

The AQUARIST AND PONDKEEPER

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Editorial

IN many parts of the country fluorides are now being added to domestic water supplies in an attempt to combat dental caries. Observations over nearly 50 years have revealed that in regions where water fluorides occur naturally, tooth decay amongst the population is less prevalent. Results of a scientifically-conducted nine years' trial in America have demonstrated the value of "artificial fluoridation" of drinking water to children's dental health, and after further trials the procedure has been adopted here. The practice has met with some opposition, which we believe to be misguided. However, we need to consider the matter here only because chemical additions to water supplies may affect aquarium fishes. In large quantities fluorides are poisonous, but it is no new concept that substances harmful in large amounts can be beneficial in smaller doses. "Topped-up" water supplies contain no more fluorides than do waters where fluorides occur naturally, so that there is no ground for thinking that the chemical will harm our aquaria. In fact, the claim from "anti-fluoridationists" that fluoridated water kills goldfish and other animals has been examined and found untrue. In one area, when it was announced that fluoridation of drinking water was to begin, complaints about dead fishes, dead dogs and tainted water were received before fluoridation had commenced! This shows the irrational nature of much of the outcry against the procedure.

MR. ALEC FRASER-BRUNNER, who has been closely associated with this journal since its foundation in 1924, and who was its Editor from 1946 to 1948, leaves Britain this month to take up his new appointment as Curator of the Van Kleeft Aquarium, Singapore. The Aquarium is barely one year old, and Mr. Fraser-Brunner will be its first Curator. His departure from this country will be lamented by his many friends in the aquaria world, in which he has played such an active role, and all will join with us in congratulating him on his well-deserved appointment, and in wishing him every success in his new sphere of activity.



Laurence E. Perkins

Wedge-tailed fish are becoming increasingly numerous here and in the U.S.A. This specimen was photographed at the British Aquarists' Festival in October

Starting a Tropical Aquarium

IN this and subsequent articles the keeping of tropical fish will be dealt with in as simple a form as possible so that the veritable novice will be able from the commencement to gain the necessary information to ensure not only a good start but a guide to future progress. Like everything else a good start is more than half the battle and can make such a difference between a happy and lasting hobby and a disillusioned optimist.

I think the outlook from the beginning has a lot to do with the actual success or otherwise of the hobby. Some think that it is a "get rich quick" hobby, that all one has to do is to put a few pairs of fish in a tank and "hey presto" within a few weeks hundreds of little ones will appear which can be sold for fabulous sums. This is not the way to take part in what can be a very pleasant undertaking. Looked at from the purely hobbyist point of view there can be few other occupations for the spare time which give so much enjoyment for such a small amount of time spent on actual work.

Tropical fish-keeping can be rather an expensive hobby to commence with, but if one uses common sense it need not take too much spare cash and can give so much pleasure that the outlay is well worth it. A point which often surprises me is that most beginners buy so many fishes of all kinds for a start instead of beginning in a small way and gradually building up a collection. It is a strange thing, but most novices seem to think that for a tank to look anything at all good they must have quantities of fishes packed in the tank almost like sardines. This is not only bad for the fish but adds greatly to the expense. Instead of buying say, twenty or more fishes for the tank it would be much better to start with a pair only and let them breed and so multiply in comfort.

Size of Aquarium

The first point to consider is the aquarium. How big shall it be and what shape? I consider that the usual tank with a size of 24 ins. by 12 ins. by 12 ins. is by far the best for the beginner. I know that it is dearer than a small one but if you buy a small tank and save a few shillings, before long you will find out your mistake and want a bigger one. The first one is then a partial loss, and so it would have been better in the first place to commence with a tank which can give you a reasonable chance of achieving success. Always remember that a wide-topped tank is much better than a narrow one, and depth is not very important. I consider that a tank of the size above quoted will hold as many fishes more comfortably than one 15 or more inches deep, although taller plants can be grown in the latter.

The tank needs a firm stand or a strong table for support. The tank mentioned can weigh a hundredweight when set up with sand, rocks and water, or even more. The tank must stand on a level surface, and should not be placed right in front of a window. This would cause the water to get too hot during the summer, too cold perhaps in the winter and the excess light would cause the water to turn green through the formation of algae, a tiny water plant. It is an advantage to black out the ends and back of the tank so that light only reaches the water from the front or from lights over-head.

A heater is, of course, necessary, and it is well to remember that the best general temperature for most of the tropics is about 75° F. This does not mean that the water must never go below this or rise above it. A little thought will soon convince you that these fishes in their native habitat have to put up with varying temperatures. By day the water can go up to 100° and then drop to 65°

at night. A day temperature of about 75° and a night one of 68° is quite satisfactory. It must not be thought that tropical fish will die immediately the temperature of the water drops a few degrees. Fishes which are subjected to moderate changes will be all the more healthy than those which are coddled at one steady temperature day and night.

Heating

For the beginner the immersion type of heater is the best. Later on when one has graduated further into the hobby a fish house which is itself heated will be better. A thermostat is necessary to control the warmth and this should be of a good make to save trouble. The heater should be of sufficient power to do its work without strain. For instance, it should not have to be on almost all the time but should have enough power to maintain the required temperature by coming on at intervals. It is more likely to last for a long time than if it was almost continually on. For the tank described a heater of 100 watts is recommended if the tank is to be kept in a living room. It must be realised that any heater can only raise the temperature of the water to a certain point in accordance with the temperature of the room. A thermometer is needed so that the temperature of the water can be kept under notice as often as possible. A good tip is to alter the range of the thermostat now and again to make sure that the points of contact are not sticking.

Some form of over-head lighting is necessary if only to make the tank more attractive. This lighting need not be kept on all the time but can be switched on for periods according to the available light in the room and the season of the year. During the short winter days it is advisable to use the overhead lights for longer periods so that the plants have a good chance of growing or at least keeping alive. A cover glass is needed to keep out the dust, assist in keeping in some of the warmth and to prevent some fishes from jumping out of the tank. If two 25 watt lamps are fitted in the cover so that they are well apart, lighting should be sufficient.

The tank should be well washed out, but be very careful not to press on the ends of the tank when it is empty as the glass may be moved and a leak may develop. Once the tank has been washed it can be filled with water, warm of course, and the temperature of the water regulated by the thermostatically controlled heater. Once the water can be kept in the necessary temperature range the actual setting up of the tank can begin, for it to be ready for the fishes. The next steps to be taken will be described in the next issue of *The Aquarist*.

Cacti in the Fish House

AMONG the succulents can be found many species which will do very well on tanks both tropical and coldwater. All the sempervivums (house-leek types), will be found quite hardy and they are all easily propagated from off-sets. The sedums, *Echeveria* and *Cotyledon*, are also very suitable. Some of these will stand slight frosts as long as they are fairly dry, but the need for such exposures should not arise in a fish house where the temperature must be kept above freezing point.

Building Aquaria in Alcoves

by LESLIE POVEY, B.Sc.

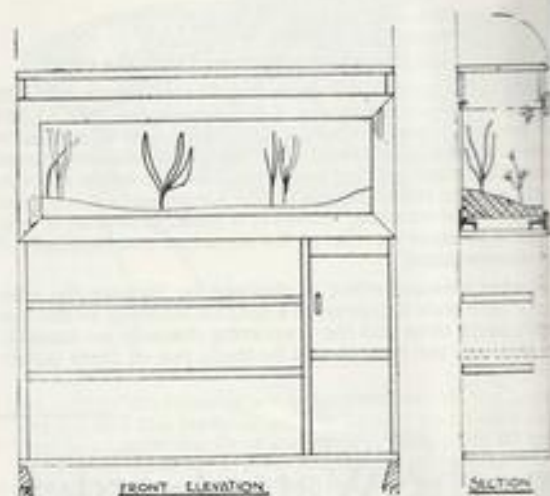
SINCE so many houses contain alcoves which are of suitable dimensions for moderate sized tanks, it is surprising that more fish keepers have not availed themselves of this peculiarity of building design. Let us consider (a) a 46 ins. by 11 ins. by 15 ins. aquarium which I have constructed in an alcove of my lounge and (b) the more general aspects of supporting large tanks which may easily weigh a total of up to six or seven hundred-weights.

Having started fish keeping with the common combination of two two-foot tanks on an angle iron stand, it was quickly apparent that, no matter how attractively one furnished these aquaria, and no matter what exotic fish they housed, the general appearance was not all one could desire. Also—no small consideration—my wife wanted bookshelves in the one and only place suitable for an aquarium. We compromised on a combination of both our wishes, and now display about 150 books and a framed 46 ins. aquarium. The aquarium has already proved to be attractive and quite practical although there are two alterations that I intend to carry out in the near future.

The bookshelves were built, as in the diagram, immediately on to the skirting-boards, and since the total weight of tank and books rests here there is a loading of about 10 lbs. per inch run of skirting. This load is accepted quite easily by timber in compression. The bookshelves were a matter of simple joinery, being butt jointed throughout, and no more will be said about them.

The frame of the tank is made of 1 in. by 1 in. by one-eighth inch angle iron with a supporting tie bar from front to back of the frame at top and bottom to reduce the tendency to bow caused by the water pressure. The tank is glazed with $\frac{1}{4}$ in. plate in the front and quarter rough cast back and sides with wire reinforced $\frac{1}{4}$ in. rough for the bottom. The rough cast back glass is backed by royal blue paper and gives a pleasing but indefinite effect.

The tank, as above described, must be supported adequately along its length since it is not sufficiently strong to stand up to the forces acting when it is fully loaded. To give adequate safety in choosing the bearing members the tank was considered to have no strength at all. It was also accepted that it should bend no more than five thousandths of an inch. This bending is what the engineer calls



deflection. The calculation was based therefore on a load of six cubic feet of water and 60 lbs. of gravel, or a total of 435 lbs. over a span of 48 inches with a deflection of less than 0.005 in. The result was that one 2 in. by 1 in. channel was sufficient, but being of a cautious disposition two were in fact used. This means that there will be perhaps one or two thousandths deflection on the tank. The tank has not leaked!

SOME USEFUL CALCULATIONS

The calculations for the bearing members involve only simple arithmetic although one must be careful of the units used (i.e. all dimensions should be the same, say, all inches; and similarly all the weights should be, say, in pounds.) We have:

$$(a) \text{ Deflection} = \frac{5 \times WL^3}{384 EI}$$

Where W = total load (lbs.)

L = length of beam (inches)

E = Young's Modulus for the material of the beam

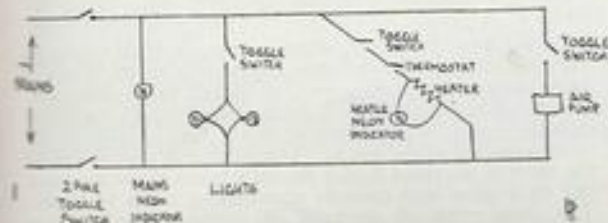
I = Moment of inertia of the beam required

(Young's Modulus for mild steel is 30,000,000 lbs./ins.²)

Having calculated the moment of inertia for the beam, the following table gives us the required beam size. Since channel is considered to be the most suitable for our purposes only that cross section has been considered.

