environmental conditions experimentally. A fine example is afforded by the breeding behaviour of the male stickleback. In the spring this little fish establishes a territory and digs a hole in which it constructs a nest of vegetation. If other males appear they are attacked, but females are driven into the nest where they lay their eggs. After fertilisation the male mounts guard, and fans a current of water over the eggs until they hatch. Now these instinctive actions are each released by a particular stimulus: rival males are recognised by their red throat and belly, females by their distended abdomen, and so on. The male stickleback will attack very crude models of fishes possessing a red belly, whereas accurate models lacking the red are ignored. The fish reacts only to the red colour although its eyes are perfectly able to distinguish other details. Similarly courtship is dependent upon the swollen abdomen and special posturing of the female.

Definition of Tameness

A tame animal could be described as one that does not show fear at the presence of man. As a definition, however, this is completely meaningless, because the word "fear" is subjective and can be understood only by introspection. When applied to another species, it is merely a guess about the possible nature of that animal's subjective state. Since you understand what is meant, it may seem that this is a mere quibble. "Does it matter," you may ask, "whether I say that my fishes are tame, or that they have become habituated to the stimulus afforded by my presence?" The answer, of course, is that for everyday use it does not.

It does matter, however, if you want to be accurate and scientific. And scientific method is a better tool to employ to obtain a desired end—even if this is only the taming of a goldfish—than trial and error, or trusting to luck. So there is a practical justification also.

Some fishes are naturally less "shy" than others, but we are concerned here not so much with the natural absence of disturbance at the presence of man as with learned and artificially acquired tameness. Instinct involves inherited, fixed patterns of behaviour which may be modified by learning—of which the simplest and most elementary form is known as "habituation." Habituation can be defined as learning not to respond to stimuli which tend to be without significance in the life of the organism. Walk to the edge of a pond and the fishes swim away as soon as they see you. Now repeat this several times daily, and the response will quickly become less marked.

Dangers of Habituation

Habituation can be a source of danger to an animal, particularly in relation to traps set by man, and indeed is frequently exploited; but this aspect of the subject does not concern us. Tameness, however, usually implies more than habituation: it may also involve the establishment of a "conditioned reflex." The classical demonstration of the conditioned reflex by Pavlov in his famous experiments on dogs is now common knowledge. It is of fundamental importance in the physiology of behaviour because it enables part of the learning process of animals to be subjected to exact analysis. A simple conditioned reflex, however, is somewhat artificial, and can only be demonstrated in a passive and unresponsive animal. Therefore, a fish must first become habituated to the presence of man before it can be taught to come to him for food, and of course, an animal can only be taught by punishing it if it does not learn or by rewarding it when it does. Punishment is impracticable with the inhabitants of an aquarium, and in any case animals usually learn better and more quickly from rewards than from compulsion. (Electric shocks are a form of "punishing" stimulus that has been used for fishes in laboratory aquaria.—Editor.)

The fish learns to recognise, not individuals but situations. I had a shubunkin who became absurdly tame. He would feed from my fingers in the aquarium, and the children called him "greedy-guts." Indeed he grew so big that I put him in the pond in the garden. Alas for anthropomorphic self-delusion! In his new surroundings, greedy-guts immediately became the wildest of fishes! Not until he was habituated to my presence at the side of the pond, could the necessary reflexes be established for him again to come to me for food.

Fishes learn by habituation and the establishment of conditioned reflexes. They are not capable of the higher types of learning shown by birds and mammals. Nevertheless, they do become very tame indeed, and even allow themselves to be patted and stroked in the water. The principles to bear in mind are that habituation and conditioned reflexes are induced by constant repetition in the same circumstances. Let your fishes become familiar with your presence—do not put them where they cannot see you easily. Always feed them at the same part of the pond or aquarium, and give small quantities of food often. Finally, do not be in too much of a hurry. Some species learn more readily than others: carnivorous and omnivorous types such as pope, perch, trout, rudd and goldfish seem to make the best pupils. In my experience, however, the little stickleback becomes the tamest of all.

The Body Covering of Fishes

by C. E. C. COLE

IT is to be hoped that aquarists do not handle their fishes more than is absolutely necessary. Apart from the very real risk of the creatures jumping out of the enfolding hand, or slipping through half-closed fingers to an untimely death on the floor, their struggles will remove a large quantity of the slime with which they are normally covered.

This mucous covering is manufactured by glands situated in the outermost layer of the fish's skin—the epidermis. The number of glands varies with the species of fish—in some, like the carp, they are only moderately plentiful, and in others, like the lampreys, hag-fish, pickerel and tench, are very numerous.

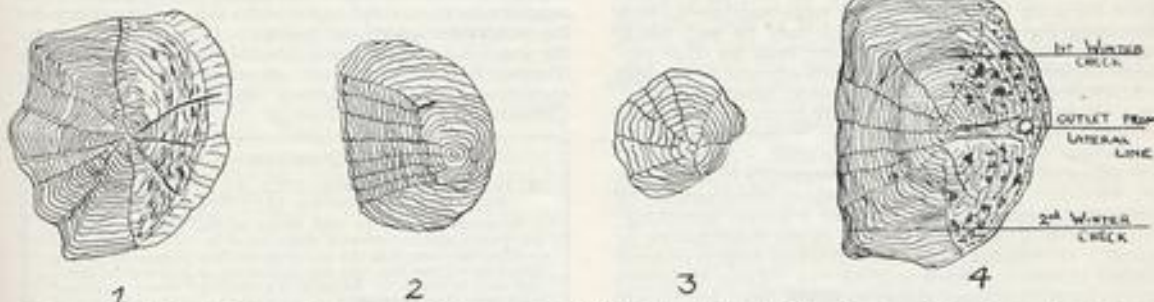
The slime serves several purposes. Probably the most important function is to seal the minute openings in the skin. If these were left unsealed, death would result to both freshwater and saltwater fishes through exchange between the moisture in the fish and the moisture outside,



Vertical section through scales and surrounding tissues. A, epidermis; B, dermis; C, scale; D, fat; E, muscle

Scales are of various shapes and thicknesses, and the mobility, or should I say suppleness, of different species of fishes, bears a direct relation upon the size. At one end of the range is the three-spined stickleback (*Gasterosteus aculeatus*) with thick armour-plating which is so rigid that he can do little more than wag his caudal peduncle, and at the other end is the fighting fish (*Betta splendens*), whose extreme flexibility is demonstrated when he wraps himself completely round his spouse during courtship.

When fry are born or hatched they are usually naked of scales, and almost completely transparent. Within a few days scales begin to develop, hiding their innards from the eyes of the curious. As the fish grows the number of scales does not increase, but the size of each individual scale does



Fish scales: 1, from *Barbus partipentazona*; 2, from swordtail (*Xiphophorus helleri*); 3, from *Barbus vittatus* (young specimen); 4, from lateral line of veiltail goldfish kept in outdoor pond in summer and unheated aquarium in winter

by the process known as osmosis. In freshwater (if the porous skin was not made watertight by the mucus) the fish would be rapidly waterlogged as the water in which it swam entered its body in an attempt to reduce the liquid in the fish to the same strength as that outside. Conversely a fish in salt water would be dehydrated by the liquids it contains flowing out into the salt water in a vain attempt to dilute it.

Next in importance is the fact that the mucous covering serves as a barrier between the fish's skin and direct attacks by bacteria, fungus, and various ecto-parasites. Thirdly, the slime lubricates the fish and enables it more easily to slip through the water—and your fingers.

Beneath the epidermis lies another layer of skin—the dermis. It is in this layer that lime salts are deposited from which the fish's scales are manufactured. The scales form a suit of armour for the further protection of the fish's vitals, and are constant within very small limits for any given species of fish. They may be deeply embedded, as in the eel, or very near the surface of the fish. In most of our aquarium fishes the latter obtains.

and, as they grow slightly faster than the fish's body, each soon overlaps another, until as much as three-quarters of every scale may be overlaid. Everyone has seen a stump of a tree at one time or another, and has noticed the growth rings on the sawn section. The tree has added one ring for each year of its growth. Fish scales, when magnified, show very similar rings of growth. There is this important difference, however. Scales add many rings each year of the fish's life.

When fishes have plenty of food, e.g., during the spring and summer months, growth is much more rapid and the scale rings are wider apart, but in the lean and hungry months of autumn and winter, when many fishes are in a state of torpor, living on their own accumulated fat, growth is extremely slow and the rings are few in number and closely set. Anyone versed in these matters can remove a scale from a fish kept under natural conditions and tell the age of the fish, whether it has spawned, and how fast it has grown. If the scale is a regenerated one—one which has been regrown to cover a bare patch—the centre will be blank, and no reading can be made.



Left: the overlapping of fish scales. Right: magnified chromatophore with pigment expanded (A) and contracted (B)

The average tropical fishkeeper, however, will experience no joy from his attempts to read the scales of his fishes. I have so far found none that are capable of being read. The use of thermostats which allow practically no fluctuation in temperature, the prolongation of winter days into summer ones by means of artificial lighting, and the complete abolition of lean and hungry periods by all-the-year feeding, ensures the continued even growth of the scales. Nevertheless, an examination under a low-power microscope will reveal much of interest and is well worth while.

Skin Coloration

Scales are transparent, notwithstanding the fact that almost invariably they appear to be opaque and coloured. What is the explanation of this? In the thin layer of skin above the scale (and below it) are large numbers of cells containing pigment. This pigment may be red, black, yellow, or orange. So far there have been no other pigments discovered. The blue so much admired in the best prizewinning shubunkins is really black, reflected through the body wall of the fishes. Similarly green is a mixture of yellow or orange and black in certain proportions. Other proportions would produce brown, or khaki. Any shade of any colour exhibited by the most gorgeously coloured fish can be—must be—obtained by various combinations of these basic pigments, plus or minus a certain something. This something is a waste product of the blood known as guanin. Guanin is a white material which collects in small clusters of crystals known as iridocytes. These iridocytes possess an extraordinary ability to reflect light, and impart to normal colours that iridescence so beautiful and delightful to the observer.

The pigment-bearing cells are called chromatophores. They are capable of concentrating all the pigment into a tiny spot in the centre of each cell, or of spreading it out all over the cell. Some of the cells may contract at precisely the same moment that others expand. This accounts for the extreme variations in colour of most tropical fishes. Of course, the most annoying time for them to lose their colour is when they are put into show tanks for judging at an exhibition, but this is precisely the condition under which most of them choose to display their ability in this direction. It may well be that this paling is an attempt to blend with their colourless background, so making them less conspicuous to imagined enemies. This is pure conjecture, however, for light usually has the effect of stimulating the growth of chromatophores. Experiments in which light has been thrown for considerable periods upon those portions of a fish's anatomy where chromatophores are normally absent have resulted in their appearance.

Nevertheless many fishes can make a very serious attempt to match their surroundings. Uncoloured metallic goldfishes kept in clear water in a white enamelled basin will go almost silver within a few days or weeks. Placed in a pond they will revert to the more normal dark bronze hue. Taken out again and replaced in the white dish, back they will go to silver. The tropical *Gambusia affinis* will act in the same way.

