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Comments and Quotes

● We're Backing Britain ● Disappearing
Water Life ● Angels in Plastic

We're Backing Britain

IS it true that British aquarium equipment manufacturers 'are having it too good to bother, are not interested, or just plain lazy, or haven't the know-how?', as Mr John A. White asks in his letter in this issue? Now that the point has been put, perhaps some answers will come to the fore. There are other questions as well. We know that some of our manufacturers have every reason to be proud of their efforts on the aquarium scene (for their development of new ideas, for their pioneering when the hobby offered less promise of return than it can do today, for their export achievements and so on), but why do they never speak up? Is it excess of modesty that prevents them from saying these things in their advertisements for example? Unfortunately their silence means that charges such as those our reader makes in his letter will be made against them as well as against their members who might indeed be guilty.

Under that heading we can think of some who do give the impression of having it too good to bother. One well-known and established brand of thermostat goes right off the market for months at a time whilst its manufacturers apparently concentrate on producing something else. What this does to the export orders for it we cannot imagine, but it's a churlish way to treat home customers in any case.

Lack of know-how is the charge most readily dismissed, as our reader admits. In fact, much British know-how has been used in the past by foreign manufacturers,

who have been quick to copy and develop ideas originating here. We think that with advantage we can hear a lot more about the aquarium lines that are British, not merely because they're British but because they're good and acknowledged to be so abroad as well. Let's see some further developments in 1968 to provide competition for equipment at present made exclusively abroad. Let's remember that Britain is the true home and country of origin of this hobby.

Disappearing Water Life

TO celebrate the fiftieth anniversary of the founding of San Diego Zoo, in California, a conference was organised there, of which the broad theme was 'The Role of Zoos in the International Conservation of Wild Animals'. From a perusal of the papers read to the conference by the attending international zoologists it is clear that while the bulk of the material concerned mammalian species, birds and so on, nevertheless there were several features affecting the interests of water life and fishes in particular.

For example, much attention was drawn to disappearing habitats due to such factors as expanding human populations and the poor management of resources including heavy 'predation', whether for food, research or for the pet trade—while the theme of the conference itself stressed the need for the breeding (under controlled conditions) of those groups threatened with extinction. In connection with this last point, some further attention was drawn to the need for increased

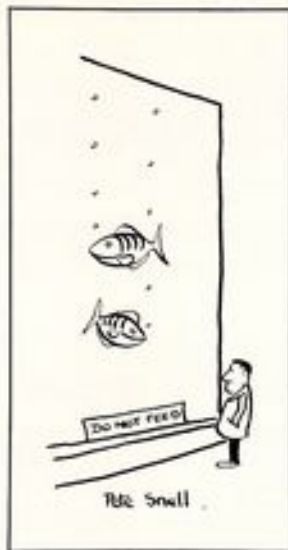
collaboration between those working in this particular field.

It was shown that in Tasmania, and elsewhere, man is bulldozing rain forests out of existence; there is a gradual water starvation of the Everglades (Florida) National Park; many poor villagers and hill tribes of South-east Asia destroy habitats by cutting down vegetation before growing crops for a year or two and then moving on; important watersheds in South America are being destroyed by uneconomical cropping; commercial fishermen catch 'many hundreds of thousands' of big-game fish; whole coral reefs are destroyed by the anchors of sight-seeing boats and the removal of coral souvenirs.

In Columbia, South America, it was reported that the biggest drain on some wild life was the international pet trade, and figures provided by the Inspector of Hunting and Fishing recorded that from Leticia (a town on the Columbia/Brazilian border) 1,700,000 ornamental fishes were exported during 1965. Many specimens leave the country unchecked and according to investigations made the inspectorate reckoned that between 7 and 8 million fishes must have been captured! When it is remembered that enormous areas of these tropical forests are being deliberately but of necessity transformed into pasture and agricultural land while other areas are being wasted by soil erosion then the future of fishes in the area must be considered bleak.

There is, of course, another side to this coin, as was described by Dr Eugene Clark of the Cape Haze (Florida) Marine Laboratory. After discussing marine species which are heavily preyed upon and the methods by which mankind does the preying, he went on to say that the most effective method to protect littoral marine life was by the establishment of 'marine parks'. They have a number of these protected shores in the U.S.A. where fishing etc. is prohibited or otherwise controlled in varying degrees. Dr Clark urged that more of these parks should be organised throughout the world.

It was pointed out to the conference that the marine parks are a first-class answer to the preservation of species but were not the final answer because as the human population grows and becomes more mobile there is both pressure upon



the size of the parks and an increased number of visitors, while at the same time water habitats are seldom confined to the comparatively small areas enclosed by a park's limits.

So, as with many of the world's larger mammals, it may be that the long-term problem as far as ornamental fishes is concerned is unanswerable, whatever may be done to preserve a large population of food fishes. This may be where the fish hobbyist comes in, for there is every reason to believe that a large number of animal species will be preserved by the organisation of breeding herds in zoos and associated establishments, and clearly the small size of fishes and their very considerable interest for decorative and other reasons will mean that a species struggling for existence in the natural state could be maintained readily in captivity. There are certain provisos, of course. Continued experimentation to ensure the correct conditions for breeding healthy stock, a wide exchange of both specimens and information (which latter factor is an important reason for the existence of the specialist press) and, perhaps, the deliberate setting up of establishments similar to public aquaria where the less-popular species can be maintained.

Angels in Plastic

ANGEL fish in plastic brooches, that were the subject of correspondence in PFM recently, have also provoked a paragraph and letters in THE TIMES. A TIMES reader complained that the fish were 'probably bred and slaughtered especially for these nauseating ornaments', which brought a reply from the importer of these and similar objects. 'It makes little difference to the animal whether it is eaten, worn, exhibited in a museum, or displayed in plastic' he wrote.

The bare truth of this statement is undeniable but we cannot agree with its implications. As long as the human animal cannot see or refuses to see a distinction between such ways of making use of animals with which we share our world the future prospects for wild life and indeed for humanity seem bleak. A sense of responsibility in this respect does not involve sentimentality, but it should apply to life in all its forms.

For example, to our minds a clear and necessary distinction can be made between the motive for destroying some aquarium snails that are unwanted in an aquarium (which we do without a qualm) and the motive of commercial exploitation behind the 'manufacturing' of un-naturally coloured water snails 'in your choice of colours' and aquarium mannikins that move because they have a live water snail incorporated into them. These practices were recently divulged in some American advertising material and are examples of an employment of living creatures that distinctly diminishes the stature of man.

PFM Photo COMPETITION

Rules and Conditions, and an entry form for this Competition, will be found on page 459 of this issue.



LETTERS

White Worm Culture

COME, come, Mr Arpee, you cannot really be as disorganised as you suggest (Personal Comment, *PFM*, December) or you would not be able to produce such a readable column each month. And as for me, my wife laughed her head off at the suggestion that advice should be given 'as to how to get as well organised as he is!' My efficient white worm culture works away for me despite my occasional lapses of feeding and always fills the bill when my lack of organisation has caused me to forget to buy fresh fish food.

Macclesfield, Cheshire

V. BROADBENT

All-Glass Tanks

I READ with interest B. G. Boast's article 'Building your own all-glass tank' (*PFM*, January). He, and your other readers, may be interested in my own experiments in this field.

He uses, I note, silicone rubber sealant by Dow Corning. I, too, used this to manufacture a tank (which has given trouble-free service for 18 months) but, I find it has disadvantages:

1. It requires several soakings prior to use because of the strong acetic acid volatiles given off, a curing period of 7-14 days being recommended.

2. It is not a true adhesive. It is, as the name suggests, a sealing compound and I do not recommend using this compound without the support of wooden bands around the top and bottom of the tank; certainly for tanks above 5 gallons capacity.

3. It never really 'sets'. It retains considerable elastic properties allowing the glass to move under the pressure of water even when it has cured. Unfortunately its ability to withstand deformation is poor, and hence the sealant tends to tear allowing leaks to develop.

My tank is 10 in. deep, 18 in. wide and 30 in. long. It is impossible to keep this size tank from leaking without giving the support of a screwed wooden frame because of the properties mentioned above. This may be all due to the fact that it is extremely difficult to meet the stringent requirements in cleanliness required for full bonding between glue and material.

Another series of experiments was carried out with a British glue, the epoxy resin Araldite manufactured by CIBA (A.R.L.) Ltd, Duxford, Cambridge. This is available in most handyman's shops. In my experiments this adhesive came out superior to the Dow Corning product. It is a true adhesive producing a bond stronger than the glass. It has a tensile strength of 40 tons per square inch; it has no volatiles; it is completely water-proof; when set it is rigid, allowing no glass movement; it bonds well with glass (but even so, a wooden band round the bottom of a larger-sized tank is, I believe,

desirable). Full instructions are included in the packet for its use.

At an elementary costing level, the British product appears to be slightly cheaper to use, but whether this is so depends upon the user.

I have not used this resin for saltwater purposes, which are outside my scope, but at first glance it appears ideal and a cheap method of building saltwater aquaria because of its inertness. Perhaps someone will try it and provide the information.

Finally, I would say that these comments are based upon my own experience and upon home experiment. I am no manual genius—in fact, my manual competence approaches zero; as such I found the epoxy resin Araldite easier to use, despite it not having a sizing nozzle attachment to assist in gluing operations.

Barton-upon-Stather, Lincs.

R. N. GOODALL

Warning

FOR several months now our Society has taken an interest in the Dow Corning sealant mentioned in your January edition (Building your own all-glass tank, by B. G. Boast). After receiving several reports of fish deaths by poisoning, apparently from this sealant, several of our members have undertaken some research, and brought to light the following most disturbing information.

Dow Corning sealant now, and the now is rather an important one, contains a fungicide which is toxic to all fish life we have experimented with. This toxic constituent is not removed by soaking and frequent changes of water as experiments have proved that after changing the water weekly for 3 weeks in a tank with Dow Corning sealant, the fishes then introduced, under controlled experimental conditions, died of acute poisoning.

As far as we can ascertain Dow Corning have been adding fungicide to their sealant from the beginning of February last year, if not earlier. It would now therefore appear that we have a very serious situation: a safe product that has been, and is being, recommended by people of integrity, has been altered and is deadly to fishes as a result.

It is a great pity that such an excellent product may have been spoilt permanently for the aquarium market by this fungicide or anti-mildew constituent. On behalf of the I.M.S.S. I thank members for their dedication to the task of tracking down an unknown killer in their marine aquaria.

GERALD JENNINGS

Director, International Marine Study Society

Open Shows

IT'S not surprising that Arpee is 'often got at'. He talks such rubbish! On nearly every point he makes he contradicts himself, or gives out arrant nonsense. Of club table shows or friendly inter-club shows (January issue) he approves (I think?) but what does he think of open shows? '... a waste of time', 'disgruntled losers', '... pale-looking fishes'. He wonders '... at the courage and perseverance' and sweated blood of the organisers.

But wait! He doesn't '... deplore the spirit of competition... Without this there would be few standards and the hobby would become sluggish and degenerate' he says. So he does approve of open shows—or, does he?

Oh! I've got it! It's the categorisation he hates: '... the winners and the others... the comparisons and back-biting' (nasty lot these exhibitors). Yet, read on. I was wrong! It isn't the categorisation he hates, at least, not for furnished aquaria and breeders classes, anyway. Wait! This is it! It's the competitive showing he really objects to, except, presumably, the afore-mentioned furnished aquaria and breeders classes. He wants to see '... more non-competitive exhibits... no reason, of course, why the judge could not commend some of these (exhibits) for the good of morale'. What, in heaven's name, does he think award cards are given for?

'What credit', he asks, 'belongs to an aquarist who has superbly conditioned a bought fish...?' Is that a question? If it is, he obviously knows the answer.