Channel Size	Weight Per Foot	Moment of Inertia I	Modulus of Section Z
2 x 1	3.00 lbs.	0.073 ins. ⁴	0.113 ins. ³
2 x 1½	4.00 lbs.	0.259 ins. ⁴	0.270 ins. ³
2½ x 1	4.14 lbs.	0.085 ins. ⁴	0.126 ins. ³
3 x 1½	5.27 lbs.	0.296 ins. ⁴	0.291 ins. ³
3 x 2	6.35 lbs.	0.610 ins. ⁴	0.450 ins. ³

Having found the beam required it is



- ELECTRICAL CIRCUIT -

that the stress in the beam is not too great. We do this in the following formula:

$$(b) \text{ Stress} = \frac{WL}{Z}$$

Where W = total load
L = length
Z = Modulus of the beam (from the table)

The range of permissible stress in mild steel beams is 13,000 to 18,000 lbs per in.² so that if the stress is less than 13,000 lbs. per in.² we can go ahead. Should the supporting beams have their ends cemented into the side walls, additional strength is obtained, but our method of calculation gives us a still greater safety margin. The advantage of having the bearers "free standing" however is great, of course, if it is decided to move the site of the aquarium and especially if one moves house.

A very pleasing effect is obtained by framing the tank (three inch wide architrave is a suitable material) so that the tank's angle irons and the supporting channels are masked. To this end the tank should be made two or three inches

shorter than the available space so that wooden frames can be fitted round the tank to facilitate the fixing of the surrounding moulding. These side frames, when carried above the tank height, form the sides of a shallow space in which the lighting, aerators and auxiliary equipment are housed. The drawing shows that all the moulding and top structure is, in fact, removable for tank maintenance although a hinged lid is provided for easy access for feeding, routine cleaning, removal of fish, etc.

The two alterations mentioned which I plan to make will provide:

- (a) A wider hinged lid to give more easy access to the tank so that netting fish is simpler, and also so that larger carrying jars may be floated.
- (b) A polished aluminium plate will be fixed to the underside of the new lid to prevent overheating of the wooden lid, which shows signs of warping.

One further matter of interest is the inclusion of a switch board with neon lights which shows the thermostat behaviour at a glance. One neon operates on the mains feed and the other when the thermostat contacts.

In the Water Garden in DECEMBER by ASTILBES

DURING this month it is possible that a few severe frosts will occur, when some attention to the garden pond may be necessary. Because it is winter and most of the inhabitants of the pond are resting it does not mean that they need no care during this period. After each freeze up the water should be examined. If it appears of a good colour and there is no smell, all should be well. Signs of danger are when the water takes on a milky hue and a perceptible smell is coming from the pond. This bad condition can be caused through the ice lying thick on the water and forming a complete seal, thus preventing foul gases from escaping. Too much food given during late autumn can cause this foulness. When the water is a bad colour it is a good plan to empty as much as possible and to refill with fresh water. A sign of impurity in a pond is when water snails die. When dead snails are seen floating on the top of the pond it is time to examine the state of the water.

Keep a sharp look-out in the pond for any trouble among the fishes. Strangely enough most fishes go through the early part of the winter in fair condition and do not show any signs of ill-health until the following spring. At this time some fish develop fungus disease but the appearance of this may be due to the fact that the pond had incorrect treatment the previous autumn. Correct but reduced feeding in the later months of the autumn and year means that the strength of the fishes is well maintained, so that they are able to store up sufficient nourishment to stand them in good stead during the long winter months. A fairly sure sign of ill-health in a fish is when it skulks away by itself and does not group with the other fishes. Such a fish should be caught and examined for any signs of damage or sickness, and is best kept alone until better.

No feeding should be necessary at all during this month. A lot will depend on the size and contents of the pond. The larger the pond the more easily can it take care of itself and the inhabitants will benefit by the discontinuance of artificial feeding. If a mild spell should arrive it is possible to tempt the fish with a piece or two of garden worm. Do not give so much that some can be seen unheaten. No dried foods should be given, as most coldwater fishes become very sluggish and almost dormant during the winter.

If there are any fishes with flowing finnage, such as veil-tail goldfish, it may be safer to remove them from the pond to warmer quarters until the spring. Many go through the winter without trouble but for all that many others contract tail rot, fin congestion and fungus. The trouble usually starts on the parts of the fins farthest away from the body, owing no doubt to the reduced flow of blood at these points. The ends of tails can be eaten away, and although it is possible to cure the fish and get the tail to grow again, there is often a thickened part where the new growth starts and so the fish may be disfigured.

Make sure that no surplus water can drain from the garden into the pond as some of this may be very impure and can harm the fish. This is especially dangerous when the pond is at a lower level than a lawn which has been treated against worms and weeds. Even very small amounts of some of these poisons, especially D.D.T., can be fatal to fishes. Keep a watch on rockery near the pond to see that no loose rockwork can fall in. Severe frosts can loosen even large rocks and so an occasional examination is well worth while.

Last month the construction of a pond was discussed and if such a project has been dealt with it may be a good plan to see if it is possible to incorporate a rockery into the pond area. This often makes a good use of any dug-out soil and it can make an attractive addition to the garden. Where some higher ground surrounds a small part of the pond it will be found to enhance the beauty of the scene, with masses of flowering alpines such as subretia reflecting on the water.

December is the month when one can recall all events in the pond throughout the year. You will be fortunate if there has not appeared some fault which needs attention. The pondkeeper may like to think over the possibility of installing some form of fountain or waterfall to assist in the re-oxygenation of the water. The moving of a great deal of the water in the pond during the early hours of the morning can do a great deal towards encouraging fishes to breed. The description of methods of fitting electric motor pumps for waterfalls and fountains will be given in the next issue.

Three-spot Gourami

(*Trichogaster trichopterus*)

ORDER:—Percomorphi, from Greek *perke*—a kind of perch, and Greek *morphe*—form or shape.

FAMILY:—Anabantidae—from Greek *anabaino*—to go up.

SPECIES:—*Trichogaster*, from Greek *trichos*—a hair, and Greek *gaster*—belly; *trichopterus*, from Greek *trichos*—a hair, and Greek *pteron*—fin.

MY immediate reaction when first introduced to "three-spots" was to question the popular name. Why "three-spots?" "The eye is considered the third spot", I was told. I thought then, and see no reason to change my ideas on the subject, that to regard the eye as a spot was ridiculous. On this basis, and excluding the blind cave-fish (*Anoptichthys jordani*) all fishes are "one-spot." I cannot for the life of me see why the popular name, even at this late date, should not be changed to "two-spot."

There are two well-known varieties of *trichopterus*. Both grow to a maximum of five inches and both originated in the Far East. The first variety introduced to aquarists had a dull, dark-hued back, paling to mother-of-pearl sides, the long anal fin was heavily mottled with orange-brown markings. Its interest lay more in its breeding habits than in its beauty. Thirty-seven years afterwards, a new and strikingly coloured variety was imported, purporting to have come from Sumatra, and promptly named *sumatranus* by an over-enthusiastic ichthyologist. Even to-day the incorrect name is still sometimes come across in print.

The new variety was our "blue gourami," and quickly established itself as a firm favourite, for here was colour, plus interesting breeding habits, hardiness, temperature tolerance, and absence of choosiness regarding diet. Moreover it could be kept in fairly small aquaria, and especially appealed to those aquarists who liked something larger than a "toy" fish. As though this was not enough, the females proved almost as colourful as the males, unlike many of the labyrinth fishes.

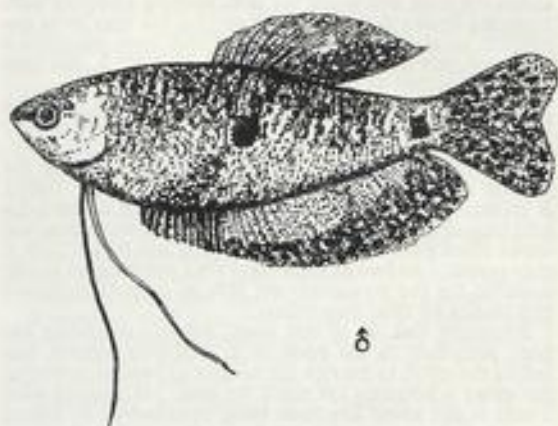
The one fault it possesses is a tendency to aggressiveness,



Photo:

Laurence E. Perkins

Both illustrations on this page depict the male three-spot gourami, with its characteristic pointed dorsal fin



not only to the opposite sex of its own species, but to other species, and this makes it safer to keep it on its own rather than in a happy family or community tank. Not all specimens show this undesirable trait, but in my experience the majority do, particularly when they are almost two-thirds grown and looking for mates. A 24 ins. by 12 ins. by 12 ins. aquarium can comfortably accommodate several two-spot gouramis, and the whole of their life-cycle can be easily observed.

First thing that will strike the purchaser is their reaction upon introduction to their new home. After being gently tipped into it, they will almost immediately begin to explore, approaching plants, rocks, and each other carefully and pausing at a safe distance from each. They will then reach forward with their hairlike pectoral fins and gently pass them over the surface in front of them from top to bottom, from side to side. Satisfied, they will pass on to the next obstacle and do likewise. It is for all the world as though they are blind and memorising their surroundings by touch. A sudden movement near them and they move like lightning into the nearest cover.

Breeding condition seldom has to be induced by special feeding. In a temperature of from 76°-80° F., provided the fishes are mature, the female soon develops what appears to be a marble in her body just below her throat. It is almost as though she is developing goitre. The tyro may be surprised to find the eggs developing so high in her body, but the truth is that practically 80 per cent. of the trunk of these fishes is muscle—the "vitals" are packed into a space no bigger than the fishes' heads. Yet in spite of the small space, it is nothing unusual for a female to contain as many as 500 eggs. As she ripens she has to be increasingly wary of the male, who seeks her out and nips at her fins, driving her into cover time and time again.

When he is ready, however, he begins to coax her, tempting her to approach a raft of bubbles which he has industriously built. He fusses round her and she succumbs to his advances, whereupon he wraps his supple body round hers and gently squeezes her. The pressure forces a number of eggs from her body, and these are instantly fertilised. For a moment the pair lie motionless in the water, then right themselves and gather the falling eggs in their mouths. With deliberation these are blown among the air bubbles of the nursery. The operation is repeated again and again until the female is spent, by which time the eggs are piled pyramid fashion in the nest, standing half-an-inch or more above the surface of the water.

Spawning complete, it is a wise precaution to remove at

least the female from the aquarium. Otherwise the male will so bully and badger her that death may ensue. Left alone, the male will guard the nest, keeping ceaseless vigil, repairing breaks in the nest, and moving the eggs from one position to another. Sometimes he may even construct a new nest and transfer the eggs to it. At 80° F. the eggs will hatch within 48 hours.

The male fish redoubles his vigilance when hatching begins. The wriggling of the fry in the nest frequently bursts the supporting bubbles and they tumble out, tiny, ungainly little "commas" with no hope of regaining the nursery if they once reach the bottom of the tank. Father is expecting just such accidents and is waiting to catch his offspring as they tumble. Back to the nest he swims, and blows them gently back into it. It will not be his fault if they perish. In two or three days after hatching he is able to relax, for the youngsters are able to support their still tiny bodies by their own efforts.