When breeding time approaches the opposite often applies. The most timid fish will adopt a gorgeous raiment in order to attract attention. The coloration is not always simply the result of the full expansion of all chromatophores. In many species it is now believed that the ripening sex-products produce hormones which intensify or augment the normal coloration of the fish. Star performers for exceptional additional brilliance at courting times are the jewel fish (*Hemichromis bimaculatus*), the nigger barb (*Barbus nigrofasciatus*), the paradise fish (*Macropodus opercularis*), and the humble three-spined stickleback (*Gasterosteus aculeatus*).

Post-Mortem Examination of Fishes:

W. Harold Cotton, F.R.M.S., F.Z.S., 39, Brook Lane, King's Heath, Birmingham, 14. (Phone: Highbury 1693)

Specimens should be sent direct to Mr. Cotton with full particulars of circumstances, and a fee of 3s.

It is important that the following method of packing fish be adopted:—Wrap fish, very wet, and loosely in grease proof paper and then in wet cloth. Re-wrap in greaseproof or wax paper and pack around with cotton wool in tin box. Despatch as soon as possible after death, with brief history of aquarium or pond conditions.



Aquarium in the Picture

Pea gravel has been used with effect in this tropical aquarium, in conjunction with flat rocks disposed to give an "outcrop" effect through the gravel. Cryptocoryne plants are used mainly in the rear corners; other plants (left to right) are Herpestis, Cabomba, Myriophyllum, Ludwigia. The fishes in the tank are a mixed selection of barbs.

Photo: Valerie Lilley

AQUARIST AT HOME:

Mr. C. W. Faux (NORFOLK)

Interviewed and photographed by JAS. STOTT

WHILE on my annual visit to Norfolk last year I had the pleasure of meeting Mr. Charles William Faux, who is the chairman of the Norfolk and Norwich Aquarists' Society. We soon found that we had several interests in common before we got to the subject of fish keeping. One of these mutual interests is an appreciation of a good landscape painting and, in particular, the work produced by some of the old Norwich school of artists; but that is another story. What of Mr. Faux and his activities as an aquarist?

Well, first of all he is essentially a coldwater enthusiast and can look back on 20 years of coldwater fishkeeping. Secondly, it is obvious that he is deeply interested in the Norfolk and Norwich society which started three years ago with six or seven members and now has approximately 70. Last year the society held its first annual show.

During those 20 years' experience as a fancier, Mr. Faux has kept a wide range of coldwater species but is now specialising in shubunkins and fantails. As far as the shubunkins are concerned he is attempting to produce a really deep blue colouring in his strain. I found his fish-house quite pleasing in appearance, both inside and out, for it possesses one or two interesting features. It was originally a greenhouse but later converted. The sides are covered with asbestos sheeting and the glass-paned roof is high pitched with approximately three-quarters of the glass panes permanently painted green. At the ridge is a form of canopy or false ridge panel the full length of the building which may be raised or lowered for the purpose of providing ventilation. This is an excellent system of ventilation for a coldwater fish house and Mr. Faux informed me that he has found it very successful.

Along one side of the 12 feet long and nine feet wide fish house is situated an inside pond nine feet long by three feet wide with a depth of 18 inches, constructed of concrete. Apart from being a useful component the design and layout of this indoor pond makes it of ornamental value to the



An interior pond adds ornamental value to this coldwater fish house



Mr. C. W. Faux photographed at the entrance to his fish house which was originally a greenhouse



inside appearance of the fish house. A concrete shelf along the back of the structure is planted with several species of rushes and sedges, whilst along the front is a base channel for planting submerged aquatics. This contained *Sagittaria*, *Elodea*, *Myriophyllum*, and other coldwater species. This attractive pond is used as a development ground for those youngsters selected for breeding.

All breeding and rearing through the early stages is carried out in tanks. The breeding is strictly on selective lines with, of course, one male to one female; this applies to both shubunkins and fantails. This year all the breeding has been done in green water conditions with good results. After separate conditioning the male is introduced to the green water breeding tank first, and after 24 hours has been permitted for the male to settle down the female is introduced. The tank is not planted in the normal manner: bunches of *Myriophyllum* and willow moss are placed into the tank to receive the spawn. When spawning is completed the breeders are removed and the eggs permitted to hatch in the tank, thus ensuring early green water feeding which Mr. Faux believes is highly beneficial for goldfish fry. There are, in all, 13 tanks in this fish house ranging in sizes from 24 ins. by 12 ins. by 12 ins. up to 8 ft. by 15 in. by 15 in. and they contained some attractive fishes.

Several months ago I had the pleasure of interviewing Mr. S. Talbot, the secretary of the Bradford Society, who gave me his ideas of society management from a secretarial point of view, so I thought it would be a good idea to hear what Mr. Faux had to say on this subject as chairman. He told me that as far as his society was concerned he considered that one of the most important and helpful agenda features was the "question and answers" item because it usually encouraged a free exchange of experiences and ideas. These he considered of great value to new members and beginners. As far as the latter were concerned it was the duty of a society to give them every help and encouragement possible in the way of information and guidance and to further this aim, knowledgeable lecturers should be frequently engaged. He considered that the visits of F.B.A.S. lecturers helped to set a high standard.

The Naked Catfish (*Clarias angolensis*)

by JACK HEMS

THE scaleless or so-called naked catfish (*Clarias angolensis*) is found in the marshlands of Angola, and in the main streams and tributaries of the rivers Congo and Niger in West Africa. It is an eel-shaped species, and grows to a length of about 10 inches; that is, in the aquarium, for it attains a larger size in the wild.

The general body colour is greyish-brown overlaid with a close marbling of nigger-brown to sooty-black. The lower side and underparts are sprinkled with some grey-white spots and patchy markings; the throat is silvery-white spotted with grey and suffused with pink. The fins are dark nigger-brown to black, lightening somewhat on the edges.

The dorsal fin begins just behind the head; the anal fin begins about halfway along the body. The ends of these fins, and the tail-fin, are rounded. The eyes are like small dark beads pressed hard into the silky skin of the vertically depressed head; the snout is adorned with eight barbels; a pair on the upper jaw, two pairs on the lower jaw, and a pair just behind the nostrils. This pair project sharply upwards and resemble the prongs of a pitchfork. The pair on the upper jaw are the longest, and measure more than two inches in length. They shoot off at right angles to the mouth, which is a transverse slit.

A Friendly Fish

C. angolensis is a friendly fish, and this, perhaps, has something to do with my fondness for it—though I must say that I derive great pleasure and entertainment from watching its swimming movements—a graceful rippling of the fins and serpentine body—and its quaint postures in the aquarium. Although a newly purchased specimen will remain hidden behind rockwork or massed plant life until it gets used to its surroundings, it will not stay out of sight for long. After a few days, it will swim into view every time the cover glass is moved, or when vibrations in the water warn it of the approach of its owner.

The fish has a hearty appetite, and can be fed with almost anything eaten by a fish. Among the uncommon articles of diet which my fish will take are cooked spaghetti, wholemeal bread, boiled rice, tripe cooked in milk, and whalemeat. It loves small earthworms and strips of lean raw meat, which it will take from the fingers. Its mouth, when it brushes against the finger-tips, feels like the touch of velvet. It seems to draw food into its mouth by suction rather than by the normal method of closing the jaws on it or around it. When it opens its mouth, food just flows inside like water-borne leaves down a drain. Few fish can clear a tank floor of *Tubifex* or white worms so quickly as *C. angolensis*.

It is a burrower, and if the floor of the aquarium is layered with a thick carpet of fine sand, it will have great fun pushing deep furrows in it. Sometimes you may see it swimming about with its flattened head completely covered with sand. Naturally, small or shallow-rooted plants will be uprooted very quickly, but large plants and plants with strong root-systems stand a good chance of remaining undisturbed. This is because the fish is very sensitive to obstacles, and feels, as it were, around them. It is fascinating

to watch it feeling its way around and over rockwork. Rockwork, as you may well imagine, is kept scrupulously clean.

As the fish eats a lot, and does a lot of scavenging in the sand, much fine sediment is produced and collects along the back of the aquarium and in the corners. So, to keep the water clear and healthy, it is a good idea to siphon some of the water from the bottom once a week, or, alternatively, keep a good corner filter working for an hour or two every day.

Although I have never seen the fish attack or interfere in any way with medium-sized fishes, it is unsuited to life in an aquarium housing small livebearers or characins. Not knowing better, it will swallow one or two of them as tit-bits every now and again—usually after dark when it goes on its nightly prowls.

So far as I know, the breeding habits of this fish are unknown. It is not, however, a new species to the tropical fishkeeping hobby, for according to the late John Paul Arnold, it was described in the German aquarium magazine *Wochenschrift* so long ago as 1911.

Zebras in Trouble

IT has been suggested in the past that white cloud mountain minnows and zebra danios cannot be kept together as the latter appear to be affected in some way by the proximity of the minnows. About four months ago I introduced seven zebras, each about one inch long, into a four feet tank which contained three young white clouds and various other fish. As time went on I noticed that the zebras were at a standstill, although the white clouds grew quickly. However, all the fish appeared to be in perfect health and I was not unduly worried.

Three weeks ago I noticed one morning that all the zebras were moping at the surface, looking thin and very listless although all the other occupants of the tank were in perfect condition. That night the first zebra died. The following morning two more were dead but I was too busy to be bothered and took no notice. Late that evening I saw that yet another zebra had given up the struggle, and worse still, the remaining three looked as if they would expire at any moment.

I immediately transferred them to another tank which had had no white clouds in it for years. The effect was magical; they instantly commenced to dart up and down the tank in true zebra fashion, their drab appearance vanished and their colours shone in full brilliance. They are now in excellent health and I feel convinced that there is some truth in the idea that white clouds give off some substance which is inimical to zebras. Whatever the cause it seems a wise policy to keep these two attractive varieties in separate tanks.

RAYMOND YATES

£150,000 AQUARIUM

OSLO architects Christian Gaasrud and Helge Simers have won the first prize of £550 for their design for the aquarium to be built at Bergen, Norway. £150,000 has been raised for building the aquarium—two-thirds from private subscribers and one-third from Bergen Town Council. It is intended to build new premises for the Norwegian Government's Fisheries Administration in close association with the aquarium, and Parliament will be asked to vote money for this in time for building work to start this year.

THE AQUARIST

Pronunciation of Aquarium Scientific Names

by G. F. HERVEY

MOST aquarists have small knowledge of Latin and still less of Greek. It is, perhaps, rather a pity; for there is nothing in the whole of literature to excel the splendid Latin period, with its logical order, lucid and precise, and still of all languages the least translatable. As for the Greek language, that in the Attic dialect is as beautiful as anything can be, and it is not without reason that it has been described as the noblest form of human speech.

The aquarist need not be expected to understand Latin and Greek to the same extent as does the classical scholar, but he should know something about them, if only because once he knows the meaning of scientific names—and how to pronounce them—he will have a fresher and more significant approach to his hobby. The Latin alphabet consists of 23 letters. It is the same as ours, except that J, U and W are omitted.