But here is the punch line! It's those ogres, the 'pothunters'; they are the ones to be feared. Look at the tremendous advantages they have over the rest of us ordinary human aquarists. All that extra time and care—when their day's work is finished—that they lavish on their pet fish to get them up to that high standard which Arpee mentions. Well, isn't it up to us to 'raise our sights' to attain those standards?

As one of those 'blood-sweaters' I feel sorry for Arpee but I do wish he would confine his writing to some horticultural magazine until he has found out a bit more of the good fellowship and fun he is missing at the open shows.

I. ANDREWS
Bournemouth Aquarists Club

More British Equipment Please!

SO, from Germany, we are now to have available an ultraviolet-light filter. This unit will be useful, especially for marine aquarists. But why, oh why is it left to the foreigner to invent power-filters and other items of equipment of this nature, which make tank maintenance so simple?

It seems to me that British manufacturers, in this field, are left out in the cold, beaten to the post every time. With all the talk about Britain's technological know-how, one would think we would be first in the field with this type of equipment, producing better and more efficient units at a cut under the foreigner, thus saving imports and adding to the export drive. Perhaps British aquarium equipment manufacturers are having it too good to bother, are not interested, or just plain lazy, or haven't the know-how. The last-mentioned I do not believe.

It might be that they need a little push from us. I'm sure that we would all prefer equipment made in Britain, to that made abroad, or is it that British manufacture leaves much to be desired? This I know would only be a little saving on our import bill, but little bits add up to a lot.

One other quibble. Why can't all advertisers state their price of the article advertised? It would save much time wasted by writing to ask.

Southall, Middlesex

JOHN A. WHITE

Thanks from Hendon

MAY I take this opportunity, through the medium of PFM, to thank everyone who supported our Congress in November. The 400 enthusiasts who came to listen to Colonel Jorgen J. Schøel, the eminent Danish authority on killifishes, travelled from vast distances—from Kirkcaldy in Fifeshire to Salisbury in the west country, from Manchester to Brighton and from Lincolnshire on the east coast to those from the 'western seaboard'. We sincerely hope that you all found the evening well worth while and hope that those who came from a long distance reached home without incident.

We thank all our aquarist friends again, for without your support we should be unable to put on such occasions.

KEITH PURBRICK
Secretary, Hendon Cf D.A.S.

Changing the Water

THIS may be of interest to some of your readers. Over the last few years, I have been breeding tropicals of most species, hence I come into contact with a lot of friends who keep fish. Most of them appear to have losses regularly, and from past experience I attribute a lot of this to water neglect. Their routine is to top up the tank after condensation losses. I assume that there is quite a considerable amount of uric acid collection in the water of the tank, which slowly builds up to a poisonous condition, and I regularly change 4 to 5 gallons of water by siphoning with a 1/2-inch diameter pipe. This water I replace with boiled water and tapwater (50/50). Fatalities are very rare, and it seems that not enough attention is paid to the effects of fishes' urination.

London, N.8

F. J. H. MORGAN

Community Tank Breeding

I USE a breeding trap for breeding killifish with a certain amount of success and I thought the following might be of interest to those who, like myself, have only a community tank and would like to be able to breed without going in for extra tanks. For example, I put a pair of *Nothobranchius palomquisti* in the trap for a week. The trap, which was placed in the community tank, contained an inch of peat at the bottom. Then, after the fish were removed, I took the trap out and squeezed the water out of the peat gently—then put it in the breeding trap box. This I put under the top of the tank cover and left it for 45 days. Then I put it back in the water and had the luck to have three little ones.

Leicester

G. SQUIRE

Cross-Breeds at Shows

WITH regard to the item given the above heading in Comments and Quotes in the January, 1968 issue of PFM, I must point out that the British Killifish Association banned known cross-breeds after a team of *Aphyosemion nigerianum* × *A. coruleum* (blue gularis)

Continued on page 443

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LETTERS

Continued from page 440

was benched at the first international members show of the B.K.A. It was felt that, in the best interests of the hobby, we should try to keep and improve the true strains rather than have cross-breeds on the bench.

When Colonel Scheel speaks of killies cross-breeding in their natural waters, he speaks with first-hand knowledge. But with so many new species coming into the country now, it is hard to keep up with them. If a fish comes in that is unknown to us, with such and such a name, we will accept it until it is known to be a cross or not. Colonel Scheel has honoured the B.K.A. by joining us as an honorary member. And with his knowledge of killies, we hope to start getting the names right! Also with us we have the following gentlemen: Dr H. Stenholt Clausen, Zoological Museum, Copenhagen; Mr A. J. Klee, chairman of the Technical Publications Committee, A.K.A.; Dr G. Lambert of Belgium; Mr D. J. Turner, M.A., Department of Zoology, University of California, U.S.A.

So I think you will agree that we are trying to get things straightened out the right way.

D. W. ELLIS
Chairman, British Killifish Association

Population Studies

THE reply by Mr T. Hall and Mr G. Jennings to a question put in your December issue admits to an ignorance regarding population studies. It should be explained to the International Marine Study Society that, dependent upon species, fishes are often far from itinerant. In some cases and according to season they move but very short distances indeed and marked specimens of littoral species have been found in the same

tidal pools for days on end. While even where a species is of a wandering habit reliable population studies can be undertaken. Many simple textbooks quote qualitative comments in this respect, e.g. 'common locally in the south-east' or 'rare except in the north-west' and so on.

In addition, readers may recall that in May, 1967, one of the signatories to the letter sought the help of coastal aquarist societies in 'surveys to determine the densities of population of some of the commoner species of littoral fauna'. Now they say they have not a clue as to what a population study means!

London, S.W.1

K. CLARKE

Aquatic Peter Pans

AT the time of writing (December, 1967) I have an aquarium in my garden where seven frog tadpoles are still swimming around! These were hatched out from spawn last March and have fed on *Daphnia* and *Infusoria* since then. All the others turned into frogs in the usual way, but these seem to be going on forever. I may add that their tank has been frozen solid with no apparent effect.

I would be interested (as a keen aquarist of some years) to know if any of your readers has heard of this before?

Leeds 8

PETER ISAACS

Missing Umlaut

IN the article by H. J. Vosper, p. 310, November issue, surely the zoologist's name should have been written as Günther or Guenther? Thanking you for turning out an excellent journal.

Dundee, Scotland

E. J. SEYMOUR
B.K.A. Member

You are right. We would like to put blame for the missing umlaut on the printer but the truth is we didn't detect it.—EDITOR

Readers' Queries Answered



Breeding Trap

I wish to blacken the breeding trap I use and then float it as usual in the aquarium. What sort of paint should I use so that the fish in the main tank are not harmed?

A black enamel paint or a poly-

urethane paint can be used provided that it is given adequate time to dry hard after application. The painted trap should be immersed in a bucket of water for 2 days after this, with at least one change of water. Peeling of the paint away from the plastic trap is likely to

occur after a time, but it should remain adherent for at least several months if the plastic is cleaned thoroughly and properly dried before its surface is painted.

Ultraviolet Light

Can you please tell me if ultraviolet light is harmful to fish?

Ultraviolet light is not harmful to fishes unless the light is of high intensity (it is then harmful to all living things, including man). Fish at the surface of shallow ponds in strong sun without shade have been known to suffer skin damage from the ultraviolet irradiation, and an

Continued on page 447

The Aquarium Catfishes

Very few who could be considered serious aquarium hobbyists have not gone through at least a period of infatuation with one or more members of the mostly bearded order known as Siluriformes, more commonly known as catfishes. Their diverse nature encompasses the swift and the handsome, the sedentary and the incredibly ugly, the charming and the repulsive, the mammoth and the miniature, the ruthless predator, the strict vegetarian, the parasite and the muck-eater.



Striped porthole catfish, *Hoplosternum thoracatum*, from South America

Photographs by
the author



Albino Corydoras catfish, possibly *Corydoras paleatus*, from South America

By BRAZ WALKER

REPRESENTATIVES of most of the thirty-odd siluriform families have been kept in domestic aquaria and fortunately for the aquarist most of the approximately 2000 species are found in the fresh waters of South America and Africa, while our other major source of aquarium fishes in the Far East has its share of aquarium catfishes also.

There is some confusion in the aquarium hobby concerning certain fishes which are often called 'catfishes' but are unrelated members of the sub-order of cyprinoids (Cyprinoidae) or carp-like fishes such as the loaches (Cobitidae) and the hill-stream fishes (Homalopteridae). There are, as a matter of fact, superficial resemblances such as the presence of barbels or whiskers and scales of such tiny size that the skin of some species appears scaleless as with the catfishes. Although they do belong to the same super-order and share certain anatomical peculiarities, loaches, weatherfish, 'peppermint plecostomus' etc. are not catfishes.

What is a Catfish?

Catfishes may be naked and smooth-skinned or may be partially or wholly encased in an armadillo-like shell comprised of rows of bony plates, but they do not have scales. Most species have barbels or 'whiskers'. These may be so short as to be almost invisible or may be twice the length of the entire fish. There may be one pair or several.

Most species possess an adipose or 'fat fin' located just behind the dorsal fin and in front of the caudal (tail) fin. The dorsal and pectoral fins of some are toothed and can be so firmly locked in place that they will break before they can be moved.

Many are nocturnal and prefer spending the daylight hours in seclusion hidden in caves or piles of brush, others spend their lives in mid-water with their long anal fins in a constant rippling motion. At least one genus, *Typolobogrus*, is completely eyeless.

Although they are unfortunately often thought of as 'scavengers', among the catfishes are the swiftest and deadliest of aquatic hunters which feed only upon living fishes. On the other hand those which will exist on mere leftovers do so not through choice, but through necessity. They deserve a better fate than this, for a more diverse and fascinating group of creatures could hardly be found in the realm of Nature.

This series will explore some of the uncommon as well as the common catfishes which have been kept in aquaria.

Armoured Catfishes

There is no doubt that the most popular family of aquarium catfishes are the callichthyids (family Callichthyidae) of South America and Trinidad. Among the ranks of these 'plated nematognaths' as they were once called, are the seemingly endless numbers of *Corydoras* species whose quaint appearance, small size, inoffensive nature and ability to relentlessly search out every scrap

of uneaten food in the aquarium have earned them prominence which few fishes enjoy in the hobby.

Corydoras aeneus and *Corydoras paleatus* have possibly been most popular until the recent advances in transportation techniques have resulted in a veritable deluge of *Corydoras* species and specimens from their native waters. Behind the perennial popularity of *C. aeneus* and *C. paleatus* was the fact that they were among the few catfishes which could be spawned with relative ease in the aquarium. This willingness to breed in captivity eventually even resulted in a handsome albino *Corydoras*, although there is some controversy over which of the two species is involved.

Most *Corydoras* species have somewhat similar spawning habits although a number of them are much more difficult than the two foregoing species. After conditioning on such fare as chopped earthworms, frozen brine shrimp, pellet foods etc., spawning takes place after preliminary courtship activity which greatly resembles a game of piscatorial follow-the-leader. The female, usually larger and broader across the breast when viewed from underneath, at last presses the adhesive eggs, which are quite large and easily visible, to the aquarium glass, rocks or plants if these are available, carrying the precious spawn to its destination clasped between her pelvic fins as if she were carrying an 'armful' of small melons.

Although other callichthyids are bubble-nesters, spawning among the entire group seems to be 'triggered' by some drastic change in conditions of one or another kind. This may involve lowering the temperature into the sixties and subsequently raising it, or sprinkling water heavily on to the aquarium surface in order to simulate a rain shower. Extremely heavy aeration is also a stimulant. This would all seem to indicate that the spawning urge for the family is strongest during an influx of cool, fresh, well-oxygenated water.