Assuming that up to this stage, father's behaviour has been according to the book, it is wisest to remove him before the effort to restrain his instinct to swallow tempting live morsels becomes too much for him. In spite of what I said earlier about live food being unnecessary to induce spawning, if a proportion has been given and is also supplied after spawning the risk to the fry is not so great.

First food for the fry should consist of algae water and the tiniest Infusoria. A comparatively new culture is more likely to contain these than a mature, well-established one. A series should be started at least when spawning begins, if not a few days beforehand, when courting is first noted. At 14 days the fry should be large enough to start on

rotifers, *Cyclops nauplii*, new-hatched brine-shrimp, tiny *Daphnia*, etc. Plenty of food will ensure rapid growth. Too liberal a feeding of Infusoria may cause an accumulation of unhealthy debris, and this should be siphoned off. The addition of gentle aeration will help to maintain hygienic environment.

During the third to fifth week the youngsters will develop an additional breathing organ—the labyrinth, which will enable them to supplement the oxygen they get from the water with that from atmospheric air. They are particularly susceptible to chill during this period, and care should be taken to ensure that the aquarium in which they are being reared is carefully covered. At four to five weeks, if adequately fed and housed, they will be miniatures of their parents, and the sight of a school of happy, healthy young blue gouramis will amply repay the careful breeder for his efforts.

While writing this article I should mention that in 1952 an article was published in *The Aquarium Journal* (U.S.A.) giving details of an alleged "sport" from a mating of "three-spots." The spots had disappeared, the blue colouring was greatly enhanced, with a marbling different on each specimen. Mated together the new characters were faithfully reproduced in the offspring, and brother to sister matings also reproduced 100 per cent. of the "sports."

The article was exciting and seemed to hold out the prospect of a new gourami, but since then nothing further (to my knowledge) has been heard of them. As one who is always ready for something out of the ordinary, I'm disappointed.

Books for the Aquarium Society Library

Some suggestions by a society Editor

MANY of the larger societies, as well as some of the smaller ones, have what they call a library. In point of fact, what is usually called a library is usually not so much a library as a collection of books. That is a very different thing. To some extent it is inevitable; for books are expensive, and most aquarium societies have to build up a library by gifts from members rather than by purchase. But a library can never be adequate unless it is planned, and a correctly planned library need not cost a lot of money. It is largely a matter of buying the right books, and refusing to buy those that have little, if anything, to offer.

In general, two or three standard works on aquarium fishes, four or five lesser works (which are convenient for beginners) and a few books on allied subjects, are all that is needed for a start. In the end, the librarian should aim to include all those books that are listed below. The list is not a long one, and though the choice is essentially a personal one, I have given reasons why each book should be included. No one need quarrel with the inclusion of any of these books, but I have no doubt that some may quarrel with my omissions. Clearly, however, an aquarium society has not got unlimited funds to spend on a library and few societies, if any, could afford to stock every book on aquarium management that has been published. The line must be drawn somewhere. My aim has been to suggest a limited library of books that contains everything of importance necessary to satisfy the most exacting of aquarists. Unfortunately, some of the books are no longer in print, but they are worth looking for at second hand.

Abercrombie (M.), Hickman (C.J.) and Johnson (M.L.): *A Dictionary of Biology* (enlarged and revised edition). Penguin Books, London, 1954.

A valuable reference book for the aquarist who wishes a

precise definition of the biological terms used in books and articles on aquarium fishes.

Arnold (Joh. Paul) and Ahl (Ernst): *Fremdländische Süßwasserfische*. Wenzel, Brunswick, 1936.

Although written in German no one need be deterred from consulting this book. It contains a description of several hundred species, each accompanied by an illustration. Even if the reader has no German, it remains the most valuable book known for the purpose of identifying a rare species.

Axelrod (Herbert R.): *Tropical Fish as a Hobby*. Allen & Unwin, London, 1952.

A standard work of particular value to the aquarist by reason of excellent chapters by Dr. Myron Gordon on aquarium genetics and James W. Atz on the "balanced aquarium myth."

Coates (Christopher W.): *Tropical Fishes as Pets* (re-issue). Cape, London, 1951.

One of the best of the lesser works. A novel departure is a chapter on the chemistry of aquaria, a subject that is ignored in most text-books. The photographic illustrations are good.

Emmens (C.W.): *Keeping and Breeding Aquarium Fishes*. Academic Press Inc. Publishers, 1953, Academic Books, London.

Fishes and plants are not described in detail; for the book is essentially one that concerns itself with techniques. It includes everything that every aquarist is likely to want to know about the general principles of breeding, diseases, feeding, lighting, heating, etc. It suffers from the slight defect that the author, who is a professional biologist, sometimes seems to forget that he is writing for those who

have not had the benefit of a scientific training.

Evans (Anthony): *Aquariums* (a re-issue). Muller, London, 1953.

One of the best of the lesser works on aquarium management and fishes. The author, as Editor of *The Aquarist*, knows his subject and what the beginner needs.

François (M.): *Decors Exotiques et Plantes d'Aquariums*. Desseaux, Colombes, 1951.

The only book so far published that deals adequately with the culture of water plants. All the well-known species (and some of the rarer species) are mentioned, together with the best planting medium, light and temperature for cultivation. The illustrations are beyond praise. To those who can read French, the preliminary chapters on setting up the aquarium and aqua-scening are worth reading.

Fraser-Brunner (A.): *A Home Aquarium on a Small Income*. Hutchinson, London, 1954.

One of the best, if not the best, of the lesser works. It is a model of compression, with excellent illustrations, including four colour plates. It includes a short, but valuable, chapter outlining the construction of a fish house and staging for a fish room.

Furneaux (W.S.): *Life in Ponds and Streams*. Longmans, London, 1896.

Although published some 60 years ago, the book is of particular value to the aquarist by reason of the fact that essentially it deals with work in the field, collection of specimens, and the like. A reprint was issued in 1919.

Hervey (G.F.) and Hems (J.): *The Goldfish*. Batchworth Press, London, 1948.

The recognised standard work on the species. Apart from chapters on the care and maintenance of goldfish in aquaria and ponds, and a chapter on breeding, the book is notable for its chapters on the history of the species and its anatomy.

Freshwater Tropical Aquarium Fishes. Batchworth Press, London, 1952.

A standard work that covers more ground than any other book published in the English language. The book describes every well-known species of aquarium fish, and a large number of rare species. The book is competently illustrated, the colour plates being considered particularly fine. A reprint, with a four-page supplement, was issued in 1954.

Innes (William T.): *Exotic Aquarium Fishes* (17th edition).

Innes Publications, Philadelphia, 1954.

This book has been described as "the aquarist's bible." It is admittedly a first-class book, although not altogether as good as this definition suggests. The main strength of the book lies in the fine photographic illustrations. The text is adequate for the beginner, but contains insufficient detail to satisfy the experienced aquarist.

Goldfish Varieties and Water Gardens (second edition).

Innes Publications, Philadelphia, 1947.

A standard work notable for the excellence of its illustrations. Novel features include chapters on public aquaria and photographing fishes. The construction of aquaria and ponds is adequately dealt with. Altogether a very comprehensive work.

Knowles (Francis G. W.): *Freshwater and Saltwater Aquaria*. Harrap, London, 1953.

One of the most satisfactory of the lesser works, by virtue of the fact that the author, who is senior biology master at Marlborough College, knows his subject and how to present it. The chapters on the salt-water aquarium are practical and of great value to aquarists interested in this branch of the hobby.

Kyle (Harry M.): *The Biology of Fishes*. Sidgwick & Jackson, London, 1926.

A book that covers a difficult subject in a way that can be easily understood by the reader who lacks a scientific training.

Leutscher (Alfred): *Vivarium Life*. Cleaver-Hume Press, London, 1952.

A book that deals with the care and maintenance of frogs, toads, newts, salamanders, lizards, snakes and alligators. It includes chapters on coldwater fishes, plants and pond life. Each species mentioned is accompanied with an illustration in black and white.

Mellanby (Helen): *Animal Life in Freshwater* (fifth edition, revised). Methuen, London, 1953.

The book deals only with invertebrates. The reader will find in it all that he wishes to know about *Daphnia*, *Cyclops*, snails, insects, and the like. The illustrations are particularly valuable to assist identification, and each chapter is accompanied by a short bibliography referring the reader to more advanced works.

Mellen (Ida M.) and Lanier (Robert J.): *1001 Questions Answered about your Aquarium*. Harrap, London, 1951.

A standard work presented in question and answer form. The method of presentation leaves something to be desired, but the authors have done their job thoroughly and answer most questions that the reader is likely to ask. A very comprehensive bibliography is a valuable feature of the book.

Norman (J. R.): *A History of Fishes* (third edition). Benn, London, 1947.

The title of this book may be misleading; for history suggests a mass of dates and other dull facts. The author, however, uses the word in its widest meaning, and explains in simple, non-technical language, how fish see, how they swim, eat, breathe, and so on. The line drawings could hardly be bettered.

Perry (Frances): *Water Gardening* (revised). "Country Life," London, 1947.

A general work on water plants, with particular stress on pond, waterside and bog plants. Detailed instructions are given for sowing and digging a garden pond, and its maintenance. A short chapter on setting up, stocking and maintaining an aquarium is included.

Roughley (T. C.): *The Cult of the Goldfish* (second and revised edition). Angus & Robertson, Sydney, 1949.

A standard work written by an Australian authority. Schultz (Leonard P.) and Stern (Edith M.): *The Ways of Fishes*. Van Nostrand, New York, 1948.

A first-class general work, written in popular style, on the habits of fishes, migration, locomotion, feeding habits, and the like. The book describes the general principles of setting up an aquarium, and suggests tropical species suitable for the home aquarium. A novel feature for a popular work is a complete classification of all fish families, living and extinct.

Smith (Hugh M.): *Japanese Goldfish: Their Varieties and Cultivation*. Roberts, Washington, 1909.

A book that contains a lot of information about goldfish that does not appear in other books. The author explains in detail the methods of breeding practised by the professional breeders of Japan. The coloured illustrations are particularly fine.

Stoye (F. H.): *Tropical Fishes for the Home*. Stoye, Sayville, 1935.

A standard work that contains adequate descriptions of a very large number of species, together with their requirements and breeding habits. The early chapters on the care and maintenance of aquaria are not as full as they might be, and the illustrations are rather "dated." I understand that a new edition is in course of preparation.

Wells (A. Laurence): *The Microscope Made Easy*. Warne, London, 1938.

A book that explains in simple language how to use a microscope, prepare specimens for microscopic examination, and the like. It is one of the few books available that deals with this important subject in a way that makes it easy for the untrained reader to follow.

Mr. Eric Robinson

Interviewed by PHILIP DEE

For more than nineteen years Eric Robinson has been associated with orchestral productions in B.B.C. television. Last month this popular conductor held his thousand television show.