The Greek alphabet consists of 24 letters. They are very different from ours, special type is required to print them; the best I can do is to set out the names of the Greek letters with their English equivalents. Here they are, then:

Alpha	= a	Nu	= n
Beta	= b	Xi	= x
Gamma	= g (hard)	Omicron	= o (short)
Delta	= d	Pi	= p
Epsilon	= e (short)	Rho	= r
Zeta	= z	Sigma	= s
Eta	= e (long)	Tau	= t
Theta	= th	Upsilon	= u
Iota	= i	Phi	= ph
Kappa	= k	Chi	= ch (hard)
Lambda	= l	Psi	= ps
Mu	= m	Omega	= o (long)

A number of points are to be noticed. In the Greek alphabet there is no C, only kappa (k). From this it follows that in any word derived from the Greek it is, perhaps, strictly correct to pronounce a C as though it was a K. It is, however, rather pedantic to do so, and if any aquarist insists on telling me that he has some Kie-no-lee-be-as (*Cysolebias*) in his tanks, I shall insist sternly on him taking his wife to the kie-nee-ma and placing a wreath on the ken-o-tarf in Whitehall. The S-sound has for long been acclimatised in such words as cinema and cenotaph. If it is argued that these words are now part and parcel of the English language, but scientific names are not, the obvious reply is that it needs an acrobatic mouth to pronounce a Greek word, as a Greek would pronounce it, in the middle of an English sentence. To attempt the feat is courting trouble; for failure makes you look a fool, and success a snob.

It will be noticed, too, that there is no Y in the Greek alphabet. The aquarist, who can hardly be unaware that *ichthys* is the Greek for fish, may wonder where the Y comes from. The fact is that the Greek for fish is *ichthys*, but in transliteration the upsilon (u) always becomes a Y. In the same way, in transliteration, the Greek gamma (g) always becomes N before gamma (g), kappa (k), xi (x) and chi (ch). A typical example is *plaghton*, which we transliterate as plankton.

Finally, it will be noticed that there is no initial H. The

aquarist may again wonder how the H comes into a word like *hexazona*. The answer is that when an H-sound is necessary at the beginning of a word a rough-breathing (´) is placed over the initial vowel, and when no H-sound is necessary a smooth-breathing (˘) is placed over the initial vowel. The Greek for six is *ex* and a rough-breathing is placed over the epsilon (e) to show that it is pronounced *hex* (not *ex*). The Greek for dawn is *eor* and a smooth-breathing is placed over the eta (e) to show that it is pronounced *eos* (not *heos*).

There are no accents in Latin, but in Greek there are three, namely: acute (´), grave (`) and circumflex (ˆ). They are written to the left of a capital letter and over the second vowel of a diphthong. Actually they need not concern the aquarist (except that he may come across them in his reading) because, inexact and unscholarly though it is, most biological writers omit them.

The aquarist, whose only concern is to know the meaning of scientific names and how to pronounce them, need not worry himself with Latin and Greek grammar. He is luckier than he knows. There is, however, one rule of grammar with which he should be acquainted. In Latin and Greek the adjective always agrees in gender, number and case with the noun it qualifies. Now, since the generic name of a species is a noun and the trivial name an adjective, the two must agree. From this it follows that when a fish is moved from one genus to another, it is sometimes necessary to alter the trivial name at the same time. A typical example is *Belontia signata* (the comb tail). Originally in the genus *Polyacanthus* its trivial name was *signatus*. The change from a genus with a masculine gender to one with a female gender, necessitated the change of the trivial name from masculine to feminine.

Generic and Specific Names

By this time most aquarists know that the binomial system of nomenclature dates from 1758, when Von Linné published the 10th edition of his *Systema Naturae*. Under this system of nomenclature every animal and plant is given two names. The first name is the generic name, the second the trivial name in the case of an animal, the specific epithet in the case of a plant.

An International Commission has drawn up a code of rules to govern the naming of species. It need not concern the aquarist, for naming fishes is not one of his jobs. All the aquarist needs to know is that the scientific names are either in Latin or Latinised Greek, and that usually a Greek form is used for the generic name and a Latin adjective for the trivial name.

The worker who first names a fish may select any name that appeals to him, so long, of course, as he obeys the rules laid down by the International Commission. Obviously the most satisfactory generic name to choose is one that gives some sort of description of the genus. In the same way, the most satisfactory trivial name is one that describes some characteristic feature of the individual. Unfortunately this is not always done. Names are often chosen to honour some famous scientist, or the traveller who first discovered the species. Sometimes the name is simply the native name of the fish; at other times it refers to the place at which the fish was first found.

The aquarist is unlikely to be puzzled when a fish is named after some famous scientist, after some traveller or place. No-one, for example, can fail to recognise that *Copeina* honours Dr. Cope, that *Cubanichthys* implies that the genus is native to Cuba, and that *Danio* is a native name. Aquarists, however, are likely to be puzzled when they come

(Continued at the foot of the next page)

IN THE Water Garden — by Dr. W. E. SHEWELL-COOPER

IN any form of gardening it is always necessary to fight weeds as well as diseases and pests. Weeds, of course, are plants growing where they shouldn't be; plants that become a nuisance; and many is the pool that has been almost ruined by plants which have taken charge and have become an absolute nuisance. There is an algae known as blanket weed which can prove very troublesome. It is often introduced accidentally when putting in aquatics which have been obtained from pools in the country.

If by any chance this blanket weed has been making successive and dense growth in your pool, it is necessary to remove all pond life and then to sterilise the water with permanganate of potash. You put a handful of crystals in a muslin bag and swirl this about the water and it will change to a rich purple colour. Then after a day's soaking the pool can be emptied and replenished with fresh water. It always helps matters to plant marginal specimens, either bushes or plants, on the sunny side of the water so as to give shade, and to stock the pond with water fleas, *Cyclops* and aquatic snails.

Pond Primulas

Primulas are very fascinating because they provide lots of colour in the spring. They are of varying heights, and for this reason I always like to plant the taller sorts as a background for the dwarf ones. Give them partial shade if you can, close to the water, but see that the soil in which they grow is rich and cool, but never sodden. *Primula japonica* is one of the best, because it is very showy as well as being very hardy. It produces tier after tier of crimson, pink, or white flowers in May and June, and there are a number of main varieties, most of them growing to two or three feet in height. *Primula pulverulata* is similar but it has stems covered with a mealy dust, and these carry whorls of rich crimson flowers. Bartlett's strain is a varietal group which gives other colours such as buff, rose pink, salmon and

apricot. The plants usually look their best in May and they have quite a long flowering season.

Primula sikkimensis is really the Himalayan cowslip. This does like quite wet, boggy ground and has rosettes of long narrow leaves with slender stems bearing clusters of fragrant nodding flowers of pale yellow. With us they are out in June and they grow about two feet high. Each bloom is about an inch in length and half an inch across. *Primula florendiae* is rather like a giant cowslip and always does its best in full sun. When it is happy it will grow to a height of three feet and will produce flowers in July and August. The leaves are heart-shaped and sometimes they are nearly as big as marsh marigold leaves.

Reeds

For those who like reeds, a good one is *Phragmites communis*. This grows about 10 feet tall and so is a bit large for the smaller gardens. Its broad glossy leaves are much admired, as are the heavy purple plumes of flowers. It is good for more sandy land and for the bigger gardens. There is a variety *variegata* which has, as its name suggests, variegated leaves. Lastly, we have *Polygonum* or willow grass. This is usually planted in one or two feet of water and the flowers and the foliage float on the surface. *P. amphibium* is very popular. Its rose coloured flowers are borne on spikes while the leaves are dark green and oblong in shape. They usually turn a purplish-red in the autumn.

I had a very irate letter from a reader of my book, *The A.B.C. of the Rock Garden and Pool*, who complained that I did not include the frog in my list of enemies. He tells me that he had a one pound roach clasped and badly scratched by a male frog so that it developed fungus and died afterwards. Now he covers his main pond with half-inch wire netting in January or the beginning of February when the creatures are collecting again for mating time.

Pronunciation of Scientific Names

(Continued from the preceding page)

across names such as *Pantodon*, *Periophthalmus*, *maculatus*, *fasciatus*, and the like. It is in such cases as these that some knowledge of Latin and Greek is desirable. For these names are descriptive (and so help identification), and many are compound, and when the aquarist appreciates this it helps him over the stumbling block of correct pronunciation.

A typical example is *Myriophyllum*, which the majority of aquarists usually mis-pronounce as mirri-off-illum, and make matters worse by abbreviating it to mirri-off. But no such mistake of pronunciation could occur if the aquarist was aware that the name is a compound of two Greek words, namely *myrios* (innumerable), and *phylon* (a leaf). Clearly the correct pronunciation, mirri-o-phy-lum, now stands out. It is much the same with *oleolepis*, which most aquarists pronounce oli-go-leep-iss. The pronunciation will pass, but it is not strictly correct, for the name is derived from the Greek *oligos* (few), and *lepis* (a scale). But the Greek E is the short epsilon and not the long eta, and the better pronunciation, therefore, is oli-go-lep-iss.

If the Latin or Greek origin of a scientific name is known, there never should be any doubt about the correct way to pronounce it. Clearly, however, this is too much to ask of the average aquarist, and, if he is in any doubt about pronouncing a scientific name, he would do well to remember that every syllable should be enunciated, and the accent should fall on the penultimate one. There may be exceptions, but off-hand I cannot think of any. Certainly,

if this rule is followed there is no need to fear being laughed at.

The rule, however, does not altogether apply when a species has been named in honour of some man. In this case the trivial name takes the form of the man's name to which the genitive I has been added. It is now proper to pronounce the trivial name exactly as the man himself pronounces his own name with the final I accented. As an example: *riddlei* should be pronounced riddle-eye, not riddle-ee, or, as is more usual, rid-lee-eye or rid-lee-ee.

The aquarist should now furnish himself with a vocabulary. This is impractical in an article, but the aquarist who is interested can do a lot for himself (and learn more) with the help of a Latin dictionary and Greek lexicon; or, for a start, he may read T. H. Savory's excellent little booklet, *Latin and Greek for Biologists*. Innes's *Exotic Aquarium Fishes* is also a great help, though unfortunately his method of explaining the scientific names does not go quite far enough. As an example, he tells us that *Nannostomus* means little-mouth. It would, I think, have been better to have explained that it is a compound of the two Greek words *nannos* (a dwarf), and *stoma* (the mouth). In the same way he tells us that *rubripinnis* means with red fins. Again, it would, I think, have been better to have explained that the name is a compound of the Latin words *ruber* (red) and *pinna* (a fin). Certainly, it would have been more precise and more helpful to those who have no Latin and Greek.

But perhaps I am writing as one to whom exactitude is a fetish.



A page for
the beginner
contributed
by
A. BOARDER

MUCH has been written about water plants in books on fish-keeping, some writers recommending their use and others stating that they are unnecessary. I think that for any set-up tank containing fish, plants are essential for more than one reason. It is a fact that water plants, when healthy and growing, give off oxygen in a fairly strong light. This is an advantage to the occupants of the tank. On the other hand, plants give off carbon dioxide at night, and so it can be assumed that as this is bad for the fish, the good done during the day is cancelled out by the action in reverse at night. In practice it is found that the amount of good done during the day far out-weighs the harm done at night. It must be remembered, however, that if a tank is very heavily planted it can become unsafe for a number of fishes during the night, especially during warm and thundery weather.