To be continued

Aqua-tip

THIS suggested modification to the wiring of your heater and thermostat has three uses. A two-pin, 5 amp socket is attached to the thermostat leads for the heater. Into this socket is inserted a two-way adapter and into one pair of sockets of this the heater is plugged. The spare pair of sockets can be utilised:

- (1) without any waste of time to plug in a new heater in the event of discovered failure of the old one;
- (2) to receive a second heater if one is needed in the aquarium to boost heating at any time;
- (3) to receive a plug connected to the overhead lights of the aquarium just before you go away on your annual holiday. Every time the heater comes on so will the lights, ensuring that your plants continue to get some light while you are away.

GEORGE BURGON



Personal COMMENT by ARPEE

THE fashion of yesteryear to pack every conceivable fish into a community tank is gradually being modified by saner practices. There are many of us who collect fishes as some collect foreign stamps, and so long as space remains limited, this can only end in disaster. There is, with the 'unlimited' community concept, no real curb to indiscriminate buying, and not only are unsuitable fishes introduced to otherwise peaceful surroundings, but quite valuable specimens all too often get pitched into totally unsatisfactory water at the wrong temperature.

To limit oneself to certain families is therefore more certain to suit all concerned, and is less wearing on the pocket. Even so, there is a need to provide adequate contrasts if sameness and dullness are to be avoided, and colour is not normally reliable enough to achieve this; body shape then comes into its own.

There are two fishes which I have found most suitable for playing this part. One is the black widow (*Gymnocorymbus ternetzi*) and the other is the silver dollar (*Ephippichthys orbicularis*). They are both mid-water swimmers and give a good account of themselves so far as display is concerned. They are far from fussy over food and appear to have no particular propensity towards disease. For the beginner the black widow should not prove too difficult to breed, but the dollar remains an enigma on this score. I have found both of these fishes quite trustworthy with the smallest tetras, but they are big enough to withstand bullying from the average run of aggressors.

The beginner is often tempted to put angels into a tank to provide variety of shape, but these quickly outgrow their environment. The widow is an extremely good substitute and can remain healthy and active for a number of years and outtrips neither its companions nor its accommodation. If you try widows in, say, a collection of *Corydoras*, introduce at least six if you have room, as when they shoal the sight is very impressive.



I think there must be some telepathy between RP and KB (it was certainly not collusion)—since there was I bemoaning the paucity of furnished aquarium classes in shows, and in the same issue Mr Keith Barraclough launched the good news about the First National Furnished Aquarium Exhibition, to be held this coming June. I was delighted to see editorial support for the venture on page 394; this was not the mere lip service so often given by the Press to a project, but a positive move to get something achieved quickly. The material encouragement given deserves the best of responses, and I am sure that

the societies and clubs will rise not only to the immediate occasion, but to the big one in the summer. I am quite certain that this exhibition will give rise to a lot of discussion, and I shall be most interested to learn of its content.

Quite apart from the obvious attractions of a function of this kind I very much hope that it may stimulate the aquatic trade to look quite carefully at its publicity and its methods. I should hate to see it adopt high pressure sales tactics, certainly, but in my view it is altogether too modest and cautious for the challenges of the next few years. If it is to do well (and nothing less is good enough) it must draw away from the idea that a few tanks and a few packets of fish food in a shop will attract customers like magnets. It used to be so in the thirties, because life was then so drab, but things are quite different now, as those who have failed will know to their cost! In particular, public relations need a good going-over.

The depths to which some of our ostensibly revered wholesalers can descend is exemplified by the way in which one of them dealt with a complaint of mine last year. I had bought a combined heater-stat, which, first time 'on', caused a short and blew a properly wired local circuit in my home. I returned it to the wholesaler with a fairly bitter letter of complaint. The reply, which was badly typed, ungrammatical and addressed to my wife, simply stated that a replacement would be sent. No word of apology. I replied with a few even sharper words, pointing out that my wife was in no way involved etc., but this in no way prevented a further, equally unhelpful and idiotic reply being addressed to my wife once again. This was too exhausting, so I withdrew from the argument. The very sad thing about this is that it involved a firm which advertises widely. I have never bought any of their products since.



During the recent hard weather outside I undertook a job on our ponds which I always reserve for this sort of weather. Much of the top growth of reed maces, bulrushes, sedges and the like which stand proud of the surface need cutting down annually, and if you do it when there is open water it is an awful mess collecting up and disposing of all the cuttings, which float about all over the place and take some getting at, particularly if you have a large pond. Last year I had what I thought was a brilliant idea—I would leave everything until the pond was frozen, and then chop off all above ice level with a Wilkinson's Swoe (for the non-gardener, this is a specially styled and quite wonderful sort of hoe which has a sharper than usual cutting edge).

I was just completing the job, standing on the ice in the large pond and congratulating myself on what good reading all this would make in my notes, when the ice cracked and I fell in. It has taken a year for this to appear as affusing to me as it did to my gruesome family at the time, but as the same thing nearly happened again the other day, I do repeat the warning to those who may wish to emulate the more practical aspects of the exercise, to take jolly good care that the ice is safe, particularly if youngsters are involved.

I acquired some sparkling and honey dwarf gouramies recently to test their compatibility in the poop and White Cloud stock tank, and although the charms of the honey dwarfs is quite captivating I cannot say that they look particularly happy as the robustness of the minnows is a bit much for them. The sparkling gouramies I am rather less than enthusiastic about as they have a mean look about them and treat the remainder of the tank with utter contempt. One or two ragged fins here and there are, I am sure, attributable to them, and I have half a feeling that they will have to move on, in the hope that the absence of their disturbing influence will enable the minnows and the honey dwarfs to live a more peaceful existence.

Whilst on the subject of relationships I had an illuminating experience with some emperor tetras. I ordered a true pair and when they arrived I was not greatly impressed with the female, which look both undersized and hollow-bellied. Nevertheless there was no excuse for me to reject the pair though had I simply seen them on display I would not have bought them. I was even less impressed when I got them home and put them in an isolation tank, for the male simply tore into the female and ripped her fins to pieces. After this I had to separate them until the damage had been made good, but each time I put them together in the isolation tank, the same thing took place, and I was wondering what the end of this would be, since I had an enormous male in the community tank, whence they were destined, who, on form, might have been expected to eat either or both of this particular pair!

I even discussed with the dealer possibilities of exchanging them, but this would have been passing on the trouble and he had no more of this variety with which one or the other of these fish could have been

matched. Ultimately I was fed up with the whole affair and concluded that 30 shillings had gone down the drain: I would put them both in the community tank and let them fight it out. In they went, and they have not looked back! They are both in fine condition, and have put on some size. Above all, there has been never a cross word. I cannot account for it, but it does rather encourage one to try anything once.



Tailpiece. I have selected and assigned to a 20 gallon tank the half dozen young angels from which I hope to develop a breeding pair or even pairs. The whole process is fraught with uncertainties and disappointments, as the only reliable indication that you actually have a pair is when, two days after the eggs are laid, those clear bits of jelly start their spasmodic wiggling that prefaces the existence of the fry! Two females will often 'pair' up and go through all the motions of a normal spawning, so no fish from a 'pairing-off' batch should be discarded until all doubts have been removed as regards their sex. I am feeding my present batch on an exclusively live food diet and they are growing into most satisfactory looking specimens. We are often told to let brood fish gorge themselves, but I feed regularly, often, and only reasonably generously. The reason for this is that I have experienced a number of cases where fish which have been allowed too much attractive live food have literally blown themselves up. A particularly disappointing example of this took place a few weeks ago when a very fine glowlight which I was conditioning took an overdose of white worm: the worst incident I can remember was one which occurred a few years ago, and I lost about a dozen zebbras overnight.

Reader's Queries Answered

Continued from page 443

artificial source of the light used for too long and too close to the fish could also cause harm. Ultra-violet light is now being used in the treatment of fish diseases and the equipment on sale is manufactured so that there is no possible chance of harm coming to the fishes treated.

Angel Breeding

I have a pair of angel fish that spawn regularly and I have made an attempt to raise the fry but have not yet succeeded in doing this. They seem to die between the sixth and tenth days. How much aeration do the eggs and fry need (I tend always to blow the fry off the leaf); is a feed

of brine shrimp three times a day sufficient?

Aeration must not be so vigorous as to interfere with the normal movement or resting position of the fry. A gentle agitation of the water is all that is needed (if you watch parent fish with eggs you will see that the movement of their fins provides the only currents near the eggs). The criterion of sufficient feeding is that there should always be shrimp available in the tank in fair quantity for the fry. If they have to swim long distances to obtain one shrimp, they are not getting sufficient nourishment. The shrimp eggs should be hatched in several containers so that a succession of hatchings is always taking place.

Pearl Cichlids

Can you give me any information on pearl cichlids please? I have bought two and the dealer says all he knows of them is that the name was written on his printed list.

Pearl cichlid is one name given to *Glyphogus brasiliensis*. It grows to about 12 in. in length in its natural waters, which are the coastal regions of eastern Brazil, but the fish does not usually attain such size in an aquarium. Like all the large cichlids it can become quite aggressive and, as the name (earth-eater) implies, it is a great digger in the gravel. A tank set up with large pieces of bark forming a tunnel or cave is a particularly suitable habitat for the fish. Live food, garden worms, pieces of fish and meat can be fed.

Continued overpage

A temperature of 78-80°F (25-26°C) is preferred. The fish will breed when about 4 in. but it is difficult to sex them at this size until they are actually ready to spawn. Usually egg-laying occurs on or between rocks. Then, when the breeding tubes become visible, it will be seen that the female's is much blunter than that of the male.

Brine Shrimp

I have purchased a brine shrimp hatcher, but cannot think how to comply, at this time of the year, with the instruction that it must be maintained in a very high temperature in the light. Where can one find such a situation in this country in winter?

Many aquarists find that keeping their shrimp hatcher on top of the aquarium cover (or even underneath the cover if it is deep enough for this) provides the right temperature from the heat of the lamps. In

winter some position such as this does, of course, have to be used, unless you are prepared to make a small incubator from an upturned tin. A low wattage bulb fixed in it over the hatcher will provide both warmth and light.

Waterfall

I have a fibre-glass pond about 7 ft. by 6 ft. and 20 in. deep. Connected with this is a waterfall unit served by a submerged pump. Although the plants are all in containers a lot of fine soil is coming through the pump and forming a deposit in the 'fall' with unsightly results. Can you advise me about this, and should the pump be kept going throughout the winter?

If the angle of the waterfall unit could be increased this might hinder the accumulation of deposits of suspended matter by expediting return to the pond, although this

would, initially at least, not be conducive to water clarity. Another way to overcome the difficulty would be to arrange for the pipe from the pump to deliver into a small 12-inch deep pool or basin of water with an overflow lip supplying the main waterfall unit. This top pool would act as a sump for the suspended matter, and could even have a sand filter bed incorporated if the suspended matter continued to be carried over in appreciable amounts.

Although the pump can be run occasionally during the winter months with advantage it is not necessary to run it continuously. Your pond should clear during the summer but it will probably be cloudy at first. As aggregation of the finest particles takes place, these build up as a bottom deposit that is not easily dispersed again, and when this happens very clear water results.

SCIENTIFIC NAMES OF FISHES — 5

By H. J. VOSPER

Synonyms and Homonyms

AUTHORS have occasionally given the same name to different genera or the same name to different species of the same genus, and conversely different names have been given to one single genus or species.