Photo 1

Laurence E. Perkins

Mr. Eric Robinson (right) standing with Philip Dee in front of his large tropical aquarium

HAVE you ever thought of tropical fish musically—comparing them as they swim rhythmically through the vegetation of a lighted aquarium with a gay and colourful piece of music? It was the celebrated B.B.C. conductor, Eric Robinson, who caused me to think along these lines when I interviewed him amid the orchestral atmosphere of his home in St. John's Wood, London. Despite fame and success, he is a charming personality unaffected by the glamour of the footlights and publicity, a true genius.

On entering the delicate shell-pink decorated hall of Mr. Robinson's gorgeous house, my eyes automatically fell upon a lovely aquarium recessed in the wall. The variety of tropical fishes within the aquarium are the usual hardy angels, tiger barb, swordtails, black widows, *Barbus schuberti*, zebras, gouramies (thick-lipped and three-spot), beacons, mollies, glass tetras, glass catfish and wagtail platys. They shoal among a watery undergrowth, consisting of *Vallisneria*, *Hygrophila*, *Ludwigia*, a variety of *Cryptocoryne* and a beautiful spatterdock.

The highly-polished parquet flooring of the hall leads towards the stairway, literally a stairway to the stars, for a spectacle of photographs of Royalty, screen, stage and T.V. personalities is seen adorning the wall. Glancing upward, the pink decorated walls meet with a pale sea-green ceiling, such a perfect setting for the picturesque aquarium. Entering the lounge-dining-room, immediately I became aware of an atmosphere that made me feel that at any moment a spirit orchestra would suddenly strike up; the room seemed to be enchanted. A grand piano stood on one side of the room almost pleading to be played. Relaxing in a large armchair and drinking coffee, I began my interview with Eric Robinson.

He first became interested in fishes when he bought a 24 ins. by 12 ins. by 12 ins. tank for an invalid child, and watching them whenever he had the opportunity, he too became fascinated and decided to install an aquarium 30 ins. by 20 ins. by 15 ins. in his hallway. He had realised what a novel form of decoration an aquarium can be. As you can see in the photograph, this aquarium has been neatly inset into a recess which was built to accommodate the aquarium and to incorporate a hall cupboard; the flap underneath the tank houses foods, the pump and accessories.

"I think," said Eric Robinson, leaning back in his chair,

"my favourite fishes are the gayest coloured ones. Obviously that tells you I'm no hobbyist! I'm purely interested in them for their decorative purpose, apart from which, a person so engaged as myself, has little time to fiddle around with anything that requires more than the minimum attention. So long as the tank looks clean and reasonably tidy I never bother to touch it, except of course for feeding."

"Your angel fish is a remarkably good specimen," I commented.

"Do you know, he must be about five years old now. I've had him since I first started an aquarium; some of the others, the catfish and the gouramies must be about that age too." He looked at me as if I should be surprised, as if he had achieved something unusual.

"Fish will live for years," I said, "provided they are bought young and from good stock in the beginning. The trouble was just after the war when the hobby became so popular, many unscrupulous people with little or no knowledge of fishes at all sold infected and poor quality stock. Fortunately, the public's knowledge in this field has developed since then."

Eric Robinson nodded his agreement.

For a moment I surveyed my delightful surroundings—a long room furnished in contemporary style with splashes of Regency; strangely enough this combination harmonises perfectly. At the extreme end of the room are bay-shaped windows and French doors lead into the garden; a bottle green, leather upholstered cocktail bar stands invitingly near the windows across a corner. A very modern electric fire is recessed into a grey reeded hardboard setting and rows of books are shelved alongside. Quaint wrought iron-framed pictures of a Spanish bull-fight decorate one wall and a fabric replica of a bull and matador stand on the mantelpiece.

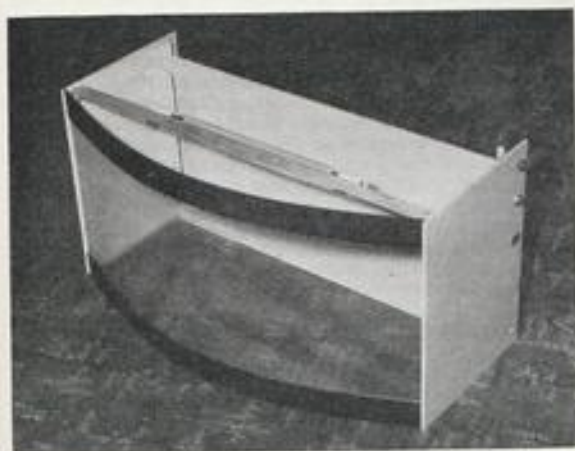
Eric Robinson told me that he was very fond of Spain and had just come back from a wonderful holiday in the Balearic Isles. An alcove sectioned off with contemporary poles decorated with sub-tropical plants constituted the dining section, whose furnishings were Regency against a vivid yellow wall background.

(Please turn to page 180)

What's New on the MARKET?

"Arbe" All-Plastic Aquarium

DURING the last few years more and more gadgets have become available for the hobbyist made in plastic or in Perspex but it is only recently that a tank made completely of Perspex has appeared on the market. This new form of aquarium is completely out of the ordinary, as the back and sides are of pastel-coloured Perspex, which contrasts strongly with the clear bow-front. Coloured bands run along the top and bottom of this frontage forming a frame. There is a flush fitting aluminium lid and a built-in electrical circuit which includes an externally adjustable thermostat, a neon indicator light, a terminal block for the heater (housed behind a camouflaged panel), a press button light switch for the strip light and a three way terminal block connecting the circuit to the power supply. Two sizes are available at present, 18 ins. by 12 ins. by 11 ins. and 24 ins. by 12 ins. by 12 ins. The



Viewed from above with the lid removed the plastic aquarium is seen to have strip-lighting fitted across the top

joints are made by using chloroform which dissolves the Perspex and, after evaporation leaves a welded joint which is non-toxic. The strength can be realised from the fact that the joints are capable of withstanding a tensile stress of two tons per square inch. Light when empty, these aquaria can be carried about full of water with perfect safety and cannot develop a leak unless severely misused.

The aquarium is, in fact, a piece of furniture and should be treated with the same respect. For this reason one would not use a razor blade to scrape off algae as this would scratch the surface. A soft cloth is all that is needed for external cleaning whilst internally wet greaseproof paper is the best cleaning agent and successfully removes the hardest algae. Grooves are provided at the back of the tank into which a sheet of hardboard can be slipped for background if desired. Any standard heater can be used. Special mention might be made of the thermostat, which is built-in and which depends for its operation on the expansion and contraction of the tank itself as the temperature varies. An aeration pipeline can be introduced alongside the heater cable. Strip-light holders are fixed in, for which a 284 mm. 30 watt strip light is probably most suitable. It would be unwise to use chemicals such

A review of recent ideas and apparatus for aquarists, by RAYMOND YATES

as acriflavine, methylene blue, permanganate or mercurochrome in the tank as these might stain the Perspex.

The aquarium's inventor is Mr. R. Brooke, a keen Ilford aquarist who is fortunately a manufacturer of sheet plastic, and he is now offering these unique but reliable tanks for sale through his firm Arbe Products, 2-3, Longwood Parade, Ilford, Essex.

Danish Aquarium Products

IT is safe to say that there must be few aquarists in Britain who have not heard of the famous Hykro products but not everyone has had the opportunity to try them for themselves. This enterprising Danish firm has two major fish foods on the market, Hykro food and Hykro flakes. Both are excellent, and this is an opinion shared by the fishes, who demonstrate in no uncertain manner their partiality for these foods. Both have a high protein content, the former containing oatmeal, spinach, shrimp, cod, herring, liver, salt and agar-agar whilst the flakes contain milk, cod-liver oil and added minerals. Over a million tins of the flakes are sold yearly, and for this reason Hykro has imitators. Hykro food is obtainable in tablet form, 30 tablets to a tin. One tablet is about right for about a dozen average fish. The fish simply cannot wait for the tablet to begin to break up, which takes about four minutes. These tablets are also excellent producers of Infusoria, although not sold for this purpose. Another novelty is the Hykro health shell, used as a water neutraliser, general medicant and plant fertiliser. One well-known dealer in Holland puts one of these in every can of fish sent out. A cure for white spot and fungus is sold under the trade name of "Ichthyophilos," consisting of a tube of white powder used in the proportion of one teaspoonful to 2½ gallons of tank water. I have not tried this out myself as yet but aquarists who have, report excellent results.

Fish Eggs by Post

APIONEER in the hobby is Mr. R. C. Johnson of Johnson's Aquarium, Tooting Junction, London S.W.17, who has put much thought into the relatively new idea of offering fish eggs for sale and sending these to customers through the post. Eggs are despatched in boiled tap water to which a little methylene blue is added to discourage fungus. Generally speaking all eggs are kept about ten days until they are in the "eyed" state, and with them go details of the approximate hatching date, which is usually some five to seven days after arrival. In the warmer weather eggs have been sent out in medicine bottles but with colder spells small Thermos flasks have been used. These hold about three-fifths of a pint and are returnable. In both instances the containers are sent out in heavy cardboard boxes containing wood shavings, the postal costs being 9d. for medicine bottles and 1s. 5d. for Thermos flasks. My personal view is that eggs could be sent in any weather in the medicine bottles as high temperatures are neither necessary nor desirable. Some time ago I received eggs in both forms of container and these were not opened until 48 hours after having been sent off. The original

temperature when sent was 72°F. and on opening both containers registered 70°F.

When the eggs arrive both water and eggs should be poured into a clean two pound jam jar which has been sterilised with steam and allowed to cool beforehand. The jam jar should then be floated in a tank so that the temperature remains between 60° and 75°F., about 70° being a good average. Every day until the eggs hatch add about two tablespoonfuls of boiled and cooled water until approximately two-thirds of the water with eggs is that into which the babies will eventually be placed. When hatching begins mash up two or three white worms and add these to the jar, when they will form Infusoria; the following day mash up two more worms. This should supply sufficient Infusoria for about six days, by which time the babies should be able to take newly hatched brine shrimp. After five more days the fry should be taking micro and sifted *Daphnia*. Only newly hatched brine shrimp is advisable, otherwise the tiny babies might choke. Other methods can be used for the Infusoria stage; personally I used "Liquifry," which is far less messy and chancy and equally satisfactory.

The eggs which I received were *Aphyosemion australe*, *Panchax playfairii* and *Rivulus harti*, but Mr. Johnson hopes shortly to be in a position to offer others such as American flag fish, *A. lineatus*, *chaperi*, Argentine pearls, blue gularis and other slow breeders. He feels that many people have had casualties in moving adult *Aphyosemion* to different water whereas eggs moved in the eyed stage result in practically 100 per cent success; young fry up to seven days old suffer only minor casualties. Eggs are priced so that in most cases aquarists can buy ten eggs for the cost of one pair of young fish. This gives them the fun of raising their own stock, using their own ideas, and if they are unfortunate enough to suffer a few losses the final result should still come out on their side. Mr. Johnson is to be congratulated on this venture, which, from what he tells me, has caught the imagination of aquarists all over the country.

Mr. Eric Robinson

(Continued from page 178)

"Do you have much trouble with algae in your aquarium?" I asked (realising that I was not here to give a write up on Eric Robinson's home but his fishes).