Unless the plants are growing they cannot be expected to do their work correctly, and so it is important that when setting up a tank only rooted plants are used. Most aquarists are very impatient and must set up the tank, plants and fish all in one go, and cannot wait for the plants to get settled and start to grow. It is far safer to get the plants well rooted first, and this can often be done by allowing the plants to float in the water, when roots will be sent out. It is not a good idea to push unrooted cuttings into the sand and hope for the best. In some instances this will turn out all right, but in others the stem will start to rot and this will prevent root formation and will eventually cause the whole shoot to die. There is one plant, however, which does not form roots, and that is hornwort (*Ceratophyllum demersum*), but the others must form roots to remain healthy.

When plants are not healthy and growing they will soon decay, with bad effects for the fish, because foul gases are formed. This is often the reason for a freshly set-up tank going wrong. A little patience in the first place will save a lot of trouble later on. In tanks without water plants it is often found that if the tank stands in good light the water goes green. Fish can remain healthy in such water for a long time, especially fry. The green colour is caused by tiny water plants known as algae. These tiny plants can give off oxygen like the larger plants, and as they are also eaten by tiny fry it can be a very useful asset to a rearing tank. If this algae suddenly dies, as sometimes happens, the result can be anything but good as the decaying plant life will give off foul gases and so upset the balance of the tank.

The provision of some fresh oxygen in the water is not the only benefit derived from the use of water plants. Like other plants these require a certain amount of soluble nourishment for their growth. This is normally obtained from the soil at the bottom of a pond but in the tank the plants can benefit from the waste matter from the fish. As a large accumulation of droppings in a tank could soon cause pollution, the action of the roots of the plants in feeding from these can do nothing but good. As the using up of this wastage is one of the main uses of plants in a tank their action must not be lessened by the provision of earth in the

bottom of the aquarium. The more food value in the compost then the less will the plants do their job.

For a decorative tank in a living room it is essential to use a fair number of water plants to give an attractive effect. The number necessary to set up a 24 ins. by 12 ins. by 12 ins. tank will depend on the size of the plants. If they consist of just one stem, then as many as four dozen would not be too many. Try to hide the back corners of the framework when planting and do not put too many large pieces in the front of the tank. Clumps of *Egeria densa* or *Lagarosiphon major* are very useful for the back corners and hornwort can be used along the rest of the back. The middle distance can be planted with *Vallisneria spiralis torta* and *Fontinalis* (willow moss). A small plant of *Hygrophila* and *Ludwigia* will help near the front of the tank, especially at the ends. The former has a light-green colour whilst the latter has shades of dark-red. These colours help to make a good picture. The plants mentioned are all good for the cold-water tank but there are several more which can be used in a tropical aquarium.

The position of the tank in a room will make a great deal of difference to the growth of plants. It is practically impossible to get good growth from plants if they do not get enough daylight. If the tank stands in a window with direct sunlight the plants may grow well for a time but the excessive sun will eventually cause too much algae to develop so that the plants will suffer. The best position is at the side of a window so that the sun can only shine on the end. This end will become green during the summer but it is better to keep it clean during the winter, when the light naturally decreases. The provision of lights over the tank is almost imperative. I find that for a tank as described above two 25-watt lamps are sufficient if used sparingly during the evenings or occasionally on dull days. They will also improve the look of the tank, especially if they are in a shade which actually hides the lamps from view. The illuminated picture then presented will form a great attraction in a room, being a living, lighted picture.

Next month I will deal with the compost and the rockwork for the tank, also the actual setting up and stocking.



"Only one egg on a book again!"

Building Your Own Fish House—4



First stages in the timber construction of the fish house

LET us go back to the structure of the fish house, which we left in the shape of a rectangular wall of brick three feet high, and then calculate the amount of timber required and the method of erection.

The best help I can offer at this stage is to show you which timbers were first put up. An illustration shows the first timbers in position and you will see a temporary strip across the doorway, holding the two lower end pieces. It is possible, by using similar temporary aids, to put up these first timbers single-handed, but balance, easily disturbed by hammering at the opposite end, will tend to bring down the whole show and you will probably shout for assistance from the house until you get a few temporary oblique stiffeners to prevent the timber swaying out of position.

In the foreground of the photograph taken at night is a simple jig made from a piece of half-inch strip, which was cut to gauge the distance between the centres of the roof timbers. Its length is the width of the pane used, 1 ft. 6 ins., plus the thickness of the strip separating the roof glasses, plus one-eighth inch for glass expansion; that is 1 ft. 6½ ins.

You will need to work out your own list of timber requirements and the picture of the skeleton should help you to visualise these. I see in my notes the following list which I sent to the man who ripped up the old wagon sides, but, fortunately, he sent me much timber in excess of these minimum requirements. This was essential later for work on the shuttering used in making the concrete fish tanks. If you have no spare timber or boards you should order a good supply. The more you order, the more shuttering you will be able to fill at one mixing of concrete. I shall deal with shuttering later.

Roof Supports

Here are the minimum timber requirements:—

Framework (3 in. × 2 in.): three at 18 ft. 10½ ins. for the ridge and sides; 10 at 7 ft. 6 ins. for the sloping ends and uprights; two at 6 ft. for the door frame; two at 2 ft. for the door frame; three at 2 ft. 6 ins. for the horizontal supports.

Struts (2 in. × 1½ in.): 30 at 7 ft. 6 ins.

Rebate Strips (½ in. × ½ in.): 30 at 7 ft. 6 ins.

Sealers: 50, any lengths.

Boarding for the door.

The skeleton does not show the roof supports in position

by

CUTHBERT L. NICHOLSON

but this essential will be shown in a later writing. If you look carefully at the illustration you will notice that every third timber is a shade thicker than the two intermediate ones. The roof supports are put in at these points flanking the proposed centre pathway and each pair is two feet apart. These uprights play an important part in aiding tank construction which follows, and are recommended not only because they hold up the roof but because they make excellent timbers to hold on to when leaning over tanks for servicing.

The double thickness timber seen in the middle of the ridge is only there to splice together two pieces of timber, for none of the second-hand material delivered was the full length of the house.

Procedure for Erection

1. Lay timbers upon the brickwork and bracket at the corners. Join the two pieces at the door with a temporary strip.
2. Lay the ridge on the ground in a central position and cut four end timbers of the same shape and size.
3. Put in four large nails (temporarily) with protruding heads near the corners of the base timbers to prevent the end timbers doing the "splits" when you hoist them.
4. Lay the end timbers along the base timbers with their ends just inside the four protruding nails.
5. Lift the end timbers until their apex breaks two inches apart and place the ridge timber between them.
6. You had better shout for help now. Save time and temper.
7. Partly secure the three timbers where they meet, with partly driven nails.
8. Erect temporary wooden device in the form of a stay to hold the erected end vertical.



Completed roof timbering of the fish house seen from the side



Junction of vertical and horizontal timbers with brickwork

9. Go to the other end and repeat the hoisting of the timbers.

10. Nail home all joints. Remove the protruding nails.

The rest of the timber work is easy, for once you have a model cut with the angles correct you can use it to mark out the struts which go between the end timbers. My supplier cut my timbers thicker than ordered but strange bolt holes here and there, acquired in its earlier use, cause it to be no stronger than the thicknesses of timber I have suggested. Again, I did intend making the apex of the roof eight feet high but some of the wagon cuttings were only seven feet two inches and all lengths had to be cut down to the size of the smallest, with a consequent, though not inconvenient, lowering of the roof.

The other illustration shows simply the end base timber, against each side and under which cement was later mixed and trowelled to secure it and make it airtight. I recommend also a few metal strips connected to the wood and cemented into the brickwork. The roof joints are also shown with a surplus piece of the ridge which was sawn off after the place was finished.

One point I have not mentioned. These timbers were not put through a rebating machine in order to get the tongue separating the panes of glass. The tongues are made by nailing half-inch strips down the centres of the top sides of



View of roof joints from within the fish house

the timbers before erecting them and on the insides of the end timbers after erecting them.

Just another tip before I go out and idly gaze at the gas installation which now saves me hours of dirt; as you secure each roof timber or strut, slide a pane of glass up the inside to make sure it is quite parallel and that the glass will later fit snugly with a small clearance.

FRIENDS & FOES No. 11

DAPHNIIDAE

PHYLUM:—Arthropoda, from Greek *arthron*—joint, and *podos*—foot.

CLASS:—Crustacea, from Latin *crustaceus*—having a shell.

NOT the least interesting thing about *Daphnia* is the way in which they move through the water. Their branched antennae are equipped with many fine swimming hairs, with which they beat the water. A downward stroke lifts them a little, but immediately they sink as the force of the blow is expended. This in the majority of cases gives them a lumbering, hopping motion from which the popular name of "water fleas" is derived.

There are exceptions, however. Two very common species which may easily be mistaken by the tyro for different creatures altogether are shown in the drawings. *Scapholeberis mucronata* (A) congregates in large swarms on sunny



A: *Scapholeberis mucronata*

B: *Chydorus sphaericus*

days just beneath the surface of the water, and swims smoothly and rapidly in tiny circles in a horizontal plane. Its ventral surface is uppermost, and the almost black edges of its carapace gives it the appearance to the unaided eye of an animated piece of dust. It does not exceed 1/25th of an inch in size. Multiplication is very rapid. Although eaten by fishes, the extremely sharp points near the ventral opening of its shell are quite capable of inflicting painful wounds in the mouth and gullet of fish fry. Roughly translated the

name means a sharp pointed floating hollow husk.

Chydorus sphaericus (B) is only one half the size of the above and possesses no awkward points to pierce fish fry. Some aquarists feed them in quantity and find them very useful food. They are one of the commonest cladocerans, but frequently escape netting in quantity because of their smallness. This species also swims smoothly and rapidly, but unlike the one above frequents the bottom layers of water, and congregates among the weeds.

—C. E. C. C.

OUR EXPERTS' ANSWERS TO READERS' QUERIES

Although my aquarium contains clear water, a healthy growth of plants, and is kept at a temperature of about 75° F., the fish in it go very thin after a few weeks and quickly die. Can you tell me what is causing the trouble?

In cases like this it is best to make a thorough check up on equipment and general set-up of the aquarium. For instance, is any metal in contact with the water? Some metals such as brass, copper and zinc are very poisonous. Even drippings from an unpainted electrical fitting can contaminate the water and kill the fish. Care should also be observed in the choice of rockwork. Lumps of marble, broken brick and concrete make the water too hard for most fish life. Has any interior decorating been carried out? Fumes from freshly painted surfaces can kill fish. If your fish continue to die, we suggest that you start all over again with new compost, new rockwork (granite, soaked coal, slate or tufa) and new plants. Before setting up the dismantled aquarium, rub the interior down with a wet cloth sprinkled with household salt, making sure to swab the inside top rail and corners. After this scouring, wash the aquarium out with clean water.

One of my female guppies died a few days ago. Before she died, she became disinterested in food, her sides became bloated, and the scales appeared all rough or raised. Can you tell me the cause of death?

We feel sure that your fish died of dropsy. One of the tell-tale signs of this disease are the raised scales and bloated body. Unfortunately, there is no certain cure for dropsy. German aquarists have recorded cures after subjecting dropsical fish to a bath in quinine sulphate: one gram of quinine sulphate to every two to five gallons of water. The temperature of the bath should be slightly higher than normal, and the fish should remain in it for two or three hours. As the other fish in your aquarium are in excellent condition, we do not think you need take further action.