The rule that the only valid name is that first published at or after the 10th Edition of *Systema Naturae*, provided that such name follows the binominal system, provides an answer to this accidental confusion. The very particular exceptions, such as it not being desirable to perpetuate ambiguities if it can be avoided etc., serve only to accentuate the importance of the general rule. But duplications do exist from time to time, being corrected when discovered, and the terms used to describe them are:

synonyms: other names which have been used to denote a particular species, differing from the valid

name either in the generic or trivial name or in both. The synonymy of the guppy may be quoted as an example:

Poecilia reticulata Peters 1859
Lebistes poeciloides de Filippi 1861
Girardinus guppyi Guenther 1866
Lebistes reticulatus (Peters 1859) Regan 1913

homonyms: names which have been used to denote two or more separate species, or genera. Homonyms are less often encountered than are synonyms, although "unofficial" homonyms are quite common for both fishes and aquatic plants. An examination of literature on the latter subject will produce numerous examples (see particularly de Wit, *AQUARIUM PLANTS*, 1964).

Note that a trivial name can be repeated provided that the two species are not members of the same genus, as in *Hemigrammus pulcher* and *Pelmatochromis pulcher*. This point was also mentioned in this series (part 1) when trivial names were discussed, in which the trivial name *maculatus* was instanced as appearing within numerous genera.

Correction

In part 3 of this series I remarked that when a genus is sub-divided one of the sub-genera must retain the original name, but to this should have been added the further comment that the sub-genus so named must be that containing the original genotype. From this it will be clear that it was a mistake to illustrate the point by suggesting that the genus *Astrodoras* = *Doras* 1. *str.*



Spawning the Clown Fish

By LEE CHIN ENG (Djakarta)

A DIFFICULTY with some of the clowns is that they are very aggressive. This is specially true for *Amphiprion melanopus*, *A. ephippium* and *Prennas biaculeatus*. If you have two of the same sex in a small tank, one is sure to kill the other, the stronger fish, of course, surviving. Even 2 weeks old babies will fight one another to dominate an anemone. Several years ago, out of more than one thousand fry, I managed to raise only eight baby clowns to the stage at which they coloured up.

Amongst the clowns, the maroon clown (*Prennas biaculeatus*) is the easiest to sex. The female is always the larger fish. Sometimes a female is seven or eight times heavier than her partner, so that one might think the male is her baby, but ordinarily the female is three or four times heavier than the male. The male fish is always more colourful. The other clowns do not differ much in size between the male and female fish, but the

females are a little more plump, especially when they are loaded with eggs.

Not all clowns will accept any anemone given to them; some are rather choosy. Some anemones are accepted by most clowns. Therefore in buying an anemone, you should first observe if your fish accept it. If you can, the best thing to do is to purchase a mated pair together with their particular anemone. An anemone is a must if you want your clowns to live long and happily and if you want to witness their spawning behaviour. Clowns can be kept without an anemone, just as you would also live without a bed, but for how long?

Role of Anemones

I have kept a male maroon clown for more than 8 years (he is still living), and his first female partner died about 4 years ago. After the death of his first wife, a few months later I gave him his second female, and they are living happily with their particular anemone up till this minute of writing. I have never seen or heard of marine clowns spawning without an anemone, and during my many trips to the reefs, I have never once seen a clownfish without its anemone. An anemone means a lot to them; it is their home, bed, companion and protector. Every year billions of clowns perish that cannot find their anemones. These fish spawn continuously, and at each spawning at least a thousand eggs hatch, though no one has taken the trouble to count them.

During my more than 10 years of keeping marine aquaria, I have eye-witnessed the spawnings of *Amphiprion percula*, *A. ephippium*, *A. melanopus*, *A. sebae* and *Premsar biaculeatus* in my own tanks and also in those of my friends and customers. We feed them with guppies, pond shrimps (live-bearing shrimps, the adult similar to the adult brine shrimp from San Francisco), natural dry food made from seaweeds and eggs of sea-apples, and occasionally shrimp-meat from the market. When they are conditioned with these good foods, the females become loaded with eggs. At this time the pairs are more playful, and often hug and kiss each other, very much like the freshwater oscar (*Astronotus ocellatus*). Together they choose a spawning site, which is always near their anemone. It could be on the glass, bottom or nearby coral-rock. The male does the cleaning, picking off and removal of algae from this site, while the female removes everything that is in the way. Small pieces of corals or seaweeds she lifts with her mouth and large pieces of corals she will push away with her whole body, using her head as contact point. (This is a marked difference from damselfishes, who like to lay their eggs on algae-covered sites.) At this time the females keep guard, chasing away other fishes that venture near and will even attack your hand if you dare to put it near her spawning site. The bite could be painful and draw blood.

When everything is ready (this cleaning procedure sometimes take 3-4 days), the females lay their eggs in the chosen sites, a row at a time, followed by the males fertilising them, very much in the fashion of cichlids. Spawning may happen in the morning or the afternoon. In colour the eggs at first look like the yolk of a hen's egg, then day after day the colour changes to light

brown and then brown. On the fourth day, eyes can be seen clearly with a magnifying glass, especially the brightly shining irises if they receive direct sunlight. The males do the cleaning and fanning, while the females keep a watchful eye on the surrounding fishes.

On the seventh or eighth day, or more correctly in the evening of the seventh or eighth day, after darkness comes, the eggs hatch. The hatching may take several hours, and, very rarely, even two nights. Years ago some of the eggs of my maroon clown hatched on a certain night; the remainder did not hatch on the next day, but hatched on the next night. The newly hatched fry swim or dash upwards to the surface; sometimes they sway with the current from the aeration. In my hundreds of observations of marine fish spawnings, the eggs always hatched at night. If the eggs hatched in the daytime, not a single fry could escape from the ever-hungry surrounding fishes. An exception is the seahorse for the male forces out the babies in broad daylight from his pouch. So, unlike the fry of freshwater tropicals (except the livebearers), marine fry are free-swimming from the moment they hatch. If a light is placed near the surface of the tank, the fry congregate near this light, and they could be easily siphoned off to another tank. After hatching, the parents care no more for them.

In the spawning tank, if the fry are not removed, early next morning the surrounding fishes will take them as their tasty breakfasts. In Nature, the currents and the tides would disperse them everywhere.

Difficulty of Raising Fry

To induce marine fishes to spawn is easy, but to raise the fry is not easy. Although I once raised several *Premsar* babies with powdered fine natural dry food until they coloured up, in Nature they eat plankton, so unless we have plankton in plentiful supply or we live near the sea, we won't be able to raise them in quantity to make it worthwhile. If we could only keep them for a week to 10 days until they are big enough to eat newly hatched brine shrimps, then the problem is solved.

Once your clowns spawn, within a week or thereabout after the eggs hatch, the females will lay eggs again, and this spawning phase is repeated many times. Therefore do not get excited, for you have plenty of chances to make experiments to raise the fry. Do not be surprised if they spawn repeatedly the whole year round, as some damselfishes do. Sometimes it has happened that before the first batch of eggs has hatched, the second batch of eggs is laid.

All the spawnings I have observed took place in community tanks, so it is not necessary to separate the breeders into a breeding tank; catching them may frighten or injure them, which may cause premature spawning and even mortality.

Undoubtedly it is the much superior natural system of marine aquarium keeping that induces the fishes to spawn, for many totally complete beginners, who had no previous experience of keeping even freshwater tropicals, have had their marine tropicals spawn many times in their community aquaria kept according to this system. Good food also played a very important part, of course.

PRACTICAL

JOTTINGS

By F. N. GHADIALLY,
M.D., Ph.D., D.Sc.

MOVING young fry is an operation that involves a certain amount of risk. The smaller the fry and the more inexperienced the aquarist, the greater the risk involved. However, this is an operation that has to be undertaken, for as the fry grow larger they require more space, which usually means transference of part of the brood to another tank or the transfer of the whole brood to a considerably larger aquarium. The other alternative of breeding in a very big tank from the beginning is not a particularly practical proposition for most aquarists, nor is it without its own drawbacks.

The best course to adopt, if possible, is to employ for breeding purposes a tank of reasonable size and not a very small one, so that for a given type of fish and the expected size of spawning, a move will not become necessary before the fry have grown to at least $\frac{1}{4}$ inch length.

However, the best laid plans can go astray and there are times when one has to move fish considerably smaller than that. If sufficient care is taken, the results should be quite satisfactory.

Transferring Young Fishes

The first and most important thing to check is that the temperature of the water to which the fry are about to be transferred is the same or a degree or two warmer, but not cooler, than the water from which they are to be moved. Both temperatures must be taken on the same thermometer, as there may be a discrepancy between two different instruments.

Needless to say, the water in the new tank must be mature, and as similar as possible in its chemistry to the water in the other tank. pH, hardness, salt content, etc., must be as near identical as is feasible. Special care is needed when the water in the spawning tank has been treated with acids, alkalis, salts, distilled water, rain water or other substances to alter its chemistry.

The actual method of transfer is also important. It is best to employ a method where the fry are not dragged out of the water into the cold air at any stage of the proceedings. Perhaps the most popular way is to use a fairly large, deep net to sweep the tank gradually from one end to the other, the fry being chased before it.

The net is then carefully advanced, rotated and raised (but not out of the water) so that the fry are caught and left swimming in the hollow of the net in a small quantity of water. The net is held in this position or rested on the frame of the aquarium.

The bottom is left dipping the water while the fry are ladled with a little of the water into the new tank, an eggcup or similar container being used. The technique is quite speedy and efficient; only occasionally does the odd youngster come to any harm by its use.

Breeding Fighters

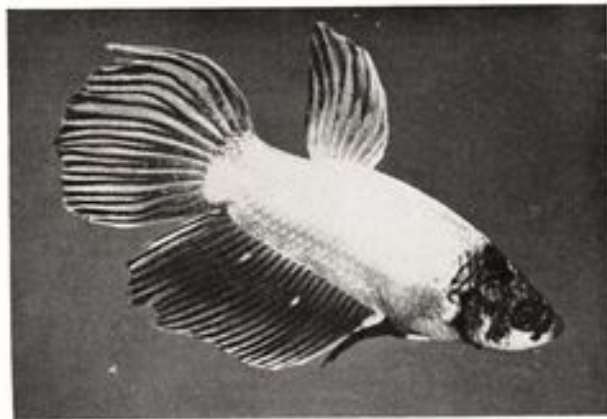
Spawning fighters (*Betta splendens*) is simplicity itself when one has a pair that is really ready to spawn. In most instances where the male savages the female, or even kills her, the cause is that she is not ripe and ready to spawn. There are, of course, odd, rare exceptions to this and the existence of abnormal or rogue males cannot be denied. I must have spawned these fish hundreds of times now and I could fill many pages with their odd behaviours. Some are fine nest-builders but have not a clue what to do once that is over, in spite of suggestions from helpful females!

Others refuse to build a nest, or build one containing no more than 10 to 20 bubbles, and try to spawn the female under this makeshift arrangement. Some look after the nest and fry beautifully, while others let the youngsters wander all over the place. It was only on one



Young fry must not be lifted out of the water in a net, but when gathered in a net at the surface they can be ladled out by the use of a cup

Practical Jottings (continued)



Cambodia type male fighting fish
(photograph by the author)

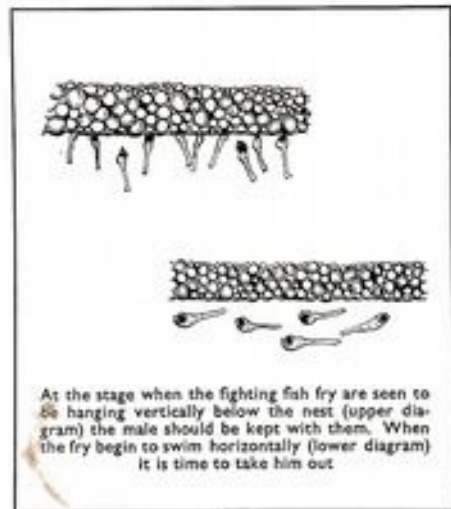
occasion that I have come across a male who repeatedly devoured the contents of the nest, but it is not so rare to find males that devour an occasional spawning.