"No, my tank has always been very healthy. I've never had any bother at all, and they are such economical creatures to keep. Of course, in the first place I purchased the best specimens that I could for my money, but I believe there is a certain type of fish which helps to keep algae down, is this so?"

"Yes, it is the *Plecostomus* catfish. It would save you even more time, it keeps the tank in excellent condition; its a scavenger whose main diet is unconsumed food and algae."

"But I could not keep one of those in my tank—it is not large enough."

"I assure you it is," I smiled. "If you buy one young enough it will regulate its growth to the amount of space it requires in an aquarium."

"That's strange," Eric Robinson remarked, looking serious again for a moment, "because oddly enough when I removed my angel fish from the smaller tank into my present one, I noticed it grew considerably."

From the decor point of view he could not praise his aquarium enough, and as I departed from the residence of this delightful personality, I took a final glance at the tank and I declare those fishes were swimming in time to the beat of Eric Robinson's baton in "Music for You."

Aquarium Clubs can

by B. CALROW

(Hendon Aquatic Society)

IN the past few years, I have often been approached in person, and by letter, by club members around the country, asking advice on the matter of club organisation. Sometimes the inquirers are trying to form a local society, and more frequently, and unfortunately, it is the vague plea from someone to install some life blood into an already dead horse.

What is the secret formula? What makes a good club "tick"? These are impossible questions to answer, with any set formula. How many times have we seen in print a set of model rules for clubs, and a list of suggested programmes, offered on a plate to the would-be club organiser, and how futile it is we know, when we look around at the thousands of enthusiasts who never have been to a club meeting, or more tragically have been and decided that they want no more. At this stage I can offer one certainty, and say that no society can be successful on cash alone. In fact I would go further and say that given £1,000 to spend, most of the societies that are not a success to-day, would be no better off in two years' time. It is not a question of money, indeed one of the country's most successful clubs has an income of 10 shillings per member per 50 meetings!—about 2½d. a night!

To get back to the basic things. First the old cry that "there is only a nucleus of members doing all the work." The answer to that, of course, is that there always will be, and ever was. In every society that ever has been, the work has been unequally divided, some members full of beans never ceasing to push things along, others sitting by getting all they can, and giving little in return. The important thing to remember about this being, all clubs are the same, from the lowest to the highest; the difference being, and this is important, that the successful club recognises the fact that many members do not wish to be more than attending members, and accepts that situation as part of its existence, not as something to be moaned and groaned about, but as



Photos:

Ray Skipper

Table show nights are always popular in an active society. Here, Hendon A.S. members view the entries

be Trumps

an essential part of the club make up. Perhaps it can even be a challenge to the organisers, for members are of many moods, and this year's looker-on, can be aroused to be next year's enthusiast. This brings me to important rule 1. The successful club organiser must be charitable in his outlook to all members, and realise that it is not everyone's cup of tea to be forever at the front of club activities.

Another fault found in many clubs, is the regimental adherence to meeting procedure. The reading of the last minutes, and the passing of the same may be good form at the trade union meeting, but when we meet at the fish club we come to hear about fish. That is important to remember, and one highly successful club dispenses with a all procedure and gets straight down to the programme. Rules, procedure, plans etc., are the work of the committee, and they deal with this when they meet separately at an independent meeting. It is a fact, that when club procedure and organising becomes a part of the weekly club meeting, it is not satisfying the member who came to hear about fish, and does satisfy and cultivate those members who would really be better off in the local debating society. This type of member, like those mentioned previously, does exist in most clubs, and as previously, must be accepted as such. The wise organisers will afford them little opportunity to prove their prowess as debaters, by minimising the meeting procedure and charging the talkative one with a task such as members' record cards, which will get a good job done and satisfy his ego.

Now, can I pass over the common faults with my own pet dislike? I have never passed through a club auction, without some sense of shame, that someone may be getting rid of his worst stock, that someone is bidding his money on something he wouldn't want as a gift, and the whole process taking up sometimes fifteen minutes of uncomfortable embarrassing time, to earn the club a few coppers.

I leave all other suggestions of what not to do to your own taste, and recommend to you all an outstanding comment I can recall from my old friend Capt. L. C. Betts, when the arguments were getting thick at one early Federation meeting. Pointing to a goldfish on the chairman's table, in a large jar, he said "Don't forget we are only here for her." So when you have to decide just what to exclude from your meeting pause and think. "We are here primarily to talk fish." That will cover your meeting far more than any offered set of rules.

What do we do then to ensure a successful club? There is no answer to give, for are we not struggling all the time to keep ourselves successful? Generally we must try to foster



The library corner at a Hendon A.S. meeting

above all a spirit in the club, and this will breed success. The committee must plan a target, and it should be something like this. "What can we do this year that will be different from anything attempted before for fish societies?" Decide it, and then do it. And it need not be expensive. To do this and repeat it will bring pride of club in its wake. When there is pride in the club among all the members, the rest will follow on its own. No set of rules will ever foster club spirit. Bold action, carried out with the members you have, will bring it.

To get to the most difficult thing. We can suppose that providing we can find the right organisers, with the type of members being about equal in all clubs, nothing should stop the club from being as successful as any other. Here we must also assume is the reason why one club falls behind another. How do we find the tireless, charitable, spartan to do all things rightly? Most of us both on or outside the club committee know of but one such person with the right idea and approach to what should be done. And that is where the whole thing brings such a variety of clubs, successful and otherwise. The person in our mind is ourself. It is we, the club members, who make the club. It is we that can have the spirit that will only allow us to assist the society, regardless whether or not we approve of the club organiser, and it is our approach each one, that will give it the spirit to be a really successful club. The trouble is of course that we each feel that we can tell all the others what is needed, and that's where I am making the mistake of writing this article.

Press Prunings

A GOLDFISH bowl nearly cost a Christchurch family their home the other morning. Sitting in the window, the bowl collected the rays of the sun and focused them on the lounge carpet. Wisps of smoke began rising. The carpet was smouldering. "If my daughter had not gone into the room at the precise moment," said the owner of the house, "the house would have gone up in smoke."

Dunedin Evening Star, New Zealand.

PEOPLE don't give fish credit for the sense they have, which includes an ability at artificial respiration. Harold Palmer, district supervisor on Vancouver island for the federal fisheries department, said he had goldfish in a pond in his back garden that used to eat out of his hand. He found one lodged under a rock one day seemingly dead

and let it sink. Another fish bunted it in the stomach then pushed it to the surface until it revived.

Vancouver Sun, Canada.

A DO-IT-YOURSELF project for hobbyists whose pride and joy is their home aquarium of tropical fish, involves using discarded, fine-gauge nylon stockings for filter pads. Cut the stocking fabric to the size of the filter box and tack together with nylon thread. Begin by measuring the precise inside dimensions of the filter box, then cut out 10 or 12 pieces from old nylon stockings, making them about one-half inch larger all around. Take a couple of stitches with nylon thread so that the layers will hold together without difficulty and lay them in the filter. Sand or charcoal can be placed on top if desired. The pads are so convenient they only need to be washed out in warm water and replaced. Increased filtration can be controlled by adding more layers of nylon.

Toronto Globe, Canada.

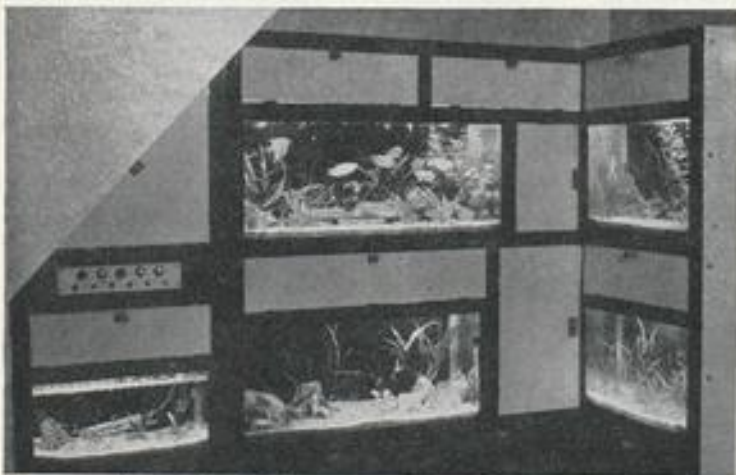
Aquaria in the Home

Three designs selected from those submitted by readers in response to the Editorial invitation in our October issue

MANY readers have written to us about their home aquaria furnishing schemes since our invitation made in the October issue of *The Aquarist*, and three designs are pictured and described on this page.

A 36 ins. by 12 ins. by 12 ins. aquarium has been used by Mr. J. H. Price, of Accrington, Lancs., to brighten a room corner farthest from the window. It is shown in the picture on the right. At one side of the chimney breast a fitting incorporating the aquarium, four bookshelves, a toy cupboard and a space for a radio, has been built. The woodwork is oak, finished in a natural colour to blend with the room furnishings.

Mr. G. Burton, of Long Ditton, Surrey, utilised a living-room alcove to accommodate five aquaria (two 36 ins. by 15 ins. by 12 ins., two 24 ins. by 15 ins. by 12 ins. and one 18 ins. by 10 ins. by 10 ins.). As shown in the photograph, the aquaria are attractively arranged, and the fact that they are supported on bedstead angle irons is concealed by detachable panels of wood and hardboard over the front. The four larger tanks are externally base-heated with heaters made by Mr. Burton by winding elements on half-inch asbestos; all the wiring is taken to a control panel (visible in the picture) that includes indicator lamps for each thermostat. The design includes cupboards used for foods, books and sometimes, extra tanks. Colours are black and cream. Mr. Burton has written "As the aquaria are in an



alcove you do not miss the floor space and they definitely brighten the room."

The photograph of Mr. P. Cairn's aquarium-bookcase is one example of several pieces of furniture designed and built by this Ashford, Middlesex, aquarist with the help of relatives. Even the aquarium (28 ins. by 10 ins. by 14 ins.) was made at home, and the total cost for the materials was "less than five pounds." Height of the unit is 4 ft. 2 ins., width 3 ft. 2 ins., and the book-case is made from 12 ins. by ½ in. boards; on either side of the aquarium two gadget cupboards are built, the doors of which are shown open in the picture. These cavities also serve to give valuable heat insulation for the aquarium.

Alcoves in living-rooms have been utilised for aquaria in the pictures above and to the left. Mr. J. H. Price's design (above) is made in oak. The very compact aquaria display on the left is the work of Mr. G. Burton. Below is a book-case aquarium built by Mr. P. Cairn. Note the cubby-hole spaces at each end of the tank.



AQUARIST'S Notebook



by
RAYMOND YATES

WITH the exception of *Corydoras* I am not very fond of those catfish which are usually offered for sale.

Recently I saw three varieties, all new to me, on the same afternoon. The first was a huge fellow, about seven inches long, fat and cumbersome and with little attraction. Heavily spotted, this fish (*Parachanna obscura*) shared its quarters with some climbing perch, its main novelty being an unusual adipose fin of considerable size. The second "cat" proved to be a marine specimen (the coral catfish—*Arothron immaculatus*) and was a joy to behold. These fish are about five inches long and are never still for a second, swimming mainly in the middle and bottom sections of the tank. They are a brown-chocolate colour with two white stripes from nose to tail, each about an eighth of an inch in width and a quarter of an inch apart. The last was the Congo catfish (*Etopiella delawarei*), a two-inch tropical in black and white which would enliven any tank, as it is never still. This was with some fine rainbow characins (*Phenocogranmus interruptus*), all in brilliant colour, and the lamp-nosed fish (*Barilius christyi*), all from the Belgian Congo.