I should like very much to grow an angel fish (*P. cinctus*) and a two-spot gourami to full size. What size aquarium should I give them to achieve this end? And can you tell me the life span of these fish?

A 24 ins. by 12 ins. by 12 ins. aquarium should prove ample for the two fish, though the larger the tank the better. To grow any fish to its maximum size you need to supply it with plenty of well-liked live food. Small red earthworms help to produce big fish. Kept under near-perfect conditions, the gourami may live longer than five years; the angel fish 10 years and upward.

When I feed my collection of fishes, the angels often dash madly into a corner, leap above the surface, then spiral down into the plant life. Can you tell me why they do this?

Angel fish are very nervy fish, and often act in the way you describe. Sometimes they become so scared that they dash themselves against the glass and knock themselves out. Sometimes they kill themselves with fear. Plenty of plant life in the aquarium will help them to get over their "nerves." And no tapping on the aquarium glass, please.

My aquarium has a lot of tiny creatures like slugs crawling over it. Are these little creatures harmful, and how can I get rid of them?

The slug-like creatures which inhabit your aquarium are either small leeches or planarian worms. They can be harmful to tiny fry and fish ova. There are several ways of getting them under control. One way is to hang a tiny piece of red meat tied to a cotton in the aquarium overnight, and throw it away first thing next morning. Repeat the performance several times. If, however, the worms or leeches seem to have gained a hold in the aquarium, the best thing to do is to remove the fish, add a small amount of common household ammonia to the water, say about a teaspoonful

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

to every five gallons, and heat the water to a temperature of 90° F. After a short while, drain off the water, and refill with fresh water, previously boiled and allowed to cool. But unless you notice large numbers of tiny worms in your aquarium, we do not think you need worry about taking such drastic action.

I have a pair of *Hyphessobrycon surpetta*. The female filled with eggs, so I placed her with the male in a shaded aquarium well planted with fine-foliated plants, and kept at a temperature of about 78° F. After a little driving by the male, the fish lost all interest in each other, so I returned them to their original home. Almost at once they became livelier and obviously happier. How can I spawn these fish?

We think you went wrong in removing the fish from the tank you had prepared for them. You did not give them time to settle in the breeding tank before you moved them back to their original home. All this moving about would temporarily quell the breeding instinct. We advise placing them in the spawning tank again, but this time keep the sexes separated by a sheet of glass. After a few days of feeding them on much-liked live food, remove the partition and watch results. In moving fish from one aquarium to another, some of the water from the first aquarium should be added to the second. Another point to remember is that when fish are changed from one body of water to another, the temperature must be the same in both cases.

Could you please tell me what is wrong with my black widow fish? It swims upwards all the time, and seems to find it difficult to keep an upright position.

Your black widow fish has contracted swim-bladder trouble. In mild cases, this unpleasant complaint can be cured by keeping the victim in slightly saline water maintained a few degrees above normal temperature. Bad cases rarely recover. Disorder of the swim-bladder is usually caused by a chill. Temporary disorder can be brought on by indigestion. A fish thrown off its balance by indigestion can be helped back to normal by fasting for a day or two, and then feeding with live food.

Can you give me any information about the rare characin scientifically known as *Abramites microcephalus*? Has it been bred in captivity?

A. microcephalus is peaceful, and gets on well in a community aquarium. The species attains a length of about five inches and will accept any sort of live or dried food. The fish always swim head-downwards at an angle of about 45 degrees. It likes a fairly high temperature. To the best of our knowledge, it has not been bred in captivity. There are no external distinctions of sex.

I have made an aquarium with a teakwood frame and painted it with cream paint. Now I have been told that the paint will injure the fishes. Is this true?

It is not usual to paint a wood-framed aquarium. As a rule, the wood is left in its natural state or wax polished. Painted tanks need a thorough soaking, and many changes of water before they are safe for fish-keeping.

I have read that quinine hydrochloride is an excellent specific to use in cases of whitespot disease. How many grains should be used for treating an aquarium containing 12 gallons of water?

The recognised treatment is three grains to every gallon

of water. But heat alone will usually effect a cure; that is, if the disease has not been allowed to get a real hold on the fish.

Can you give me any information on the breeding of *Hyphessobrycon serpa*?

H. serpa need clear, matured water with an acid reaction. The water should average about eight inches in depth, and the floor of the aquarium should be scrupulously clean. Some breeders leave the floor of the aquarium bare of sand. Plenty of fine-foliaged plants should be bunched along the back and two ends. Keep the sexes separated for a week or 10 days. During this time feed them plenty of live food or scraped raw lean meat.

I should like to have some information on *Nannochromis nana*.

Nannochromis nana comes from the Upper Congo. It is one of the dwarf cichlids, and does not grow much larger than two inches. So far as we know, this species has not been bred in captivity. In fact, it is not sure whether it breeds like other dwarf cichlids, or follows a pattern of behaviour similar to *Haplochromis*, the mouthbreeder.

I have read that mollies appreciate some salt in their aquarium water. Is the sea salt sold by chemists quite suitable for adding to the water, and should it be added gradually, or can the fish be transferred immediately into saline water?

Tidman's Sea Salt, obtainable from the larger chemists, is quite suitable. Add a teaspoonful to every gallon of water. The change from fresh to slightly saline water should be brought about gradually, say, over a period of a week to 10 days. Once the salt has been added to the aquarium, there is no need to add any more. As the water in the

aquarium evaporates, the water will become more salty; so keep the aquarium topped up with fresh water to keep the concentration at the same strength.

I have just made a large aquarium, but on filling it with water I was dismayed to find it leaking at the ends. What should I do to make the cement stick to the glass?

If the leaks are small ones, they will probably seal of their own accord as small particles of grit and dust get wedged between glass and cement. But perhaps you have too great a thickness of cement between glass and frame. The greater the thickness the more easily does water seep through. After pressing the glass tight against the frame (that is to say, against the cushion of cement), trim along the edges with a sharp knife and then run aluminium paint along the cement which shows between frame and glass. This, when dry, usually makes a permanent seal.

I have an all-glass aquarium measuring 24 ins. by 12 ins. by 12 ins., and should like to keep amphibians in it. How should I lay the tank out, what should I feed to the occupants, and can I keep such a tank in a living room?

We presume you would like to keep terrapins (water tortoises), exotic newts and the like. We can assure you that these little creatures are ideal to keep in a living room so long as you give them plenty of natural or artificial light during the dark days of winter. And if terrapins are kept, some heat will be necessary. Some rockwork for the occupants to clamber over, and shallow water are the chief requirements. Plant life should be included, and the water kept clean by frequent siphoning of the bottom. Feed the occupants with garden worms, white worms, tiny pieces of raw meat etc.

COLDWATER FISHKEEPING QUERIES *answered by* A. BOARDER

I often see goldfish in bowls. The fish appear slimy and the scales pale. Is this condition caused by wrong treatment? Ants' eggs seem to be the main food: is this good?

We do not like these bowls and most aquarists' societies do all they can to discourage the practice by showing fish in well set-up, roomy tanks as an example to the public how fish should be kept. It is possible to keep one small fish healthy in a fairly large bowl as long as it is not filled with water. If the bowl is about half-full the surface of the water is increased, which allows for easy exchange of oxygen, but usually these bowls are filled and too many fish are placed therein. They are often placed in the window in bright sunshine and the fish, most of which are of a retiring nature, are unable to find any cover. Added to this too much food is given and with the absence of growing water plants, the water soon becomes polluted and the fish suffer.

So-called ants' eggs are not eggs at all but the dried pupae, and as such have little food value. There are plenty of good packet foods on the market made by reputable firms and these are quite suitable for the fish. Whilst going your busy rounds as a vicar you have a good chance of deprecating the use of bowls and of giving advice as to the better ways of fishkeeping.

I have a goldfish which had a small patch of fungus on it. I have treated it with salt and although it seems better the patch still shows. The fish appears healthy and eats all right. Can I do any more to cure it?

By your description I think that the fungus on the fish was caused by some damage. A few scales may have been knocked off before the fungus took a hold. It is quite possible that you have cured the fungus but the patch will still look raw for a time if there was some original damage. This should heal all right without further treatment.

Several of my friends are interested in forming an aquarists' society. Can you give any information about forming one and will the new Pet's Act affect us?

The best way to start a society is for you to have the local press reporter on your side and get a preliminary notice inserted in the local newspaper. I find that it is usually quite easy to get this assistance, as the papers generally do all they can to assist local organisations. Call a meeting somewhere to discuss ways and means. You can use a prospective member's house or a school room, in the first instance. Then, if there is sufficient support, a dozen members can make the nucleus, a name can be decided on and a committee, etc., elected. There is a society at Ipswich, the nearest I think to you, and I am sure that it would be possible for you to visit that club and get a good deal of useful information. The Pet's Act does not affect you as a club at all. It mainly concerns establishments which sell fishes.

I have recently constructed a concrete pond, 9 feet by 3 feet. How can I prevent the water from becoming cloudy when I place earth in the bottom? This is necessary, I believe, as I want to grow water lilies.

Do not put any earth in the bottom of your pond. It will cause the water to become cloudy and, although this can be obviated by covering the earth with a thickness of stones or gravel which has been well washed, if you do put earth in the bottom of the pond you will not be able to clean the pond out easily each year as I recommend. A much better way is to plant your lilies and other water plants in large pots. These should then have a base of concrete run round the outside so that they are not likely to tip over in the water. The plants can be put into turf with a covering of large stones and all will be well. The lilies will make many roots which can run outside the pot or through the drainage hole in its base. You can remove the pots when the annual cleaning time comes round and the stones on the top of the turf will ensure that the fish cannot disturb the soil and so cloud the water.

There are a number of keen aquarists in this district who would like to put on a good aquarium exhibition. There are also several clubs near here, none of which will take on the task of running a show. Can you give some advice as to how to run a show and must we form another society so that we can procure F.B.A.S. judges, whom we feel must be obtained?

I admire your courage and wish you every success with your venture. As to advice, I am sure that I could fill this copy of *The Aquarist* with what to do and what not to do. It is a very big subject but I will try and give you as much vital information as I possibly can without knowing all your local conditions. The first job will be to obtain a suitable hall. Sometimes a school hall can be obtained. These are often free or very cheap to rent. Some may not allow an entrance fee for the show but this can often be overcome by running a raffle or guessing competition and by providing refreshments. Where the cost of a hall is prohibitive, try and find a local gardening, rabbit or cage-bird society to join with you. In this way the costs can be shared, but of course the gate must also be shared. I have been to several shows run like this. Each year I go to Gravesend, where an allotment society, a cactus society, a cage-bird society and an aquarist society combine to give a good show in the Town Hall.

Having got over the hall problem the question of the necessary classes and the printing of schedules must be discussed. If these can be done on a duplicator it will save much expense. The time of the year will affect your expenses and troubles. In the summertime a show can be held without the provision of heating for the tropical tanks. A lamp over the tanks for illumination purposes is then, as a rule, sufficient. The expense of fitting and supplying all the necessary electric equipment can be high, and so can the cost of electricity consumed. As you all appear so keen you should not have any trouble in getting helpers to get the show ready; do all you can to enlist some ladies to assist in the running of the show. Most ladies have a flair for this kind of thing, and where the British Aquarists' Festival would have been without the work of two or three last October I do not know!