Some claim that by floating the contents of the nest in a shallow container, such as a saucer, the services of the male can be dispensed with. In view of the fact that the results obtained by this technique are far inferior to those when the father is allowed to look after the nest, and since an average male destroys a nest only very rarely, I believe in letting the male look after the nest and its contents.

The common mistake made by most when breeding these fish for the first time is to remove the male too soon after spawning. This, of course, is actuated by a fear that the male will devour the fry any minute. I know of no more certain way of losing a brood of youngsters than by removing the male too soon; the fry fall to the bottom one by one, never to rise again.

Here is a simple test that I perform to decide whether it is time for the male to be taken out or not. Look at the nest from the side: if you can see the fry hanging vertically with their little tails sticking out from the bottom of the nest like the rootlets of a floating plant, the male must stay in. Gently touch the surface of the nest and you will see that the fry fall down and are rapidly picked up by the male and placed back in it. If when you look at the nest sideways you see few or no tails hanging vertically, and, on gently tapping the surface of the nest with the tip of your finger, you find a lot of fry swimming horizontally, the male should be removed. The very fact that they have assumed the horizontal posture means that their air bladders are now full and that they can swim about and will not fall to the bottom of the tank, hence the services of the male are no longer needed. As a matter of fact, from now on his presence in the tank is distinctly dangerous for the fry, and he must be removed.

In short then, as long as the fry are vertical the male stays in and as soon as they become horizontal out he comes. It takes just over 3 days for fighter eggs to hatch and another 3 to 4 days for fry to become horizontal, so do not panic and remove the male in a day or two; he has to be in for 6 to 8 days after spawning. If you do not heed this advice you can lose the entire brood, or at best, only rear a very few fish.





GUPPY

World

It was whilst tracing the source of a delightful aroma emanating from the kitchen that my eye fell on the discarded plastic wrapper that had once contained the bacon now frying merrily in the pan. At first glance bacon and fancy guppy breeding might not appear to have much in common, but the wording on that wrapper, 'To be eaten before' such-and-such a date, made me think.

Though some fish food manufacturers these days pack their products in plastic or metal containers, many foods are still supplied in cardboard, and most of us know that in our damp climate (especially on the shelves of the fish house), these quickly deteriorate and contaminate the food.

Therefore it is good guppy practice to collect those small, screw top, glass jars, and on returning home with newly purchased fish food to empty the new food into these. One of the felt pens sold as ticket markers can be used to label the jar, but, most important, include the date of purchase.

Now I realise that a purchaser has no means of telling how long has elapsed since that particular drum of food left the factory, or how long it has stood on the dealer's shelf, but if we are to ensure that we keep tabs on the freshness of the food we feed we must make a start somewhere.

Finally, before I dash off to eat a hearty breakfast... don't mix various dry foods indiscriminately. Individual formulae are carefully blended by the makers; addition of other foods might just destroy all their efforts.

• • •
These pundits who argue that

By PETER UNWIN

guppies require specific water conditions to survive are on dangerous ground, according to figures published about guppies in the wild.

Water samples taken around Guyana (formerly British Guiana) gave a reading of pH 4.9, and a calcium content (in p.p.m.) of 0.9—all adding up to acid, soft water; to offset this, further samples from the Trinidad region jumped the pH to 7.2-7.6, and the calcium content to 22 and 54.0, respectively (alkaline and hard).

It only proves the old advice given by guppy breeders to be true: inquire from local hobbyists and emulate their conditions; if this doesn't work, then vary these conditions slightly until you do hit upon the right ones. And whatever you do, do it slowly—trying to change things too quickly will only result in you having the finest collection of dead guppies in the area!

• • •
What is the costliest fish in the world? The mind boggles at the thought, and experienced fishkeepers immediately start thinking of huge discus and rarities that fill the A.O.V. class. If your feet have trod those marble halls of learning you might be forgiven for adding the *Latimeria chalumnae*! Yet as sure as my name is Peter Unwin, I claim it is none of these. My bid would be the fancy guppy.

With the extravagance that would tempt a bird watcher to take out a big game licence, advertisements for this little fish regularly quote figures

in the 10 to 20 pounds category (maybe the original figure was in dollars, but even with the pound devalued, the price is still high). Some years ago in an auction held after a guppy show, the champion male changed hands at 200 dollars or just over 70 pounds.

Averaging the length of the guppy at around 1½ inches, that price works out at a little over 3 pounds sterling for every sixteenth of an inch of its body length. Small wonder they erected a statue to the guppy in Panama!

• • •
Whilst watching the bombing of Pearl Harbour on 'All Our Yesterdays', I was reminded that just about the time the Japanese were raining down bombs on the American Fleet, Dr Abbs found some puny, golden guppies with red eyes in his fish tanks at Ampere, New Jersey, U.S.A. Thus the world was presented with the albino *Poecilia*, a guppy lacking in pigment.

Many of the chemical reactions in the body of the guppy take place step by step in assembly-line fashion; for example, the dark colour of its body, eyes or fins, is due to a brownish-black material called melanin. In humans, dark-skinned people manufacture this pigment in abundance.

Melanin is produced from the amino acid, tyrosine, which is made from yet another amino acid, phenylalanine; in order of appearance, phenylalanine changes to tyrosine and the latter to melanin—two enzymes at least being responsible for each change.

If any of these enzymes are missing, the chemical production grinds to a halt and melanin is not produced, resulting in guppies lacking in pigment, hence albino.

Having no melanin to mask the red of the blood at the back of their eyes, in the albino these appear red from all angles. I stress 'all' because I have bred apparently albino fish that have pink or black eyes according to the angle one views them from.

To the uninitiated, these fish are albino and in my opinion have given rise to much of the genetical contradiction connected with this rarity.

• • •
'It has been found that every

variety that is produced artificially, if left to itself for a few generations, reverts to its original type.' Those words, quoted from a handbook of genetics, proved that the author, though knowledgeable, hadn't bred guppies.

Though I agree that what he writes is occasionally the case, the statement as a whole is a distortion of the truth and I can prove it. Reversion to type occurs only when different varieties are crossed and then left to their own devices; it never occurs in genetically pure stock.

Taking it for granted that most followers of the guppy cult know something about genetics, you will realise that there is nothing very mysterious about this tendency to reversion. The ancestral type simply turns up as one of the many possible gene combinations which the parents have contributed. It has little to do with evolutionary progress because the crossing of two distinct varieties is quite rare in Nature; this is usually the result of man taking a hand under highly artificial conditions.

Siphoning a small amount of tank water out at regular intervals has long been advised for the specialist, but one of the problems of this action is to prevent young fry from being sucked up the end of the siphon hose.

One way to avoid this is to use one of the proprietary 'filter' boxes, usually sold with the larger type of filter; these fit snugly over the end of the hose, and though allowing water and mulm to be removed, don't allow for the passage of fry.

Those aquarists who have sub-gravel filters fitted in their tanks can execute this manoeuvre very simply by placing the siphon tube over the end of the air-lift; this serves the dual purpose of not only removing the water, but any mulm that has been drawn under the filter base plate.

Talking of using proprietary objects in the aquarium, the next time you want to block off the end of an air tube, use a peg of the type sold with most 'cribbage' boards; their peculiar shape enables you to block

off the air supply successfully and, unlike extra clamps, they don't damage the air tubing.

Though the majority of queries I receive are concerned with guppies, the odd one arrives that puzzles me—I never know whether it is a serious request or a leg-pull! One such was from a man who asked me the best way of stopping rabbits from digging up his garden!

I told him: 'Hide the spade!' Ask a silly question, etc.

Mainly for the PONDKEEPER

MOST pondkeepers have mixed feelings about water beetles. They are never sure whether they are friend or foe and, since they look on the repulsive side, are generally treated as foes. This instinct is not unfounded for two out of the three families are carnivorous and will savage any organism larger than themselves for the fun of doing so. Smaller ones they have no compunction in eating.

The great diving beetle (*Dytiscus marginalis*) is about 1 inch in length and is recognised by its habit of swimming to the surface frequently for air, which it obtains by cocking its tail into the air. It can also take in a supply of air under the wing cases for use when submerged.

The beetle's eggs are laid about middle March by insertions in water plants and the larvae are full grown by the end of June, their length then being nearly 2 inches. The larva is long and wormlike in appearance and at the head end are two vicious looking mandibles which pierce the victim. To pupate, the larva leaves the water and buries itself into soft mud, which if the season is warm results in the adult beetle emerging in around 3 weeks. If the season is cold the larva may well remain dormant until the following year. The great diving beetle, both as a larva and as an imago, has no place in any cultivated pond unless the fishes are big enough and active enough to look after themselves.

The great diving beetle's near relative, the whirligig beetle (*Gyrinus*

Quick Tip: If your culture of *micro corrus* (*Anguillula salinae*) isn't doing too well in the productivity stakes, try adding a pinch of the proprietary yeast powders sold for cage birds. Add the powder after mixing a fresh culture and mix well in before inoculating the culture with fresh stock. It 'peps' them up no end. Or is pep the wrong word to use on worms?

satator), is a small bluish black insect about a quarter inch long, usually seen fussily swimming around at the surface of the water. It is not unattractive to look at and its diet appears to be something of everything. The protein part is mainly tiny insects, so that to other than goldfish fry in the hanging stage they do not represent much of a fish danger. The chief interest physically is its divided eye, which enables it to see any predator in the air as well as in the water. It has paddle legs which enable it to get the full power on the forward stroke with a folding action on the return stroke. The larvae are almost centipede looking in appearance but what appears to be the legs are in fact tracheal gills for breathing. On balance one can say the whirligig beetle has only a nuisance value, but it is an attractive nuisance.

Even bigger than *Dytiscus marginalis* is the great silver beetle (*Hydrophilus piceus*). This slow lumbering beetle is recognised by the silver bubble of air which runs along the underside of the body and gives the insect its name. It is not very common and since it feeds mainly on filamentous algae it can be left in the pond to live in peace. Perhaps the larvae are not so innocuous, but as they feed on the small water insects, they can be forgiven the odd goldfish alvin they fancy.

L.C.B.

The Flag-tailed Characin



Flag-tailed characin (*Prochilodus insignis*)
from South America

Photo:
BRAZ WALKER

ONE of the most interesting features of the flag-tailed characin (*Prochilodus insignis*) is the manner in which its mouth can turn back to form a sucking disc. This enables it to clean up great quantities of algae; but it is not likely to replace the *Plecostomus* or the sucking loach as a popular algae-eater suitable for the home tank, for its basically vegetarian requirements give it a fondness for plant life that doesn't stop with the removal of the lower algal forms. In other words, it is a plant nibbler!

The adult fish in its native waters (Guiana and the central Amazon basin) is an undistinguished specimen, except for its size, which at 12 inches or over makes it suitable for food. The young *Prochilodus insignis*, however, is very colourful and does well in a tank if the conditions are suitable. The greenish sheen of its back pales from a yellowish colour on its side to the palest pink sheen of its belly. Dark longitudinal streaks and spots mark its flank towards the caudal fin. The dorsal, ventral and pectoral fins are a yellowish-red. The deeply cleft tail and the anal fin are marked with dark bluish stripes on a yellowish ground.

A member of the family Anostomidae, the flag-tailed characin is both an active swimmer and a splendid jumper. It must therefore have both a large tank and a well-covered one, decorated, in view of the likely absence of plant life in the tank, with cork bark or rockwork to provide the fish with some refuge. Plant food is essential to its well-being and it needs to be supplied with cooked spinach and lettuce. It will also take live foods such as *Tubifex* worms and *Daphnia*. A temperature of 74-80°F (25-27°C) is suitable.