The last-named fish is a beauty which would do well in the tanks of most fanciers. It is about the same size and shape as a large giant danio, with a large black spot just before the tail and thirteen vertical half bars along the sides. The major point about this fish however, is the nose, which is tipped with quite a large golden neon-light effect which attracts instant attention. Like danios these fish are easy to keep, and are never still. Perhaps more of them will filter through in time.

Chasers are a nuisance, and I was reminded of this by a black shark and a large *Anostomus* which, between them, made the lives of the other inhabitants of their tank very miserable. I observed that they did not bother each other, nor did they trouble small fish of the size of neons. In another tank some butterfly fish did not look too good and they had a large *Anostomus* for company. In a lesser degree the now popular dwarf cichlid *Pelmatochromis* is something of a bully towards other dwarf cichlids such as *ramirezi*. They are best kept apart. *Pelmatochromis* have a way of "panting" which may upset their owner; there is no cause for alarm, most cichlids keep their mouths open, particularly when old, and these dwarfs follow the family trait.

I remarked once again how improved some fish are by keeping them in subdued light, in particular, *Rasbora einthoveni*, neons, glowlights, bloodfins and *Telmatherina ladigesii*. As regards the latter fish aquarists should bear in mind that only the male has the extended fin rays; most of those offered for sale are either very young fish or females.

It is not often that aquaria are used as an advertising medium but I came across an interesting case the other day. In the jeweller's window was a small aquarium containing some very ordinary goldfish. This would have attracted little attention if it had not been for the fact that the fish shared their tank water with a wristlet watch. By the side of the tank was a notice declaiming the merits of a certain make of waterproof watches. Unfortunately, the watch in this aquarium was not going so I rather doubt the value of this particular stunt.

There are jokes about all hobbies, games and pastimes and ours is no exception. Some time ago I made a collection of a number of illustrated jokes of this nature and found, as may be expected, that all contained more than a grain of truth. There are many angles from which the aquarium hobby can be viewed. A popular one is con-

cerned with the dealer and his customers. There is the lady buying a goldfish who asks if her purchase is house trained, the customer who doesn't want to break up a fish family and the bright boy who points out the fish he wants out of several hundreds in a large tank. Then there is the domestic angle where the housewife (in bed) cannot remember if she said good-night to the goldfish, the lady octopus having words with her husband and informing him that she has only four pairs of hands, and the infant fry swimming round in a jar who wish they had never been spawned. Broken tanks are a popular feature as is anything portraying the discomfiture of the hobbyist. Anglers have always been the butt of many cartoonists and now the vogue of underwater swimming with mask and fins has attracted their attention. I am always pleased to find jokes on the hobby because I feel it is a sign that the hobby is now an accepted fact and has news value, even if in lighter mood.

There is no doubt that of all the fish yet known to the hobby the discus is the one which every aquarist yearns to own. As things are, realisation of these dreams seems remote for most hobbyists because very few of these fish are available, and what few are offered for sale are only for multi-millionaires. It is hard to understand why this situation applies because this fish is obtainable in other countries at a mere fraction of the price which is asked here. Perhaps some large dealer could give a satisfactory explanation why discus are so fantastically priced in Britain but not elsewhere. The main difficulty with this fish is getting it to eat and to keep on eating. Once hunger strikes start there is a danger that the fish will never eat again, and dead fish, on examination, often prove to have practically no internal organs left.

They are faddy feeders, and no two fish eat the same; possibly a single fish will not eat the same food two days running. Surplus food left over in the tank should be removed—it won't be touched by the fish. *Daphnia* is not popular, nor are young guppies. What is popular to-day will be "off" to-morrow. It is heartbreaking to the aquarist. Well-planted tanks, shaded, with plenty of top-floating vegetation, are ideal, and angels make good tank-mates. The colour is very variable and can change rapidly—from red-brown to chocolate and then to pale yellow, with the nine dark bars superimposed. Most of the blue markings are over the nose or at the bottom of the anal fin. These fish generally hunt for food in a casual way if they are well, and they do this at a downward angle of about 45 degrees from the horizontal level position. When they are not nose down trouble may be in the offing; when they are near the surface, motionless, nose up to the surface, they are not likely to live very long. This applies to angels also, to a somewhat lesser degree.

Some *Barbus filamentosus* drew my attention some time ago. They were all large and with far and away the best colour I have seen for adult fish. They shared their tank with about eight other barb varieties such as *B. everetti*, *tetrazona* and *lateristriga*. Generally the colour fades as the fish becomes adult, but these specimens had retained their colouring. The red tints reminded me of the golden rudd, they were so obvious. I have heard several ideas for sexing

this barb but there was no obvious difference whatever between the males and females apart from the enlarged dorsal rays. In the main this elongation is restricted to the first three or four rays from the top of the fin. How one can sex young fish I cannot say. An attractive barb rarely seen nowadays is the lined barb (*Barbus lineatus*), and this goes for *Barbus hexazona*, which is also very much a rarity, although perhaps the best of all the family when in condition.

The hobby is well to the forefront in both Holland and Germany, and this is clearly reflected in the excellence of the two national aquarium magazines issued in these countries. *Het Aquarium* is published monthly in The Hague and runs to about 36 pages, of which a third are given over to advertisements. As a matter of interest, a recent issue contained details of the twenty-fifth anniversary of the Dutch Aquarist Federation and articles on fighters, pencil fish, decorative aquaria and water plants, lion fish and the sea horse, dwarf cichlids (*A. reitzigi*), Everglade sunfish and vivaria. Although numerous photographs illustrate the text a special feature consisted of four half page photographs in colour. These showed *rosaceus* in a planted tank, flowering *Cabomba*, pencil fish, and a pair of *Apistogramma reitzigi* locking jaws.

Small advertisements appear under the delightful title of "Guppies," and I might add that several dealers use the names of fish for their establishments, such as "Rasbora" of Amsterdam and Arnhem, "Scalare" of The Hague, "Danio Rerio" of Delft and "Acara" of Utrecht. Equipment and branded foods are mostly of makes unknown to us, although one or two English firms have entered this market. In the book line there are quite a number of standard works of reference by Dutch hobbyists as well as translations of the works of Dr. Werner Ladiges. The latest new importation in fishes, is *Copeina matea*, which is said to be the prettiest member of this family. All the popular varieties are available, some at what seem bargain prices as, for example, dwarf gouramies at 9d. each and pencil fish (*beckfordi*) at 1s. 6d.

The German magazine is the well known *D.A.T.Z.*, which stands for *Die Aquarien und Terrarien Zeitschrift*, which could be translated as "The Aquarium and Vivarium Magazine." Published monthly, in Stuttgart, this averages 50 pages, of which a dozen or so contain advertising matter. There are many fine photographs, and at least one colour photo appears each month. Specimen articles in a single issue dealt with discus fish, *Haplochromis strigigena*, *Pelmatochromis kribbenis*, coral fish, anemones, fish diseases, attractive new imports, snakes, tortoises and lizards, club news, etc. The German methods of advertising are very similar to our own, even to much the same jargon, and equipment prices are also very similar. There are many weird and wonderful aeration gadgets, filters and pumps, but electrical gear is sometimes a headache owing to the varying voltages in Germany.

Both these magazines refer to temperature according to the Centigrade scale instead of Fahrenheit, which can be a little confusing at first when one reads that a particular fish prefers a range of 22 to 25 degrees! Tank specifications are always given in centimetres and it is quite a mental effort to weigh up the size of a tank described as 90 cms. by 60 cms. by 45 cms., without the help of paper and pencil. As these magazines are published entirely in Dutch and German respectively much of the excellent material they contain is lost to English-speaking followers of the hobby. This language difficulty is a great handicap. A few, a very few, of these articles occasionally appear as translations in the American magazine *Aquatic Life* of Baltimore, but the great majority are lost to the Anglo-Saxon fish-keeping world. It is hard to see any way in which this position could be improved.

Piston pumps require oiling and I, for one, have been one of those people who have smothered them in oil quite lavishly, every day. This may seem unnecessary, as indeed it is, and I can only say it is a habit one gets into. Pumps, however, give a grand performance in return, doing a 22-hour day, seven days a week, year in, year out. I use a very thin oil (typewriter oil), as a heavier oil would cause trouble. With so much oil the question might arise as to the bad effects of oil vapour from a hot pump on fishes. This point has been mentioned in books on the hobby. Frankly, my opinion is that no bad effect whatever is observed on fishes, large or small, or on any plant. Oil on the surface of the water is also of no consequence, although it might scare newcomers to the hobby. Fishes do not appear in any way inconvenienced and the oxygen absorption at the water surface is unaffected.

Some tinned foods when fed to fish produce a light film of oil on the surface (examples, tinned salmon, tuna, shrimp or sardine). This can be disregarded. Dipping a fish in paraffin oil is an old remedy for diseases which prove hard to cure. At first sight this might seem very drastic but the facts prove it otherwise. Warm up the oil to tank water temperature, bearing in mind that paraffin oil quickly loses warmth in cold weather. Catch the fish to be treated and dip it in the paraffin, net and all, for 20 seconds. The fish lies at the bottom of the net, obviously dead. However, at the end of 20 seconds put the fish in a jar of tank water and it will immediately swim away none the worse. In this way no oil is introduced to the aquarium itself.

I am surprised at the large number of tanks which I see in the homes of hobbyists which are not filled up with water to above the level of the front glass of the aquarium. This has little to recommend it. In the first case an air space visible above the surface detracts from the artistic effect—you would never see this at a show for furnished aquaria. In addition, when the lights are on in the cover at night, the light streams through this air space and the front glass and distracts the eye. This air space is robbing the fish of swimming space and reducing the oxygen content potential. Hard water will often form a scum or tide-line which is unpleasant. In any event the tank water should be topped-up regularly to reduce as far as possible concentration of salts.

Many chemicals have rather an adverse effect on water plants and this is sometimes a source of worry to aquarists. Where possible it is better to remove the plants and keep them on their own for several days, giving them a thorough washing and disinfecting bath as I have mentioned previously elsewhere. Plants which are most quickly affected by chemicals are those with a relatively soft covering protection to their leaves, and it is for this reason that these show early signals of distress whereas the more robust plants hold out much longer and appear to be immune. As a rough guide the plants which suffer most are those which grow rapidly in good light; plants which are slow growers and which prefer diffused light rarely give trouble. The one plant which is probably most touchy to chemicals is *Vallisneria*, and the one least affected is *Cryptocoryne*. No aquarium plants can stand salt in any effective concentration.