It will be necessary to check the water supplies to the hall. Few people give this matter a thought until, when fish are found dying in the show tanks, a frantic search reveals the fact that the water pipes are of copper or newly galvanised, and poisoning the fishes. The water itself can also be suspect and all possibilities should be explored. The borrowing of sufficient tanks is another problem, but some dealers will no doubt be able to help here. Try to get a tank for each exhibit; sometimes I have seen two fish in one tank and then the judge has a job to distinguish one from the other.

When you are arranging a date see that no other show is clashing with it in your district. The local news reporter can help a lot, especially if you can supply him with some good stories prior to the show. As to judging, it is not necessary to belong to the Federation to obtain their judges and arrangements can be made with that organisation without trouble. There are likely to be several snags develop as you progress towards the show but these difficulties can be easily surmounted if the will is present.

I have a goldfish which has been very healthy and active but has now developed some trouble. Its mouth appeared to be often wide open and now hardly ever closes. It cannot take food and shows black on the fins. It is also very listless. Can I do anything to cure it?

The ever-open mouth seems to suggest some form of growth there and this may eventually choke the fish. The general condition is bad according to your descriptions and I think that the fish is suffering from some disease which has weakened the whole system. You can try the fish in a salt solution, one table-spoon of sea-salt to a gallon of water. Leave in the shade for a couple of days and change the water if it appears to turn foul and smelly. If the salt cure

is not effective I am inclined to think that it would be better to destroy the fish. If fish are continually ailing and are patched up periodically it does little good in the long run, and it is often kinder to put the fish out of its misery. The best method is to dash the fish on a concrete floor.

I have kept some ordinary goldfish for some time in good health and as I feel I know all the beginnings of fish-keeping I should like to go in for some good fancy types of goldfish. Where can I obtain some good specimens? I do not want rubbish.

I can answer most practical questions but this is one which is always giving me trouble. Candidly I just do not know where you can procure the quality fish you desire. I can only suggest that you watch the results of the shows to find out who is doing the winning with the particular strain of fishes you fancy, watch the advertisements in *The Aquarist* and also ask questions of other aquarists. By this means you should be able to find out who has the right stock. It is no use buying fish from which to breed if you do not know something as to their antecedents. If the fish have been bred right it makes all the difference as to what type of fishes they are likely to produce. Ten per cent. of my enquiries are on the same subject and I have always to explain that it is almost impossible to obtain perfect specimens of any of the fancy types of goldfish. Going to many shows and judging at some, I know for a fact that it is very rare indeed to find a near perfect fish at even the biggest shows. How then can one expect to be able to buy them?

The production of a perfect fish is the breeder's dream and with that incentive he goes gaily (or otherwise) about his task. If he does breed a very good one, he is not likely to sell it to you—he wants it for breeding and exhibiting himself. For every good fancy goldfish that is reared there are a hundred not-so-goods, and many of these are just runts. The strain that can produce a 100 per cent. perfect fish does not exist and in my opinion never will. In some of these strains it is necessary to get double tails. This was in the first place a freak or sport, and not a natural development. As such it appears impossible to so fix the strain that no single and poorly tailed fish will be produced. Goldfish of all varieties throw back many generations and it is possible for a fish to be produced which resembles a fish among its ancestors 20 generations ago and more.

If you find a recognised breeder of the type of fish you require, call on him in early summer and try to buy a number of unsorted fry. If he is over-loaded as most of us are at this time of the year it is quite possible that you will be able, at a fair price, to buy some youngsters, any one of which will repay you for all you spend. Then sort out the best, and they are sure to turn out some good youngsters themselves, often as good as any in the original strain. I have known even runts from a good strain have fry as good as anything in the original strain. On the other hand, if a fish is bought with no regard to its breeding it is possible to get a fish which may never produce a decent fish. By crossing a fantail with a common goldfish it is possible to get an almost perfect fish of each type, but these fish may never again throw anything but absolute runts and the crosses will continue bad producers for many years after.

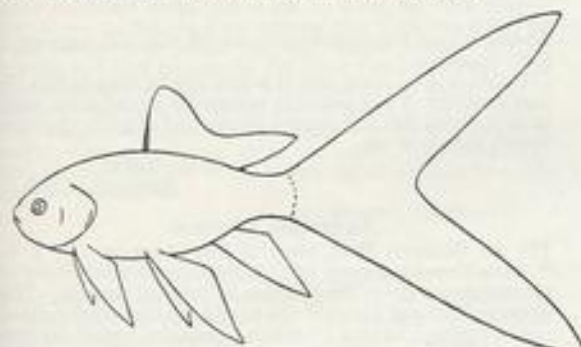
Can I put eight fish in a good galvanised copper which I have sunk in the ground for the winter? Do I need to coat it with anything to make it safe?

The copper does not sound very large for eight fish. It is possible that if we get a very severe spell of frosts the water may freeze almost solid. The fish may then come to some harm. Copper and galvanised containers can also be poisonous to fish. Sometimes I have seen them in use without apparent trouble but I personally have always found that copper and fresh galvanising can be dangerous. The copper can be painted over with a good bitumastic paint, but first see that it is quite dry. If not the paint will not stick to the surface.

Aquarium and Pond Goldfish Varieties

2. The Comet Goldfish

THE comet goldfish is a very good fish for the open pond. It is quite hardy and being a rapid swimmer it is always to be seen on the move during the warmer months of the year. It can be kept in an indoor tank, but I suggest that the comet for the indoor tank should be a small one, for this type requires plenty of swimming space; once the fish are over a year of age they are better in an open pond. They are visibly scaled like the common goldfish, and in colour should be a rich, warm red. They can be yellow-chrome or lemon in colour, and many of the comets I have seen since the war have been either lemon coloured or uncoloured. It is a fact that so many otherwise good comets fail to change from the original bronze for several years, and some do not change at all. This is rather a bad trait as most breeders like their fish to change in their first year.



Comet goldfish outline showing features of exhibition specimen. From "Show Standards for Cultivated Fishes" (F.B.A.S. 2s. 6d.)

The head of the comet should be wide and short with the eye clear and bright with a coloured iris. The body is fairly long and almost streamlined. The upper curve must run from the nose in a clean sweep with no dip to reach the highest point at the dorsal fin. The lower curve of the body should correspond to that of the upper. The dorsal fin is deeply concave with the rear portion pointing well to the rear. It is the tail or caudal fin, however, which is the most characteristic point of the comet, and that which distinguishes it from the common goldfish.

The tail should be long, broad and well forked. It should be carried well spread and be at least as long as the body. There is apparently no limit to its size and so in time it may be possible to breed a strain with an enormous tail. The pectoral and pelvic fins are pointed and held well away from the body, whilst the anal fin is single, long and pointed. As the tail is the most important feature it receives the most points in judging, and so a fish without a good tail will stand little chance in good competition. In some show classes of common goldfish I have seen fish with tails much too large for the class, and also in classes for comets can be found many with so short a tail that they have no right to be in the class at all.

To breed a good strain of these fish it is essential to start with good specimens and build up each year with only the best youngsters. It is no use trying to cross into the strain the common goldfish in an attempt to develop the quick colour change. Once another type is introduced into a strain it is troublesome to breed it out again. The only sure way to improve this trait is to breed from only those fish

which change colour early. It may be that the best shaped youngsters are very slow to change to the required colour, but I suggest that such fish are best not used as breeders. Once an early colour changing strain can be produced it is then time to improve on other points.

The main fault seen in competitions, as already stated, is the lack of length of tail. Another fault is that the dorsal fin is too large and flowing. I know that it is very difficult to get a small dorsal on an otherwise good fish, as the other fins must be so well developed that it is natural that the dorsal should also be flowing and large. Some aquarists think that the dorsal fin is too small as shown in the standards, and although I realise that it is hard to obtain I know that a large dorsal would have the effect of slowing down an otherwise swiftly swimming fish.

It is strange that such a fine pond fish should be so scarce. I see very few good comets and I have tried hard to get more aquarists interested in this fine type. I appealed in *The Aquarist* some time ago for people keen on breeding this fish to communicate with me so that a list could be made for exchanges of fish and views. The result of my request was that only nine people were sufficiently interested to write. I know, however, that many more are fond of this fish, as I have been told so by many at different shows. Perhaps they are too shy or busy to write. The feeding and breeding of the comet are on the usual lines for goldfish keeping and although they mix well with the other types in a pond it is impossible to breed a true strain unless they are kept to themselves.

A. Boarder

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AQUARIUM SOCIETIES

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OUR READERS

Write—

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.



White Spot Treatment

WITH reference to the letter from Mr. R. S. Millard (*The Aquarist*, November, 1952), perhaps you have had a further letter from him containing a sequel to his sequel? From the data given and from my own experience I would say the fry were zebra fry; I realise I could be wrong but I have shown people a tank of zebra fry and they were quite prepared to believe they were neon fishes!

C. J. GRANT,
Coventry.

Coal in Aquaria

ONE of your readers enquired about the use of coal in aquaria. My own experience is as follows: I have three large aquaria (48 in. by 36 in. by 12 in.) and a large pond (15 ft. by 6 ft.), in which I have had pumps filtering the water day and night without ever keeping the water clear. I also had plants growing in them.

After reading your June, 1952, issue, concerning coal in aquaria, I tried out this experiment of using coal. I have not had my pumps working for nearly five months and the water has kept clear. I find *The Aquarist* very interesting and helpful and, as a reader since 1950, I would like to see it come out weekly rather than monthly.

L. HEATH,
Birmingham, 26.

Plant Growth and Glass

IN answer to your reader, Mr. A. Williams (*The Aquarist*, November, 1952), it is quite wrong to use any old glass for aquaria. Having made the same mistake myself a few years ago, I carried out the experiment with two tanks and it is a fact that "Triplex" glass excludes certain light rays. It is interesting that while retarding plant growth this glass encourages brown algae.

I find that the two best covers for aquaria are polished 32 oz. glass and "Windowlite" built in a frame. The "Windowlite" will not stand very much heat from top lights, as it cracks, but it is ideal for fish houses and does not break.

A. V. BOON,
London, S.E.6.

River Pollution

I WAS pleased to read your Editorial drawing attention to the evil of river pollution. There has been much apathy in the past but the one bright spot is the work of the Anglers' Co-operative Association, which is really tackling the problem in a proper and efficient manner. They do, however, require support and I think it is up to anglers, aquarists, nature lovers and anyone who is interested in pure water

flowing across the countryside, to see that this support is forthcoming.

If this is done I am sure it would not be long before the vast majority of our polluted waterways would once again be supporting fish and aquatic life instead of being the open sewers they now are.

E. W. SHARP,
Bradford, Yorks.

Aquarium Rhythm

IN the October, 1952, issue of *The Aquarist*, Dr. J. L. Cloudsley-Thompson cast doubts on the advisability of maintaining a given temperature in tropical aquaria. This interested me and I should like to add my own observations.

At present I have a 16-gallon aquarium heated by two separate devices—one a normal thermostatically controlled heater working at 74° F., and the other a manually operated heater. During the day the latter is used to bring the temperature gradually to between 80° and 85° F., contingent of course, on room temperature. At night this heater is switched off and about 4 a.m., when the temperature is down to 74° F. the other heater automatically switches on. About 9 a.m. I start the cycle again; this procedure does, I believe, approximate to natural conditions of temperature.