Reflecting on LIGHTING

By JOHN GATES



Water lettuce, growing profusely above Amazon sword plants under fluorescent lighting. Freedom from drying and scorching of surface growths is a big advantage of the tube lighting.

MONEY saved is money earned. It's a paradox that you often have to spend a lot of money to save a little. But a little and often soon grows big. With this in mind I decided to make the break from filament bulb lighting to fluorescent tubes. I was frequently buying new bulbs and was often caught without a replacement handy when I particularly wanted the tanks to look their best.

The only practical solution to this problem was to install fluorescent lighting, but it was obvious that the existing metal cover was not at all suitable. A new hood was necessary,

so I thought the best idea would be to make it myself out of wood. The advantage of this is that the available space inside such a hood can be utilised exactly as you want. I was anxious to experiment with overhead frontal lighting, and this was an additional reason for making the break from incandescent bulbs. The localised heat that an ordinary bulb emits would soon build up to a level that would be dangerous inside a wooden hood of the size I had in mind. On the other hand, fluorescent lighting runs relatively cool with most heat being generated by the choke. Even so, this is not a

problem because the heat is dissipated quite well by natural air cooling through the cover top. Temperatures never approach a dangerous level. Subsequent practical experience did show this to be correct, and no special ventilation arrangements were ever made.

Long-term Economy

I must confess that the cost of the bits and pieces put me off buying for a long time, in spite of the advantages I knew tubes would bring. I was eventually persuaded by my hard-hit exchequer, which was groaning at the consumption rate of filament bulbs. It is generally known that a fluorescent tube consumes less than half the electricity of an ordinary bulb giving an equivalent amount of light, and this is worth considering when weighing up the pros and cons. Actually, this is a useful point to make if your wife looks like imposing a veto on a similar idea.

I suppose it's life, but have you ever spent a lot of money on something you've coveted for a long time, only to find that a better model has just been brought out, or that there is another method that has been avoiding you all the time? Well, it nearly happened to me again. I had seen Gro-lux tubes advertised and had heard a few good reports about them, but there was really no convincing material available in their support, other than the advertising handouts, of course! The more I thought about it, the more it seemed that I should try Gro-lux out. But no mean decision, because one tube is worth about three of the usual warm white ones and two are required to do the job properly. However, I was intrigued, as the kit

of parts would suit my envisaged new hood admirably.

Anyway, in a mad moment with pen and paper I sent my cheque and order off and it was not long before our postman knocked at the door with a hefty-looking parcel. He brought the full kit of parts, which included two 2-foot 20 watt tubes, one 40 watt choke, one starter switch and holder, clips to hold tubes in position and special twin-flex with moulded connectors, together with a few sundry screws.

Easy Installation

The choke is quite heavy and needs a substantial mounting plinth supported by a strong and soundly made tank cover. This is just what I had to construct. Two weekends and a bit of painting later I was able to set about installing the apparatus, but this is really very easy. A circuit diagram is supplied and anyone with even a vague knowledge of electrics can wire it up with no trouble. However, if you really do have five thumbs on each hand, it is possible to buy a ready-made unit to screw in, but two of these will be required and the cost will be a bit steep. They are usually supplied complete with normal daylight tubes, which will be surplus to requirements, and two Gro-lux tubes will be needed instead. A hood fitted in this way would need to be especially strong and would be quite weighty.

I must say that I was immensely pleased and not a little thrilled to have my creation complete and actually finished, in its place. The lighting-up ceremony was ample reward for the effort and the outlay. First sight of a tropical tank illuminated in this way is really breathtaking. All the familiar colours suddenly take on an exotic hue; reds seem to burn before you and greens and blues stand out, seemingly in a bold new dimension. Bubbles from the aeration stone are most attractive, as they trap the light inside themselves and effervesce their way impatiently to the surface. Neon tetras and cardinals are very beauti-



Above-water foliage of 'giant Hygrophilla' formed under Gro-lux illumination. This photograph and the one opposite are of aquaria owned by Mr Frank Stone, who is thanked for facilities provided

ful and take on new regal robes of velvet; glowlights, bloodfins and gouramis, too, show their newfound splendour to handsome advantage. All the vegetation seems to be stimulated and appears to respond immediately to this new source of energy.

The largest tank I have fitted with Gro-lux tubes measures 3 feet by 1 foot by 15 inches deep. Two tubes are positioned side by side and towards the front of the tank so that both plants and fishes near to the glass are always well lit. This, I find, is important, to make full use of the light available. It is essential to have two tubes consuming a total of 40 watts for full effect in a tank of this size. A single tube will only give a curious pantomime effect, like Peter Pan flying into a Canadian sunset. This is because the gas used gives a light rich in energy-giving colours of red, blue and violet, but poor in green, orange and, more particularly, yellow.

The warm white tube usually used by aquarists is rich in yellow, green and orange, but not so good in the red, blue and violet bands of the

spectrum, and as it is the former colours which need strengthening in the Gro-lux system, two tubes are employed. The grand total of lumens is ideal to give brilliant illumination, predominantly pinkish. As a general guide, reckon on 2 watts Gro-lux to every gallon of water.

Vivid Colours

Although it is the beautiful effect and vivid colours that I appreciate most of all, the excellent plant growth is a very acceptable bonus. Whilst the *Cryptocoryne* tolerate gloomy quarters and even do reasonably well under such conditions, they appreciate good overhead lighting as much as any plant. A good thicket of *Cryptocoryne reticulata* has established itself and is rapidly spreading. Some members of the genus *Nuphar* are ideal for the tropical aquarium, and I am particularly pleased with my *Nuphar sagittifolium*, Cape Fear spatterdock. Its energetic growth has given

us a good display for months now and its delicate translucent leaves seem extra lush with this lighting. There is a water rose, *Samsolus floribundus*, which I think has quietly gone berserk, and is now nearly 9 inches tall.

I have found it necessary to limit the time the tubes are on as algae would prove a real nuisance if a careful check was not kept. At this time of year, when the days are short, lights are switched on at 4 p.m. and off at about 10.30 p.m. This is quite sufficient, even though the tank is 15 feet from the nearest window and at right angles to it. During the long days of summer we can leave the lighting up until 6 p.m. or later.

Experiments with a second tank

are very interesting. It is only 12 inches deep but similar in other respects to the 15 inch tank. The lighting here has been shared between the usual warm white tube and a Gro-lux tube. The overall colouring effect tends to be more yellow and similar to the ordinary filament lamp. Even so, the Gro-lux still succeeds in picking out the reds and blues. In fact, this tube combination could be the answer to those aquarists who feel that the pinkish tone of pure Gro-lux is too artificial. Plant growth is definitely improved and the rather pale tinge that a tank has when lit only by conventional fluorescent lighting is significantly reduced.

Some breeders of tropical fishes may be worried that the pronounced

colouring will affect reproduction. So far, I have had no cause for alarm and have raised broods of young from several of the usual livebearers as well as one or two of the egglayers. It is interesting to note, however, that my opaline gouramis provide me with a preponderance of female young. Perhaps this is significant?

The whole set up has proved 100% trouble-free and I have not yet had to replace a single tube (touch wood!). I should mention that a close-fitting glass tank cover is important to minimise condensation in the hood and protect the choke. But anyone thinking about the transition from filament to gas would do well to consider these new luxury tubes from America.

MARINE FORUM



ONE is quite often asked by persons intent on setting up a marine aquarium whether or not it is advisable to mix solutions of two different brands of synthetic seawater in their tanks. I am of the

opinion that far from this being a bad idea, it would probably be a good policy for all to adopt. Any proprietary brand of synthetic water will adequately support marine life, but all are made from differing formulae, with possibly different trace elements being used in their manufacture. Therefore, a mixture of brands will give, in theory at least, a more natural total formula than the use of one only.

By **GERALD JENNINGS**
(International Marine Study Society)

MR WOLVERSON (Readers letters, *PFM*, October) says that he has adapted native marine anemones (*Actinia equina*) to 'tropical marine' conditions. Quite a surprisingly large percentage of our native marine littoral fauna can be adapted to these conditions, and survives quite well for a short length of time. A small percentage, which includes the shore anemones, crabs and small crustaceans of many genera, will even live permanently under 'tropical marine' conditions. Other species that come to mind as being reasonably robust and suitable for experimentation in this field include the echinoderms (starfish, brittle stars,

sea urchins etc.), hermit crabs and young molluscs.

A STATEMENT that 'you cannot keep marine "plants"' is often to be found in publications or books catering for the marine hobbyist. If, by 'plants' it is to be inferred that there are no marine plants (i.e. angiosperms), then this is an incorrect statement as one of our native marine grasses, *Zostera*, grows quite well once acclimatised to marine aquarium life. And if the term 'plants' includes the marine algae, or so-called 'seaweeds', the statement is quite definitely inaccurate as several genera of marine algae can be successfully cultivated in marine aquaria provided enough light (in the form of fluorescent 'daylight' or Gro-lux tubes), and nourishment (in the form of nitrates) is provided. Admittedly, to achieve the latter, it is necessary to suspend the use of ion-exchange resins of the Eheim types, but once this is done there seems to be no reason why success should not be achieved in cultivating 'plants' for your aquarium. I have successfully grown algae of the genera *Ectocarpus*, *Ulva* and *Corallina* by following this method, and also true plants of the genus *Zostera*.

An article on marine algae, their care and raising, was included in a recent edition of the Journal of the International Marine Study Society, copies of which are available upon request from their general secretary.

PFM Photo COMPETITION

Rules and Conditions

The following rules should be adhered to:

1. The competition is open only to amateur photographers.
2. Each entry or set of entries (no limit to number) must be accompanied by a completed entry coupon from a current issue, and sent to PETFISH MONTHLY (Photographic Competition), 554 Garratt Lane, London S.W.17. Final closing date for entries will be announced later.
3. All reasonable care will be taken of prints and transparencies but responsibility cannot be accepted for entries lost, delayed, mislaid or damaged in the post or otherwise. Proof of posting cannot be accepted as proof of delivery.
4. Each print or transparency should bear the name and address of the sender in capital letters.
5. Black and white prints should be glossy preferably, of not less than postcard size. Negatives should not be submitted.
6. Receipt of entries will be acknowledged only if a stamped addressed postcard is sent with the photographs.
7. Prints and transparencies will be returned after the final results are announced only if a stamped and addressed envelope for this purpose is provided.
8. Entry into the competition will be deemed to constitute submission of the photograph for reproduction in PETFISH MONTHLY and reproduction fees will be paid for any material not in the prize-winning categories that is published.
9. Prize-winning photographs will be published in PETFISH MONTHLY (when the final results are announced) without further fee.
10. The decision of the Editor of PETFISH MONTHLY will be final and binding in all matters affecting this competition and no correspondence can be entered into concerning the competition.

There are no special categories of entry for this Competition. Photographs in black and white or colour (prints or transparencies) can show your favourite fish in close-up, the interior of your aquarium, fish breeding or other fish behaviour, or your garden pond. Each entry will be judged according to photographic merit as well as for its interest to fish-keepers. Main cash prizes will be £5 each, with subsidiary prizes of £2 each, plus a monthly chance of being paid one guinea if a picture is selected for printing in an issue of PFM appearing before final judging and announcement of results. Use the entry form from a current issue of PFM when sending your pictures and please read the Rules and Conditions for the Competition printed on this page.

Entry Form PFM Photo Competition

Please complete in BLOCK CAPITALS

Name _____

Address _____

Number of entries enclosed _____

I have read and will conform with the Rules and Conditions of the Petfish Photo Competition.

I declare that the entry (or entries) submitted are my own work as an amateur and not that of a professional photographer.

Signed _____

Date _____

Please enclose a stamped addressed postcard if you require acknowledgement of safe receipt.