Looking through the tanks in a dealer's shop some time ago I noticed a new effort at decoration. Small groups of four or five feathers dyed in shades of red or green had been set in the gravel to give the effect of plants. The aspect was certainly unusual, these "plants" reaching about five inches high. Aquarists are reminded, however, that many dyes can be toxic to fish, and they should exercise caution. The same applies to attractive rocks found in the countryside. Most of these are harmless although sometimes increasing the calcium content of the tank water.

our readers

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



Address letters to The Editor, *The Aquarist*,

The Butts, Half Acre, Brentford, Middlesex

Hybrid Livebearers

FOR those interested in hybrid fishes I would like to report an interesting incident that took place at our first open show in August this year. One of our exhibits in the livebearers' section was a pair of mollie \times red swordtail crosses. When this entry arrived it was noticed that the female had produced about 20 youngsters. She was, however, put into a show tank with the male. The following morning, after the tanks had been topped up she started delivering more youngsters and by 10 a.m. when the judges were starting their rounds there were roughly 60 youngsters in the tank.

Unusual procedure, no doubt, at a show, but it proved a great attraction, especially to those who did not know that some fishes produce young alive. The young fishes have thrived since the show; approximately 50 per cent. were pure red, 40 per cent. were variegated and 10 per cent. red from head to anal fin, black to tail. Unfortunately, there were no pure blacks or nearly pure blacks. The cross was originally obtained by the Edinburgh Zoo some years ago and a tank of the fishes is always on show there. This season, alongside the exhibit was one of mollie \times green swordtails, which proved quite an attraction.

EDWIN S. HEADLEY,

Secretary, Kirkcaldy and District Aquarist Society

Aquaria and Decor

THANK you for your "Disguise the Tank" issue of October. I have been a tropical enthusiast for only two years, but in that time I have wondered at the number of people I have visited who pay so much attention to their furnishing and colour schemes yet dump an ugly iron-framed aquarium in the middle of everything. I am an electrician by trade, with a family to support, and not much spare cash, yet for a total outlay of £1 3s. 6d. I have installed a five tank unit in the chimney breast recess of our living room in place of a cupboard that was seldom used.

The aquaria are supported on platforms made from old-fashioned wooden-sided bed springs purchased at a local sale room (this is a cheap way of getting first-class knot-free timber that is easily worked by the home handy-man). Boards surround the aquaria at the front (replacing the cupboard doors) with service flaps above each tank to allow servicing.

J. HICKMAN, Margate, Kent.

CUT-OUTS of a Palm-Beach scene? Ugh! Combined sideboard, cocktail cabinet and aquarium? A beautiful article of furniture—but wait until somebody starts sloshing about with scraper, siphon and pail. Untidy wires and unsightly rust are no doubt best hidden by a straight-

forward cover—yet I still feel that a tank should depend upon its contents, and that a clean tidy tank and frame will fit in anywhere. H. J. VOSPER, Brockley, London, S.E.4.

I FOUND your September issue most enjoyable, and the same was true of the October issue, with one exception. This was the article on aquaria and decor by Mr. Philip Dec. For a piece of totally unnecessary time-wasting a tank sunk into the wall and surrounded by a picture frame must be hard to beat. The example shown was far too high in the wall for easy viewing, awkward to service from behind because of the height, and above all—a sham, an aquarium pretending to be a picture.

Most offensive was the jet-black aquarium with its silly gilt-painted fishes and plants. The picture gave the impression that it stands in a horribly over-furnished room, and with the ugly Buddha squatting on the hood represents oppressive Victorian decor at its vilest. The whole ensemble had a displeasing rococo effect. On the other hand the simple outlining of the frame and stand with "Flexi-Mirror" gave all that is required in the way of beauty aid for any aquarium.

Frankly, I cannot understand the Editorial prejudice for the simple clean utilitarianism of the angle-iron tank and stand. All decoration should grow out of the function of an article, otherwise it becomes mere frippery. The angle-iron frame finished in chromium plate or made in polished stainless steel, or the stand so made that it becomes a bookshelf with glass shelves—that is the way to beautify the aquarium. That's if it needs beautification other than its contents, which it should not.

LAURENCE SANDFIELD, London, W.13.

Cacti Names

ON page 169 of *The Aquarist* (November), is a short report of a lecture on cacti to the Hampstead Aquatic Society. Under the heading of plants which produce the most beautiful flowers is a mixture of genera and species which would be most confusing to anyone attempting to purchase one of the plants. The first should read, *Rebutia minuscula*, then the following three are all *Notocactus*, i.e. *Notocactus ottonis*, *N. concinnus* and *N. leninghausii*. "*Marginatus Parodia*" is like saying "a good fish for the tank is *Revio Hypheobrycon*," as *marginatus* is a specific name for a *Cereus* and *Parodia* is the generic name of one kind of cactus, i.e. *Parodia maasii*, *P. mutabilis*, *P. catamarcensis*, etc. The *Epiphyllum* recommended in the report "for the most exotic flower" are no more exotic than other cacti, as exotic means out of the country or foreign, hence a plant from Iceland or Timbuctoo would be exotic to this country.

A. BOARDER, Ruislip, Middlesex.

FRIENDS & FOES No. 41

Caddis Flies

TRICHOPTERA

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

CLASS:—Hexapoda, from Greek *hex*—six, and *podos*—foot.

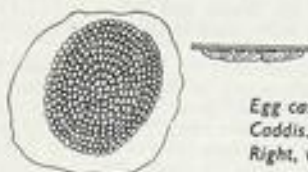
THE word Trichoptera is derived from two Greek words—*trichodes*—hairy, and *pteron*—wing. Indeed, so hairy are the wings of caddis-flies that the venation is almost completely hidden. The downy appearance, plus the fact that some species are nocturnal fliers and are strongly attracted to lighted lamps frequently gives rise to the impression that they are moths.

At rest, however, the "moths" are seen to possess many-jointed antennae, as long or longer than their bodies, and to arrange their wings over the body in a roof-like canopy. By no means all species are nocturnal. Some spend hours in daylight, flying low backwards and forwards over water surfaces, or congregating in dancing swarms in the shade of lake or riverside trees.

The pupa emerge from their puparia underwater, and swim to the surface. The hairs on the wings prevent the body and wings from becoming saturated and enable the insect to take to the air almost immediately upon breaking the surface.

Mass Emergence

Occasionally there is a mass emergence from the water. Over twenty years ago I was fortunate enough to be present at a lakeside when such an occurrence took place. In the gloaming the water



Egg case of one species of Caddis. Left, top view; Right, view from side.

surface was broken in one, two, forty, fifty, hundreds of places, and guided by an unerring instinct, the flies swam strongly and rapidly to the bank, creating a noticeable wake behind them. Not one went out into deeper water—remarkable enough in itself.

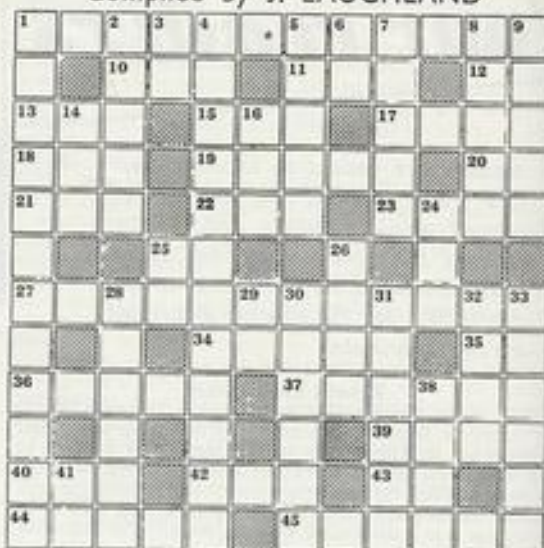
In the spring and summer months the female caddis return once more beneath the water to lay their eggs—again protected by the hairy covering of the wings. The eggs may be laid in masses upon the surface of stones or the stems of aquatic plants, but some species prefer the undersides of large floating leaves such as water lily pads. It is possible to turn over a lily pad and find a dozen or so egg masses from three or four different species of caddis flies.

Further details of these eggs and a description of the larvae and their habits will be given next month. Most omnivorous and carnivorous fishes relish caddis larvae as food.

C. E. C. Cole

The AQUARIST Crossword

Compiled by J. LAUGHLAND



CLUES ACROSS

- Naturally this fish has a heavenly body (8, 4)
- Eggs (3)
- Aspidia*, a slippery customer (3)
- Can Henry be as short as this? (abbrev.) (2)
- Age of *Pipera hirs* (3)
- Could mean female whale, seal, etc. (3)
- Spent (4)
- The orc changes into a fabulous bird (3)
- Mix-up at Kew for twitch (5)
- Majesty's cypher (1, 1)
- Sandy's exclamation when head of the loch dried up (3)
- Wry face from the minnow at the angler's week-end abode (3)
- Nest turn for volcano (4)
- The Spanish (2)
- Egyptian mouthbreeder (12)
- Brighter (5)
- Warrant Officer (1, 1)
- This kind of tank will drip (5)
- Small shark or small hound (6)
- It is coming; the goose is getting fat (4)
- One kind of local government body (1, 1, 1)
- Prefix often encountered by aquarists; one (3)
- Half a dory will do for this (2)
- Encounters (4)
- Lethal (6)

CLUES DOWN

- Scalare* genus (12)
- Rutilus rutilus*, British fish (5)
- Average or average (abbrev.) (2)
- Dactylogyrus*; this one is a gift (12)
- One of many names of sea trout (5)
- Exclamation (2)
- Flounder (5)
- Brightness, splendour (5)
- Miniature "octopus" of the aquarium (5)
- Same as 18 (3)
- Possess (3)
- Would you call a male catfish this name? (3)
- The Spanish tail of the barbel (2)
- Another gift answer (4)
- This fish sounds like a locality (6)
- Half a carp is enough for the accountant (abbrev.) (1, 1)
- Bred from two different species (6)
- Fancy goldfish (6)
- Land surrounded by water (4)
- Odorous, probably unpleasantly so. Change the water! (6)
- There is nothing up with the dog (4)
- Of the French all that remains when current leaves dace (2)

PICK YOUR ANSWER

- "Tis not for every one to catch a . . ." The missing word is: (a) Carp, (b) Roach, (c) Salmon, (d) Trout.
- Aplocheilichthys jordani* (the blind cave-fish) is native to: (a) Colombia, (b) Mexico, (c) Nicaragua, (d) Venezuela.
- Barbus vottianus* is popularly known as the: (a) Algerian barb, (b) Green barb, (c) Slender barb, (d) Swamp barb.
- The largest of the following species is: (a) *Tilapia dolloi*, (b) *Tilapia heudeloti*, (c) *Tilapia nilotica*, (d) *Tilapia sparrmanni*.
- The fancy breed of goldfish known as the meteor is characterised by having: (a) a very long anal fin, (b) no anal fin, (c) a very long caudal fin, (d) no caudal fin.
- In the wild, *Valisneria spiralis* has been known to grow to a length of: (a) 2 feet, (b) 4 feet, (c) 6 feet, (d) 8 feet. G. F. H.

(Solutions on page 186)

News

from AQUARISTS' SOCIETIES

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

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.

GENERAL conclusions following this year's Association of South London Aquarist Societies show are that, with an increased entry list and bigger attendance than in 1954, the results are better than last year. Despite increased costs of presentation, income also increased to more than balance the raise, so that the A.S.L.A.S. executive report "quite satisfactory."