With regard to improving the prospects of successful breeding it would be advantageous to have a few facts and figures showing the temperature fluctuations which occur in tropical and equatorial climates and their effects on water life there. Some writers condemn the use of top lights which heat the surface of the water; the reason given is that it is bad for a fish to swim from very warm back to warm water. In their natural habitat tropical fish must be subjected to even greater surface heat. Anyone who has swum in tropical waters will agree that the heating capacity of a burning tropical sun blazing down from a cloudless sky for 12 hours a day gives effects far exceeding the instability caused in aquarium water surface by say, two 40-watt lamps. Far from being wrong I would say surface heat is natural.

R. J. W. HOGG,
Burgess Hill, Sussex.

Cheap Breeding Trap

RECENTLY I needed a breeding trap for my livebearers and set out to buy one. I soon changed my mind on being told they were the exorbitant price of 12s. to 15s. each.

Here is an idea for a good, strong breeding trap which is cheap. I bought a transparent plastic food container from Woolworths measuring 7½ ins. long, 3 ins. deep and 4 ins. wide costing 3s. 6d. In one side I drilled two quarter-inch holes to hold two rubber suction pads to fix it to the sides of

the aquarium. I then drilled rows of one-eighth inch holes in the bottom at one end of the container and cut out one-eighth inch strips by inserting a fretsaw blade to form slots for the fry to fall through.

Perhaps some fellow aquarists can think of better ways to make holes or slots or perhaps to fix floats on the container. In any case they will have a much cheaper breeding trap and certainly one as good, if not better, than the manufactured article.

L. SYCAMORE,
Walworth, London, S.E.17.

WITH reference to the floating of glass jars in the aquarium, I have found that as these jars—particularly jam jars—are heavy, with little surface area, and owing to their weight the amount of water they hold when floated is slight.

Recently it occurred to me that the square and oblong plastic food containers as sold by Woolworths Stores and many hardware shops (size 4 ins. by 4 ins. by 3 ins. deep—cost about 1s. 9d., and the oblong size 8 ins. by 4 ins. by 3 ins. deep—cost about 3s. 6d.) would make excellent floating isolation receptacles for small fish. They are clear plastic and are so light that when floated the water level in the tank practically equals the level of water in the container. Fish have more room to move about and the appearance is much better than a jam jar in the tank. The containers have clear plastic lids which should on no account be used, for they exclude air.

G. W. MASSEY, Sheffield 11.

Vermiculite for Plants

I HAVE recently experimented in the use of vermiculite as a medium for plant growth. I obtained a supply from Boots, who recommended a product having alkaline properties.

In setting up the 24 ins. by 12 ins. by 12 ins. aquarium I laid one inch depth of vermiculite and then covered it with about an inch of aquarium compost in order to keep the vermiculite from rising in the water. I then filled the tank carefully to prevent any disturbance of the compost. In planting various plants (principally *Cryptocoryne*) vermiculite was released and floated to the surface. I cleaned most of this with a net but some still remained on the water surface.

Next day I introduced some guppies and the following day I noticed that they kept to the surface. I tested the water and found it to be very alkaline and the next morning most of the guppies were dead. Two or three were still alive and struggling upside down, and even after removal to another tank they died. My impression was that the fish had eaten some of the floating vermiculite and that owing to its extreme lightness it had upset their balance. I would be grateful to know if any other readers have experienced this.

It is too early to see the effect on plant growth but I would be interested to learn of any results or suggestions in the handling of vermiculite as very little appears to have been written about it.

J. G. POWELL, Swansea.
London, E.2.

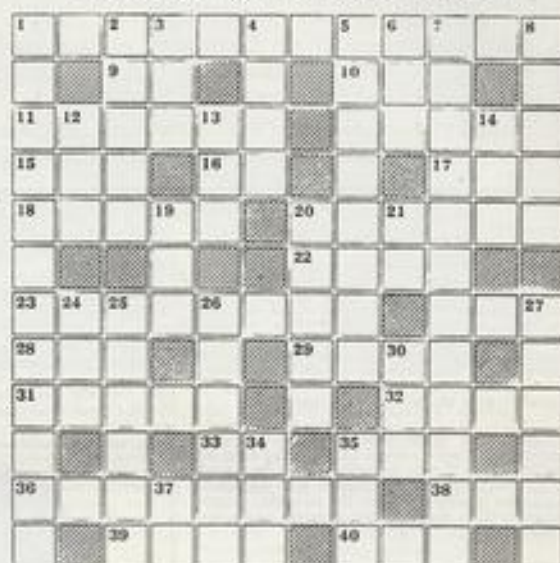
A Good Sealer

DURING the Christmas holidays my thermostat was leaking, although on several occasions before I had sealed it with varying substances. Having a tube of "Bloom" at hand I decided to see if it would do the trick. It has proved to give a very efficient seal, so I pass the information on.

Sgt. K. C. O'BRIEN, P.S.I.,
Romford, Essex.

The AQUARIST Crossword

Compiled by J. LAUGHLAND



CLUES ACROSS

- Trachinus fishes (6-6)
- Half ling for Chinese mile (2)
- Rod, but not for anglers; nor for potting herrings (3)
- The Fisherman's Arms, perhaps (6)
- Ron he is a great fisher (5)
- English river (3)
- This is it (2)
- Base for all-glass tank (3)
- One of the danios (5)
- Lakes are these of water (6)
- Form of 10 across. There are many in *The Asaritis* (4)
- True serpent (8)
- Long limb of 1 down (3)
- A ship, or part of one (4)
- At rod (anagram) (5)
- Bog (4)
- Half a carp is more than a book-keeper (1, 1)
- Tankard of sorts (3)
- Sun toads surprise (8)
- Hard water (3)
- Fish is this to the louse (4)
- Flag for liquid (3)

CLUES DOWN

- Coriidae (5-7)
- Young eel (5)
- Complete (3)
- Poor fish! (4)
- Albuminous substance of fishes' eggs (8)
- To seek to win (3)
- Pertaining to the study of reptiles (12)
- Sea shore, usually (5)
- Hatchet-fish is the clue to this word (3)
- Tetra from — (3)
- Here in the icing in France (3)
- Something fishy in this grip (5)
- As in France (2)
- In aquarist circles a trader in short (3)
- Condition (6)
- Fish they throw in Olympic Games? (6)
- Genus of marsh plants (6)
- The mud holds the bird (3)
- Anabantids hold an example for the sluggard (3)
- Hand-written papers in brief (3)
- Exclamation (2)

PICK YOUR ANSWER

- An electric eel (*Electrophorus electricus*) of average size discharges about: (a) 150 volts. (b) 350 volts. (c) 550 volts. (d) 750 volts.
- Rivulus cyathraeus* is native to: (a) Cuba. (b) Haiti. (c) Jamaica. (d) Trinidad.
- Cubanichthys cubensis* (the Cuban killie) attains a length of about: (a) 1 in. (b) 1½ ins. (c) 2 ins. (d) 2½ ins.
- Azolla filiculoides* (fairy moss) has been found in the Andes at a height of: (a) 12,000 ft. (b) 14,000 ft. (c) 16,000 ft. (d) 18,000 ft.
- Hydrophile polyperma* was introduced to British aquarists in: (a) 1923. (b) 1931. (c) 1939. (d) 1947.
- The generic name of the Australian snail is: (a) *Bullinus*. (b) *Physa*. (c) *Theodoxus*. (d) *Thiara*.

G. F. H.

(Solutions on page 239)



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.

A copy of *The Aquarist's Directory of Aquarium Societies* will be sent free to any reader on receipt of a stamped, self-addressed envelope.

REPORT of a member's experiences with salicylic acid as a curative agent for fish diseases appears in the December issue of the **Nottingham and District Aquarists' Society** bulletin. For gill flukes one grain of the chemical is dissolved in a gallon of water and the fish bathed in this solution for 30 minutes (less if it is distressed); for white spot the concentration used is one grain dissolved in four gallons and a raised water temperature is also advocated; *Gonia* parasitism is also described as being treatable with the white spot remedy.

SOME of his experiences as an aquarist and herpetologist were related by Mr. A. Legge of the Blackpool Tower Aquarium when he talked to members of the **Rochdale and District Aquarist Society**. After his talk Mr. Legge judged a table show of male guppies and cold-water fishes.

FURNISHED aquaria and their setting up was the subject of Mr. R. Read's lecture to the **West Surrey Pondkeepers' and Aquarist Club**, when he spoke on correct methods to gain points for plants, rockwork and fish as well. Originality in design and lay-out was stressed as being most important to catch the eye of a judge in a competitive aquarium.

CHANGE of meeting place is reported by the **Hendon and District Aquatic Society** which now meets every Thursday, 8 p.m. at the Brotherhood Hall, Edgware Road, West Hendon. Visits from aquarists and intending members are welcomed at the society's meetings.

RECENT lectures given to the **Forest Hill and District Aquaria Society** have included ones by Mr. P. Hewett on cichlids, by Mr. L. Edridge on aquarium setting up and by Mr. A. Sayle on livebearers. The seventh annual general meeting of the society is to be held early this month.

A PANEL of lecturers has now been formed by the **Midland Association of Aquarists' Societies** for the purpose of supplying visiting speakers for affiliated societies. The 14 members are Mrs. M. Hemmings, Messrs. H. G. Bowyer, W. H. Brooks, A. T. Burden, H. Cadwallader, H. Cape, T. L. Dodge, E. J. Druce, G. Jackson, W. L. Mandeville, H. A. Mason, C. D. Roe, T. G. Sutton, T. Walkershaw, V. E. Whiting.

THE annual general meeting of **Burton and District Aquarists' Society** was held in December. Mr. T. Mear was in the chair, accompanied by the secretary and treasurer, Mr. H. Conon. The secretary reported that, despite a slight adverse balance, the society had made good progress during the year. Lectures had been given at the monthly meetings and two shows had been held, that at the Burton Albion Supporters' Club fete and gala being a club competition for furnished aquaria. The chairman put forward suggestions for the benefit of the society socially and financially, and advised affiliation with the Midland Association of Aquarists' Societies, which was agreed. It was decided to hold a competitive show in July, 1953. Mr. G. Otho-Briggs was re-elected president, and Miss P. M. Evershed and Mr. W. H. E.

Hughes, vice-presidents. Mr. T. Mear was re-elected chairman, other officers appointed being: secretary, Mr. W. Harris, 110, Church Hill Street, Winhill; treasurer, Mr. H. Cotton; committee: Mrs. N. Bunting, Messrs. A. Hughes, W. Simnett, C. Roe, K. Macdonald, and J. H. Hodgett.

TWO of the oldest members of the **Wolverhampton and District Aquarists' Society** have recently given talks to fellow members. Mr. T. Woodward spoke on the construction of



The Aquarist's Badge

PRODUCED in response to numerous requests from readers, this attractive silver, red and blue substantial metal emblem for the aquarist can now be obtained at cost price by all readers of *The Aquarist*. The design is pictured above (actual size). Two forms of the badge, one fitting the lapel button-hole and the other having a brooch-type fastening, are available.

To obtain your badge send a postal order for 1s. 9d. together with the **Aquarist's Badge Token cut from page xii**, to Aquarist's Badge, *The Aquarist*, The Butts, Half Acre, Brentford, Middlesex, and please specify which type of fitting you require.

garden pools and Mr. P. Watkins called his talk "An Aquatic Survey." Annual general meeting of the society was held last month.