Valid until 29 February 1968

Transatlantic TOPICS

By JIM KELLY

THE second month of the year was billed in the Roman calendar as the month of expiation. Our own immortal bard, Will Shakespeare, took it a stage further and in one of his plays stated that at this time of year we should all make up for our deficiencies . . . Taking this to heart, some leading American hobbyists have done just that and formed an American Cichlid Association.

Though the United States has boasted specialist groups for such fishes as guppies, fighters, killies, goldfish and marine species, they have never before had a group devoted solely for the 'big boys'.

Boasting such famous 'founders' as Al Klee, Guy Jordan, Dick Stratton and Kappy Sprenger, the Association's future seems assured, but just in case, they have thrown in lots more just for good measure.

Patterned on the American Killie-fish Association, the A.C.A. boasts a Board of Directors and a regular Journal disseminating news and know-how about the spiny-rayed fishes, plus a fish bank. In the latter, members will regularly breed certain species to ensure their membership of regular supplies. If you are interested please write to: The American Cichlid Association, 4011 Marron Street, San Diego, California 92115, U.S.A.

* * *

If your aquarium interests also run to photographing fish, you will be interested in the invention of Roger D. Erickson (U.S.A.). This is a flashgun that measures the amount of light being reflected by the subject being photographed and cuts off the flash from the camera when the correct exposure has been made.

Those in the know will recognise this device, as the Strobosnar 660, now on the market, and only recently granted a patent by the U.S. Patents Office. Amateurs amongst our ranks

can stop reading here, but the professional will be interested to note that the device uses a cadmium sulphide semi-conductor to measure the incoming light, cut-off taking place within the one-thousandth of a second that a usual uncontrolled electronic flash would normally last. Only aperture and film speed need be set.

* * *

In the majority of the major chain stores in the New World one will usually find fish on sale. One such household word in 'dime' stores, as the Americans call them, I visited in the Middle West had neons (*Hyphessobrycon innexi*) on sale at eight for a dollar (just under one shilling each). Wondering how such an aquarium jewel could go at such a low price, I inquired from the girl assistant—it turned out she didn't even know what a neon was, explaining that she was normally in charge of the carpet sales.

Despite this apparent handicap to increased business, figures published in an American trade directory show that Woodworth's sold 6½ million dollars' worth of fish in one year . . . to mention but one chain.

Whether fish in multiple chain organisations is a good thing or a bad, I leave for the economists to work out, but I do predict that 1968 will see a large expenditure of effort by American firms to crash into the British pet field. Visits in recent years by top representatives from the U.S. aquatic trade weren't just 'sightseeing' tours, though from reports they published when they returned home, they did see some 'sights'!

* * *

I am all for extra activities sponsored by any fish club—extra, that is, to merely meeting together each month. But one activity reported from a club in America I don't hold with, and that is travelling around and visiting aquatic shops and public aquariums, then writing up a criticism in their club magazine on the lines of a Consumer's Association watch report—the self-styled critic ending his remarks

with suitable recommendations: three stars, worth a visit, two stars worth a detour!

It behoves every aquatic dealer to show to the public the 'best face' he can, and only a fool thinks he can get away with having only sickly, diseased fishes for long. But, like the poor, disease is always with us, and it is extremely difficult for every trader to ensure his tanks are 100% up to scratch, 24 hours a day, seven days a week—disease (despite all precautions), staff sickness and absenteeism all take their toll.

Every hobbyist has the answer in his own hands. He isn't forced to purchase at any one shop, and can show his silent criticism by stopping away. Let's keep club magazines for the dissemination of knowledge and a funnel through which the club's comings and goings can be publicised, and leave criticism to the professionals.

* * *

Time gentlemen, please! That cry, familiar one of landlords everywhere, is his desperate plea that they are closing down and you must finish your drink and go. One club that has solved the problem of clearing the premises in a 'fishy' sort of way is the Advertising Club of New York, in the Quarterdeck Grill, where the sole illumination comes from the many tanks gracing its nautical decor.

The lights on the aquaria are connected to a portable time switch that turns down the lights at the correct closing time. So versatile are these time switches that they can be set to allow for high days and holidays, turning the lights on at opening time and off at closing.

I cannot help wondering what this unusual 'on-off' existence does for the fish and plants!

* * *

If you find yourself in the vicinity of an American hospital and see some fish fanatic grubbing about in the garbage cans, don't be surprised! They are merely looking for the old intravenous bottles

Continued opposite

Transatlantic Topics

(Continued)

thrown out by the hospital staff after use. If 'intravenous bottle' is an unfamiliar tag, they are the glass containers one sees hanging from a stand at the side of the patient's bed dispensing liquid food or life-giving blood.

Complete with wire hanger and ready drilled bung, they make excellent brine shrimp hatchers, hence the frenzied search.

Do hospitals on this side of the Atlantic throw away these useful bottles after use? Perhaps some medical staff reader could inform us?

* * *

The archer fish (*Toxotes jaculator*) doesn't enjoy the popularity in Britain that it does in the New World. Selling there for around \$ dollars, they boast a place at most fish skin-digs.

One of the problems of keeping this fish is to maintain a liberal supply of live food for them to 'shoot' at, which they do with unerring accuracy. Flies are the answer but hatching out maggots in the usual way makes you very unpopular with the rest of the family when the house becomes filled with the droning creatures.

A Chicago dealer I met had solved the problem very simply: he had the usual tank half-filled with water, the space above the surface being filled with plenty of foliage, growing out of the water. As a cover he had made a tight-fitting lid from perforated zinc, the sort we use for the fronts of meat safes. In this lid he had made a hole just large enough for a fly to crawl through and covered this entrance with an inverted box full of maggots.

When the flies were hatched out they found their way into the tank via the hole in the lid and immediately came under fire from the William Tella waiting in the water below. So used to this liberal supply of live food had the fish become that they hovered at the water surface, eagerly awaiting the next tit-bit to appear at the entrance.



YORK & D.A.S. Year Book gives an impressive account of the activities during last year of a busy and thriving society. Members made four trips away from home to inter-society shows at Swillington, Aireborough, Hull and Wakefield and have been host in turn to Wakefield A.S. and Hull. Members have also visited a number of open shows, including the A.Y.A.S. annual show and that given by the White Rose A.S. York's own open show was held last May. Lectures by Mr K. Barraclough, Mr M. Birkenshaw and Mr F. S. Harris, a tape lecture by Mr W. L. Whiteman and two coloured slide lectures presented by Mr R. E. Hampson of Horsforth provided members with a good deal of valuable information. A full programme for this year has been planned and interested readers will be made most welcome at club meetings, held on the second Tuesday of each month at the Woolpack Hotel, Stonebow, York at 7.30 p.m.

BRIGHTON & SOUTHERN A.S. heard a very interesting talk by Mr Cox of Woodingdean, Brighton on the keeping of tropical marines, which he himself has done for the last 8 years. The lecturer empha-

HORSFORTH A.S. have announced the awards in their *International Top Society Bulletin* competition for 1967. *Best magazine* (judged by the editor of *PETFISH MONTHLY*): 1, *Fish Tales* (Greater Iowa A.S.); 2, *The Water Log* (South Plains A.S.); 3, *Fin Features* (Central Ohio A.S.). *Best male editor*: 1, Mr Larry Arnold (Greater Iowa A.S.); 2, Mr Herbert Edwards (Davenport A.S.); 3, Mr Tom Borrelli (Central Ohio A.S.). *Best female editor*: 1, Mrs Leona Bradley (Aquatic Researcher); 2, Mrs Margaret Carberry (Cascade A.S.); 3, Mrs Betty Ormsby (Duluth A.S.). *Best male writer*: 1, Mr Ronald Hood (Great Lafayette A.S.); 2, Mr Joe Anasavage (Central Ohio A.S.); 3, Mr Bob Andrews (Aquatic Researcher). *Best female writer*: 1, Mrs Virginia Workman (Broward County A.S.); 2, Mrs Ella Pitsman (Colorado A.S.); 3, Mrs Renate Treco (Alamo A.S.). Each of the winners will receive award cards.

sized that expensive equipment was not necessary provided care was taken to feed the correct food in the right proportions. The club also enjoyed a cine film on coral fishes of the Barrier Reef at this meeting.

It may well be that members will be taking more interest in the guppy this year. The 19 fish benched in the table show for guppies, in competition for the Dave Harris trophy, were all entered by just two members and caused the chairman to express the hope that more members would take an interest in this

This year's Midland Show at Bingley Hall, Birmingham will be held 14th-17th August.

species to produce rather more competition in this class. All the awards went to Mr T. Croucher. At the fish of the year table show members were sorry to learn that judge Mr Ted Jessopp was indisposed, so Mr R. Bowring and Mr P. Pavey acted as judges and made the following awards: 1, Mr E. Cummins (*Labeo bicolor*); 2, Mr V. Aldis (Malayan angel); 3, Mr E. Cummins (*C. severum*); 4, Mr D. Soper (guppy).

The club looks forward to another successful year and invites any interested parties to its meetings, which are held on Wednesday evenings once a fortnight over the Prince George, Trafalgar Street, Brighton.

WARRINGTON A.S. report three excellent programmes enjoyed by club members at the end of last year. Mr Barry Pengilly gave an entertaining and informative lecture and slide show on cichlids and characins and the numerous and varied slides were of his usual high standard. Former secretary Mr Ron Tench gave a talk on 'Foods and Feeding' and the present secretary, Mr H. Bennion, tells us: 'Ron had obviously gone to a lot of trouble to prepare for this programme and the excellent layout of visual aids, cultures, samples etc. highlighted the co-operative response the speaker had received from the trade. Chairman Mr Pete Norris, thanking Ron later, expressed the popular view that this experienced speaker is well up to the standard of the professionals.' (Local secretaries please note: Mr Tench can be contacted at Warrington 31635 by those interested in

Club News

(Continued)

obtaining his services as a speaker.) The Christmas meeting was a light-hearted affair—a 'Take-your-Pick' quiz. Fish of the month award was carried off by Mr K. Hamblett with Mr Brian Beswick and Mrs D. Clarke occupying the second and third positions.

A new venue for club meetings is also announced. It was felt that the move to the Railway Social Club had not been as successful as expected and although attendance had been maintained at around 60-70 many members were convinced that the old, much enjoyed, atmosphere of the previous venue was not likely to develop in the new setting. So a new one was sought, and the committee are pleased to announce that the White Hart, Sankey Street, is the new meeting place. This is right in the town centre adjoining a large car park. Old and new members are

WATER changes are recommended as the most important aspect of successful rearing of angel fry by A. Riley of Worthing, an aquarist of some 20 years experience. Once the fry are free-swimming a build-up of bacteria in the water is liable to attack the young and cause many deaths, which are prevented by changes of water. Mr Riley also stressed that, in the breeding of neons, the most important single factor in obtaining a maximum hatching of eggs is the production of a soft water with minimal hardness that has been exactly determined and is not merely 'close' to the figure required. A difference of a few degrees of hardness either way appears to stop neon eggs hatching. These were some of the points made by Mr Riley in a recent lecture to members of BRIGHTON & SOUTHERN A.S.

sure of a warm welcome and 1968 promises to be another successful year in the club's history. Other clubs are cordially invited to contact Warrington for joint ventures.

THE ELEVENTH annual general meeting and presentation of trophies was held at the end of November by THURROCK A.S. at the society's Gray's headquarters. Officers elected for 1968 and the retiring officers are: chairman, Mr P. Hinkley (ret. Mr B. Barber); secretary, Mr S. Hendle (re-elected); treasurer, Mrs B. Nicholls (re-elected); show secretary, Mr D. Durrant (re-elected); publicity, Mr K. Appleyard (re-elected); librarian, Mr G. Rowe (ret. Mr P. Hinkley); F.B.A.S. representative, Mr E. Nicol (re-elected); committee: Mr P. O'Bryan (re-elected) and Mr H. Jewson (ret. Mr G. Parkin); member of the year recorder, Mr E. Nicol (ret. Mr G. Rowe).