FOLLOWING a telephone call to *The Aquarist* from a member of the staff of the Queen Elizabeth Hospital for Children, London, E.2, members of the Bethnal Green Aquatic Society (to whom the call for help was relayed) have

MOST successful section at the annual show of the Federation of Guppy Breeders Societies was the Eastern Counties, which took 72 points and 10 first awards. Other results by sections were: North London, 32 points (two firsts); Spelthorne, 21 points (one first); South London, 19 points; Provincial members, 17 points (two firsts); West Midlands, 12 points (one first); Cheltenham and Gloucester, 11 points (2 firsts); South Wales, 10 points (two firsts); East Midlands, 4 points (one first); Liverpool, 3 points; Hull and East Yorkshire, 3 points.

Sixty exhibitors entered this year, and the most successful of these was again Mr. G.

Jones; 2, M. Langley; 3, M. Gait. *Cichlids*: 1, S. Jenkins; 2, R. Forest-Jones.

Mosses or Danios: 1, R. W. Bowles; 2, P. E. Jeffries; 3, R. W. Bowles. *Other tropical fish*: 1, C. Steer; 2, Mrs. Q. Spurrier; 3, M. Gait.

Members' furnished tanks: 1, Mrs. E. Steer; 2, R. W. Bowles; 3, P. Jeffries. *Junior furnished tanks*: 1, J. G. Evans; 2, P. Jeffries; 3, J. D. Evans.

Inter-club competition: 1, Newport A.S.; 2, Pontypool A.S.; 3, Welsh National A.S.

Breeders' Class: 1, M. Gait; 2, J. G. Evans; 3, Mrs. M. E. Lewis.

F.G.B.S. Classes: Cofersails: 1 and 2, R. Forest-Jones; 3, J. Martin. *Other short-tails*: 1, P. Jeffries; 2, R. S. Wigg; 3, R. Forest-Jones. *Sword or Scarftails*: 1, R. Forest-Jones; 2, S. N. Steer; 3, Mrs. Spurrier. *Veitails*: 1 and 3, R. Forest-Jones; 2, J. Martin. *Females*: 1, M. Gait; 2, R. Forest-Jones; 3, R. S. Wigg.

The judges were Messrs. W. E. Cox, J. Mainwaring and F. H. Cox.

New Societies

Tamworth and District Aquarist Society.

Secretary's address: 22, Bitterscote Lane, Tamworth, Staffs. Meetings—at the White Lion, Tamworth.

Tonypandy and District Aquarist Society.

Secretary: Mr. W. House, 8, Glandwr Terrace, Llynypia, Rhondda, Glamorgan, S. Wales. Aquarists interested in membership are invited to contact the secretary.



kindly undertaken to install an aquarium at the hospital. This journal wishes to record its appreciation of Bethnal Green's ready response on learning of the call.

FOLLOWING the recently advertised offer of Hendon Aquatic Society to compete in provincial table shows, the society has visited Corby A.S. in Bedfordshire. During the wet night journey with the 33 fishes for entry the main Hendon party lost the wheel from the van, and members and fishes were stranded in the country for five hours before an emergency squad summoned by telephone from Hendon arrived in cars and delivered the entries according to schedule. Eight firsts, three seconds, three thirds and one fourth award were secured and base was returned to without casualties.

IT has been announced that owing to lack of support the Maldstone Aquarists' Society has been forced to disband.

MEMBERS of the Medway Aquarists Society heard a discussion between Mr. A. Webb, authority on plant life, and their show secretary, which had been recorded on a tape at Mr. Webb's home and played back to the society at their evening meeting.

Seingier (Eastern Counties Section), who took seven first awards, best male and best fish in the show awards as well as the award for the best breeder's exhibit—a fine team of black veiltail guppies.

Pontypool Show

OVER 160 entries were made at this year's sixth annual show staged by Pontypool and District Aquarists' Society. There were 13 furnished aquaria, ten teams of fishes in the breeders' class and 143 fishes on show in individual classes. Results were as follows:

Goldfish: 1, Miss J. Forest-Jones; 2 and 3, J. D. Evans. *Shubunkins*: 1 and 2, H. V. Jenkins. *Fancy Goldfish*: 1, H. V. Jenkins; 2 and 3, J. Martin. *Pond or river fish*: 1, J. D. Evans.

Mollusks: 1, R. J. Moore; 2, M. E. Lewis. *Planets*: 1, R. S. Wigg; 2, R. W. Bowles; 3, M. Gait.

Swordtails: 1, S. Jenkins; 2, M. E. Lewis; 3, Mrs. E. Steer.

Fighting fish: 1, R. Forest-Jones; 2, Mrs. M. E. Lewis. *Other Labrynth*: 1, R. J. Moore; 2, M. Gait; 3, Mrs. D. M. Jones. *Barbs*: 1, Miss E. Bowers; 2, J. Wear; 3, R. Forest-Jones. *Characins*: 1, Mrs. D. M.

At the four days Trades Fair organised at Grimsby this autumn, Grimsby and Cleethorpes Aquarists' Society staged the display of aquaria pictured on the left. Plant and floral decorations were loaned by the Parks Committee. Members of the society took turns to be present at the stand during the Fair, which attracted over 30,000 visitors.

Secretary Changes

CHANGES of secretaries and addresses have been reported from the following societies:

Chingford and District Amateur Aquarist Society (Mr. F. Clark, 55, Priory Avenue, Chingford, London, E.4);

Forest Hill and District Aquaria Society (Mrs. P. Pratt, 11, Kinver Road, Sydenham, London, S.E.26);

High Wycombe and District Aquarist Society (Mr. L. Franklin, 361, London Road, High Wycombe, Bucks.);

Hounslow and District Aquarist Society (Mr. R. Taylor, 14a, Wheatley Road, Isleworth, Middlesex);

Kettering and District Aquarist Society (Mr. H. F. Woodliff, 31, Martin Road, Kettering, Northants);

Skipton and District Aquarist Society (Mr. C. Duckett, 2, Short Bank Road, Skipton, Yorks.);

Sutton and Cheam Aquarists' Society (Mr. R. G. Hollis, 52, Cavendish Road, Sutton, Surrey).

Aquarist's Calendar

15th-16th December—Leinster Pond and Aquarium Club first annual open show (six classes) at the O'Connell Hall, O'Connell Street, Dublin. Show secretary: Mr. G. W. Bailey, Holmington, Roebuck Road, Dundrum, Co. Dublin.



In September, the Singapore Aquarists' Society staged its first show. A general view of the crowded arena at the Happy World Stadium, Singapore, is shown above. Gate money is reported to have exceeded 10,000 dollars (Malaya). The society is not yet one year old



Photograph taken at the opening of the Singapore Aquarists' Society's show, at which Dr. F. D. Ommanney and Dr. Tham Ah Kow (both from the Singapore Regional Fisheries Research Station) and Mr. W. F. Tweedie (director of the Raffles Museum) were present

Three Counties Show

ON the occasion of the opening of the second "Three Counties Aquaria Show," staged by the Reading, Oxford and High Wycombe Aquarist Societies, popular T.V. personality Mr. George Camdale attended with some of his own special pets. The show was open for three days and the following are the detailed results:

- Class 1—Common Goldfish: 1, D. S. Ross; 2, H. Keene; 3, A. W. Luker.
 Class 2—Shubunkins: 1, Mrs. M. E. Steele; 2, G. B. Scott; 3, H. G. Rundle.
 Class 3—Parrots and Veilfish: 1, G. B. Scott; 2, W. W. Angell; 3, M. Angell.
 Class 4—A.O.S. Goldwater Fishes: 1, G. B.

- Scott; 2, H. Keene; 3, V. Thomas.
 Class 5—Snowdrill: 1, J. Geater; 2, W. R. Dolton; 3, K. W. Fawcett.
 Class 6—Platy: 1, S. Prayne; 2, A. A. Chickets; 3, D. L. Edmunds.
 Class 7—Mollie: 1, K. D. Fawcett; 2, K. D. Fawcett; 3, A. A. Chickets.
 Class 8—Guppy: 1, D. L. Edmunds; 2, D. L. Edmunds; 3, K. D. Fawcett.
 Class 9—Fighters: 1, H. G. Rundle; 2, V. H. Lewin; 3, H. G. Rundle.
 Class 10—A.O.S. Labyrinth: 1, W. E. Ridler; 2, H. G. Rundle; 3, D. S. Ross.
 Class 11—Danios, Ratsbora, Mountain Minnows: 1, L. Franklin; 2, K. V. Brodie; 3, P. H. Crane.
 Class 12—Barbs: 1, K. V. Brodie; 2, W. A.

- Bone; 3, T. Mansbridge.
 Class 13—Carrfish: 1, D. Hindson; 2, E. Lewington; 3, K. D. Fawcett.
 Class 14—Hyphessobrycon: 1, E. G. Partridge; 2, K. H. Walters; 3, R. C. Collett.
 Class 15—A.O.S. Characin: 1, W. R. Dolton; 2, H. G. Rundle; 3, H. G. Rundle.
 Class 16—Cichlids: 1, D. Hindson; 2, K. D. Fawcett; 3, S. Chalmers.
 Class 17—A.O.S. Tropical Fishes: 1, L. Franklin (Scatophagus argus, Best Fish in Show); 2, L. Franklin; 3, B. A. Seaton.
 Class 18—Club Tropical Aquaria: 1, Reading A.S. (70 Pts.); 2, Oxford A.S. (69 Pts.); 3, Bristol Tropical Fish Club (68 Pts.).
 Class 19—Club Goldwater Aquaria: 1, Oxford A.S. (75 Pts.); 2, Reading A.S. (69 Pts.); 3, Oxford A.S. (62 Pts.).
 Class 20—Individual Tropical Aquaria: 1, W. R. Dolton; 2, C. G. May; 3, R. C. Collett.
 Class 21—Individual Goldwater Aquaria: 1, A. W. Luker; 2, J. Bird; 3, V. H. Lewin.
 Class 22—Breeder's Livebearers: 1, H. G. Rundle; 2, C. G. May; 3, R. H. Keeping.
 Class 23—Breeder's Egglayers: 1, W. A. Bone; 2, W. A. Bone; 3, L. G. Ayres.
 Class 24—Breeder's Goldwater Fishes: 1, G. B. Scott; 2, V. H. Lewin.



Mr. L. P. Telling, who is a florist as well as an aquarist, won a gold medal with the above stand entry at the Devon and Exeter Horticultural Society's autumn show

Crossword Solution

P	A	R	A	D	I	S	E	F	I	S	H
T	R	O	V	A	E	E	L	H	Y		
E	R	A	C	O	W	U	S	E	D		
R	O	C	T	W	E	A	K	E	R		
O	C	H	I	N	N	E	T	N	A		
P	E	L	F	O							
H	A	P	L	O	C	H	R	O	M	I	S
Y	L	G	A	Y	E	R	S	M			
L	E	A	K	Y	B	E	A	G	L	E	
L	I	R	R	N	O	E	L				
U	D	C	U	N	I	D	O	L			
M	E	E	T	S	D	E	A	D	L		

PICK YOUR ANSWER (Solutions)

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