MR. T. WARBURTON gave a talk on the hatching and development of fish fry at the December, 1952, meeting of the **Ashton and District Aquarist Society**. The society's home aquaria competition was judged by Messrs. J. Williamson and R. R. Neary, and a cup was awarded to the winner, Mrs. N. Selwy.

WITH the aim of establishing a furnished aquarium in a local sanatorium for children, 31 aquaria were displayed for two weeks by the **Southport and District Aquarist Society** at an arcade in the town, and collections were made. The society commenced publication of its own bulletin in December last. Members have recently made a visit to Blackpool Tower Aquarium.

TO accommodate members who work in "shifts" **Barrow and District Aquarist Society** now meets twice a month—on first and

last Tuesdays. The society staged aquaria at a recent Town Hall show and a dinner and social evening was planned for early this year.

IN the successful public exhibition of furnished tropical and coldwater aquaria staged by the **Greenwich and District Aquarists' Society** was included a breeders' class for outside entries. Clubs participating were Erith, Welling, Shooters Hill and Greenwich. Welling A.S. won the Greenwich Breeders' Shield for the second year, beating Greenwich by two points. Winners in the furnished aquaria section were—Tropical: 1, Mr. Howe; 2, Mr. S. Bush; 3, Mr. W. Jones. Coldwater: 1 and 2, Mr. Entwistle; 3, Mr. Little.

TABLE show of fighting fishes was the main feature of the December, 1952, meeting of the **Pontefract and District Aquarist Society**, when fishes belonging to Messrs. R. W. Rhodes, L. Poundford and R. Beemham took first, second and third respectively.

ANNUAL report of the **Romford Aquarists' Society** shows that increase in membership has taken place during 1952 and that the society's open show had earned a good profit. Another open show will be held this year. Fortnightly meetings are to be held at Lambourne Hall, Western Road, Romford, on the first and third Thursdays of each month.

DECEMBER meeting of members of the **Leicester Aquarist Society** was entertained to a show of films. Last month the annual general meeting of the society was held.

THE **Stoke Newington and District Aquaria Society** is the new title of the society previously known as Dalston and District A.S. Meetings are held every Monday, 7.30-10.30 p.m. at the Central Library, Church Street, London, N.16. The secretary is Mr. A. J. Wright, 31, Mayfield Close, Dalston, London, E.8.

AT the **Scarborough Aquarists' Society** annual meeting, officers elected were—Mr. J. Lazenby, chairman; Mr. G. E. Lyon, treasurer; Miss A. O. P. Fenton, secretary (15, Falconer's Road, Scarborough); Mrs. A. E. Davison, vice-chairwoman; Mr. L. C. Thompson, Mr. Whiting, Master Goodhill, committee. The society exhibited tanks at the horticultural show held in Scarborough in November.

AWARDS made by the **Coventry P. & A.S.** in competitions held during 1952 were—Chaytor Cup: 1, Mrs. Court; 2, Mr. K. Glover; 3, Mrs. Bradbury. Tropical Cup: Mrs. Court. Coldwater Cup: Mr. Glover. Garden Pool: Mr. Glover.

AT a recent meeting of **Leyton Aquaria Society** a novel method of demonstrating tank setting-up was used with great success. Painted cardboard cut-outs of plants were pushed into damp grit in an aquarium without water, thus obviating clearing up the depressing mess which is usually the result of such "practical" demonstrations.

A PRACTICAL demonstration of "setting up a tropical tank" was given by the chairman (Mr. T. Wright) of the **Hull and District Pond and Aquarium Society**, and at the next monthly meeting a talk on "breeding and rearing white cloud mountain minnows" by Mr. J. Johnston. The society's second annual dinner and social is being arranged to take place on Thursday, 26th March. All members interested are asked to contact the secretary for details. (Mr. A. T. Rimmington, 57, Lincoln Street, Hull, Yorks.)

RECENT talks given to **Southampton and District Aquatic Society** included one by Mr. E. Bowler on his trip to South America to collect tropical fish and an illustrated lecture by Mr. C. van Duin on "fish diseases and their cures."

Tropical and coldwater aquaria exhibited by the Blair Aquatic Society. Pictures of the fishes shown were linked by tapes to maps indicating the parts of the world from which they originate

Mrs. M. E. Gilbert has won the home furnished aquaria cup of the society and Mr. Hawkins the cup for table show points.

THE Balham and District A.S. now meets on alternate Monday evenings at the "Odd-fellows Hall," Sintova Road, S.W.12, and the secretary is Mr. John Langston, 28, Glebe Court, Mitcham, Surrey. One of the forthcoming events listed in the quarterly programme is the inclusion of an evening devoted to a miniature furnished aquaria competition. It is hoped that some original setting-up technique and ingenuity will be demonstrated in connection with the 8 ins. by 6 ins. by 6 ins. tanks which will be used.

HAMPSTEAD Aquatic Society held its first social evening on the 30th December. The president, the Mayor of Hampstead, attended and presented the following prizes:—the Levy tropical points cup (won by Mr. K. Pye); the coldwater points cup (won by Mrs. T. Leighton); the cup for the best fish at the annual show (won by Mr. L. Coatsman, the chairman of the society). About 100 people attended this social function.

MAIN item of the December, 1952 meeting of the Halifax and District Aquarist Society was the return match of the inter-society table show with Huddersfield Society. Halifax were the winners with 23 points to Huddersfield's 10 points. Results were as follows (except where stated otherwise, the names are of Halifax members):—Class I—A.V. barbs, carps or minnows: 1st D. Heeson (Huddersfield), 2nd D. Lockwood (Huddersfield), 3rd B. Parks (Huddersfield). Class II—A.V. livebearers (excluding guppies): 1st A. J. L. Rashley, 2nd J. A. Holloway, 3rd B. Parks (Huddersfield). Class III—A.V. egg-layer: 1st H. W. Pollard, 2nd R. Crisp, 3rd H. Creighton. Class IV—English guppies: 1st T. T. Hatfield, 2nd and 3rd L. Lockwood (Huddersfield). Class V—American guppies: 1st T. T. Hatfield, 2nd G. Hatfield, 3rd A. J. L. Rashley. Best fish in the show was judged to be Mr. T. T. Hatfield's American guppy.

AT the annual general meeting of the Cambridge and District Aquarists' Society the president (Mr. Vincent Butler), in his address, stated that the society had completed its fifth year and he would have liked to have seen the membership for the past year doubled and more enthusiasm amongst the members. It was disappointing, he continued, that the society could not stage a public show during the year through lack of members' support but he hoped that all members would make an endeavour in the new year to see this did not occur again. He thanked all the officers and members who had worked so hard during the year to keep the society going. The secretary (Mr. B. K. Elkerton) in his report stated that the attendance at the monthly meetings had been about the same as in 1951. He stated the chief event of the year was the stand at the Cambridge Trades Fair, which was a credit to the society and aroused a lot of public interest. The treasurer (Mr. H. Waugh) presented a statement of account for the year which revealed quite a sound financial position; he stated that a large amount of equipment had been purchased during the year which had considerably reduced the bank balance but the equipment was necessary and was good stock. The following officers and committee were elected for the year: Chairman: Mr. F. G. Simpson; vice-chairman: Mr. J. E. Tingey; secretary: Mr. B. K. Elkerton; treasurer: Mr. H. Waugh; assistant secretary: Mr. E. A. C. Phillips; publicity officer: Mr. Mason Smith; librarian: Mr. R. Cook; assistant



librarian: Mr. Lovatt; committee: Mrs. D. Tadge, Mr. C. Holmes, Mr. S. Wright, Mr. Human, Mr. Crisp, Mr. J. Gaylor. The remainder of the evening was spent in a general discussion on future policy and the secretary stated it would assist the committee in arranging the programmes if members would come forward with suggestions. The meeting closed with the president wishing the society every success in the coming year.

F.B.A.S. Annual Meeting

AT the annual general meeting of the Federation of British Aquatic Societies it was announced by the secretary, Mr. R. O. B. List, that 104 societies now formed the Federation. Thirty societies were represented at the meeting. It was stated that application had been made for seats or standing space in official stands on the Coronation procession route, under the arrangement made for national organisations. Mr. S. T. Jelly, giving the services secretary's report, stressed the growing need for speakers to address aquarists' societies and spoke of the huge demand made on the F.B.A.S. lecturers' panel during 1952. Tribute was paid to the efforts of Mrs. Wood, who had supervised the allocation of the F.B.A.S. Publicity Stand to shows and exhibitions all over the country. A new stand for the use of provincial societies has been introduced. Mr. T. E. Butt has taken over the chairmanship of the F.B.A.S. from Mr. P. S. Campkin, to whom thanks were given for his work in this office.

Coronation Cup

TO commemorate the occasion of the Coronation a special class is to be introduced at this year's sixth exhibition of the National Aquarists' Society, to be held in London on 11th-13th June. The class will be open to all societies for entries of pairs of dwarf gouramis, fighting fishes or a.v. platys. Only one entry will be accepted from each society, and a special award, the Coronation Cup, will be given to the pair of fish judged best in this class.

Secretary Changes

CHANGES of secretaries and addresses have been reported from the following societies: Kingston and District Aquarist Society (Mrs. E. B. Fawcett, 16, College Road, Epsom, Surrey); Romford Aquarists' Society (Mr. R. Alley, 13, Hayburn Way, Hornchurch, Essex); Smethwick and District Aquarist Society (Mr. D. H. Johnstone, 25, The Horse Shoe, Warley, Oldbury, nr. Birmingham);

St. Leonards Fishkeepers' Society (Mr. J. P. Brown, 47, Pevensey Road, St. Leonards-on-Sea, Sussex); Streatham and District Aquarist Society (Mr. L. F. Ryland, 101, Leigham Vale, Tulse Hill, London, S.W.2); Swindon and District Aquarists' Society (Mr. K. E. W. Hialop, 99, Faringdon Road, Swindon, Wilts); Tottenham and District Aquatic Society (Mr. L. Watkins, 7, Westview Crescent, London, N.9).

New Society

Leinster Pond and Aquarium Club: Secretary: J. B. Hutchinson, 107, Thomas Moore Road, Walkinstown, Dublin.

Aquarist's Calendar

11th-12th April: Bury and District Aquarists' Society open show of furnished aquaria, tropical and coldwater fishes at the Y.M.C.A., Bury. Show schedules available from Mr. G. D. Grimshaw, 1, Garston Street, Bury, Lancs.

Early notification of dates of coming aquarists' events for free insertion under the above heading is requested to ensure inclusion in good time.

Crossword Solution

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1 (c). 2 (a). 3 (b). 4 (c). 5 (d). 6 (a).

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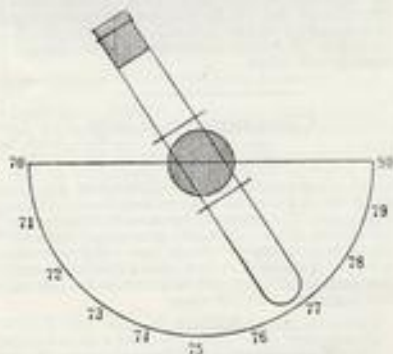
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