Mr B. Barber received the trophy for the Member of the Year, and that for home aquaria went to Mr P. O'Bryan. Both the Swanbury shield and the Holland Cup were presented to Mr D. Durrant, and the award for the highest number of points attained in table shows throughout the year went to Mr S. Hendle. The fry-rearing competition trophy went to Mr F. Harkins for his nigger barbs.

Any information regarding the

Results of Aireborough's Open Show

RESULTS of the annual open show held by AIREBOROUGH & D.A.S. in December have now come to hand. A record number of 403 entries came from 29 societies and all but four of these clubs were among the prize winners.

Guppies: 1, Mrs P. McCourt (Leeds); 2, Mr and Mrs Cohen (Pontefract); 3, Mr P. Reynolds (Swillington). **Platies:** 1, Mr T. Trantor (Pontefract); 2, Mr H. Gardner (Independent); 3, Mr and Mrs B. Megson (Aireborough). **Mollies:** 1, Mr C. J. Burasp (Aireborough); 2, Mr G. Garford (Mitsenden); 3, Mr Parkin (T.A.R.). **Swordtails:** 1, Mr F. Lodge (Huddersfield); 2, Mr G. Orford (Leeds); 3, Mr Danson (Barnsley).

Siamese fighters: 1, Mr Baxter (Tadcaster); 2, Mr G. W. Holmes (Tadcaster); 3, Mr H. Cranwick (Featherstone). **A.o.v. anabantid:** 1, Mr A. E. Whitlock (Tadcaster); 2, Mr Faircliff (Tadcaster); 3, Mr P. Barrin (Bradford). **Dwarf cichlids:** 1, Mr H. Cranwick (Featherstone); 2, Mrs Whitefield (Kilghley); 3, Mr and Mrs Derris (Workop). **Angelfish:** 1, Mr G. South (Cleveland); 2, Mr G. Orchard (Leeds); 3, Mr Rosh (Halifax). **A.o.v. cichlid:** 1, Mr Thomson (Mitsenden); 2, R. & L. Taylor (Bradford); 3, Mr G. Orchard (Leeds).

Toothcarps: 1, Mr H. Cranwick (Featherstone); 2, Mr Greenall (Tadcaster); 3, Mrs J. W. Holmes (Tadcaster). **Barbora:** 1, Mr and Mrs Cohen (Pontefract); 2, Mr W. Naylor (Aireborough); 3, Mr P. Barrin (Bradford). **Danio and minnows:** 1, Miss R. Kaye (Huddersfield); 2, Mr P. Reynolds

(Swillington); 3, Mr J. Whiteley (Aireborough). **Catfish and loach:** Mr and Mrs Anson (F.G.A.); 2, Mr and Mrs Stenden (Loyne); 3, Mr P. Reynolds (Swillington). **Flying foxes and sharks:** 1, Mr P. Barrin (Bradford); 2, Mr Hirst (Chapelton); 3, Mr J. Whiteley (Aireborough).

Pairs livebearers: 1, Mr Hirst (Chapelton); 2, Mrs Bone (Huddersfield); 3, Mr R. Stringer (Swillington). **Pairs apogonids:** 1, Mr Parkin (T.A.R.); 2, Mr Hensell (Mitsenden); 3, Mr G. W. Holmes (Tadcaster). **Breeders, 6 livebearers:** 1, Mr R. Stringer (Swillington); 2, Mr and Mrs Stenden (Loyne); 3, Mrs Betty (Swillington). **Breeders, 6 apogonids:** 1, Mr A. Bessley (Ouse); 2, Mr and Mrs Stenden (Loyne); 3, Mr Gray (Halifax). **Ladies, a.v. fish:** Mrs P. McCourt (Leeds); 2, Mrs Cohen (Pontefract); 3, Mrs Goodall and Mrs Piper (Pontefract). **Juniors, a.v. fish:** 1, Master A. White (Kilghley); 2, Master G. Nash (Swillington); 3, Miss Wiggins (White Rose). **Furnished mini-jar:** 1 and 3, Mr R. Stringer (Swillington); 2, Mrs Betty (Swillington).

Small barbs: 1, Mrs Betty (Swillington); 2, Mr A. Bessley (Ouse); 3, Mr Horton (Mitsenden). **Large barbs:** 1, Mr Parkin (T.A.R.); 2, Mr F. Lodge (Huddersfield); 3, Mr I. Kaye (Huddersfield). **Small characins:** 1, Mr P. Bone (Huddersfield); 2, Master A. Kaye (Huddersfield); 3, Master D. Lacey (Aireborough). **Large characins:** 1, Mr J. Whiteley (Aireborough); 2, Mr and Mrs Cohen (Pontefract); 3, Mr N. Turner (Mitsenden). **A.v. minnie:** 1, Mr Parkin (T.A.R.); 2, Mrs McCourt (Leeds). **A.o.v. tropical fish:** 1, R. and L. Taylor (Bradford); 2 and 3, Mr P. Reynolds (Swillington).

A.v. goldfish: 1 and 2, Mr Eadon (Sheffield); 3, Master A. Kaye (Huddersfield). **Fancy goldfish:** 1, 2 and 3, Mr A. Phillipson (East Lane). **A.o.v. coldwater fish:** 1, Mr A. Trotter (Cleveland); 2, Mr R. Bramley (Pontefract); 3, Mr Linley (Aireborough). **Aquarium plants:** 1, Mrs J. Groom (Aireborough); 2, Mr A. Bessley (Ouse); 3, Mr and Mrs Cohen (Pontefract).

The award for the best fish in these classes went to Mr A. Phillipson for his oranda and Mr Phillipson received a trophy, F.N.A.S. diploma and star, A.Y.A.S. diploma and ribbon, and a gold pin award.

Novices only classes. **Livebearers:** 1 and 2, Mr E. Robinson (Aireborough); 3, Mr Danson (Barnsley). **Barbs:** 1, Mr P. Carey (York); 2, Mr Hensell (Mitsenden); 3, Mr Ainsley (Horsforth). **Characins:** 1, Mr Hensell (Mitsenden); 2, Master K. Lister (Aireborough); 3, Mr and Mrs B. Megson (Aireborough). **Cichlids:** 1, Mr Scoborn (Barnsley); 2, Mr P. Coor (York); 3, Mr Goodall and Mr Piper (Pontefract). **Anabantid:** 1, Mr J. Hayley (Cleveland); 2, Mrs M. Kaye (Huddersfield). **Catfish and loach:** 1, Miss V. Lewandowska (White Rose); 2, Mr and Mrs B. Megson (Aireborough); 3, Mr Lee (T.A.R.). **A.o.v.:** 1, Mrs L. Whiteley (Aireborough); 2, Miss V. Lewandowska (White Rose); 3, Mr N. Bowland (Aireborough). **Breeders:** 1, Mrs Goodall and Mrs Piper (Pontefract).

The best fish award (an engraved silver cup) in this section went to Mr Hensell (Mitsenden) for his characin.

In the inter-society furnished aquarium class, Swillington & D.A.S. took first and second place (Aireborough, third) and were awarded the challenge shield and A.Y.A.S. diploma and ribbon.

society's 1968 programme can be obtained from Mr S. Hendle, 47 Fulbrook Lane, South Ockendon, Essex.

THE THIRTY members of BOURNEMOUTH A.C. who attended the last meeting of the year had a very varied and enjoyable evening. A discussion in which all members joined covered a range of subjects from the club badge and an invitation to attend the next meeting of Poole & D.A.S. to the relative merits of branded fish foods, when members were able to state their preferences and put forward some new ideas. The raffle took on a very festive flavour with prizes including tins of biscuits, boxes of chocolates, wine and cigars and took the form of the television programme 'Take Your Pick'. Mr Andrews acted as quizmaster, and the twelve participants were chosen by a draw. The star prize—a stainless steel aquarium and cover presented by Mr Tony Garcia of Atlantis Aquarium—was won by Mr Lawrence. The booby prizes went to Mr Read, Mr Ryan and Mr Brewer, but as Mr Brewer is the club's youngest member, he is to get a special consolation prize.

The monthly table show, for a.o.v. coldwater fish, was judged by Mr R. Matley. 1, Mr Travers (common goldfish, 70); 2, Mr Travers (common minnow, 67); 3, Mr Hillier (sun bass, 66). Finally, some brisk bidding went on at the plant auction that brought the meeting to a close.

DETAILS of the awards presented for a number of annual competitions have been received from ILFORD & D.A. & P.S. Entries for the society's annual All Classes table show were judged by Mr John Bryden of the East London society. In the seventeen classes, prize cards were awarded for first, second and third place and special awards made for the best fish in the show (1) livebearer, (2) egglayer and (3) best junior entry. Winners were: 1, Mr Rowe; 2, Mr Sheehan; 3, Mr Sampson. Results of the annual table show competition were: 1, Mr J. Hattam, who attained 87 points over the year; 2, Mr M. Braham (26); 3, Mr H. Berger (23). Results of the 1967 Home Aquarium competition have also been announced and at one meeting the society's president, Mr Vic Price, gave a most authoritative commentary on the subject of setting up and furnishing aquaria, with particular reference to the twelve entries seen by himself and two other judges, Mr Ruth and Mr Sanders.

THE foot and mouth outbreak even cast its blight over the fish world when DUDLEY & D.A.S. had to find new premises for their December meeting. Dudley Zoo, which is their usual venue, had to impose an embargo on visitors owing to the danger to their animals.

Winning entries were: 1, Mr Smith; 2, Mr J. Hattam; 3, Mr Sheehan; 4, Mr Robinson jointly with Mr Perry.

Other club activities have included a forum conducted by Mr Skilton of Chelmsford (who was making a welcome return visit), when questions of temperature and heat control, composts and planting were discussed. This was a very useful programme and of practical help particularly to new members. A 'Down You Go' quiz, with two teams of members being tested on their knowledge of aquatic subjects, also proved very entertaining. Prospective new members who would like some more information about club meetings (held on the second Monday of each month at St. Laurence's Church Hall, Donnington Avenue, Barkingside) are urged to contact secretary Mr R.

Ruth, 13 Dunkeld Road, Dagenham, Essex.

AT the inter-club show between PORTSMOUTH A.S. and WINCHESTER A.S., the guests, Winchester, won the plaque for the highest number of points (17 to Portsmouth's 13). While Mr R. Matley was judging the three classes, members and guests heard a very interesting lecture from Mr Evans on coldwater fish and saw a practical demonstration of the method of hand-spawning the shubunkin. Table show results were:

Catfish: 1 and 2, Mr E. Binns (Portsmouth); 3, Mr N. Franklin (Portsmouth); Characins: 1, Mr H. Armitage (Portsmouth); 2 and 4, Mr D. V. Jones (Winchester); 3, Mrs K. Hatcher (Winchester). Cichlids: 1, Mr R. Hatcher (Winchester); 2, Mr D. V. Jones (Winchester); 3, Mr F. Bennett (Winchester).

At the club's own table show for breeder's classes, judged by Mr G. Marks, the tropical classes were particularly well supported. Results were:

Tropical egglayers: 1 and 2, Mr H. Armitage; 3, Miss M. Webb; 4, Mrs J. Stillwell. Livebearers: 1 and 2, Mr C. Boon; 3, Mrs J. Stillwell; 4, Mr S. D. Foss. Coldwater: 1, Mr V. Hunt; 2, Mr P. Wylie. The best fish in show award went to the *P. platy-fari* belonging to Mr H. Armitage.

In Brief . . .

. . . RUNNYMEDE A.S. reports a successful first year since its inauguration. Attendance figures for meetings and the number of fish benched at table shows indicate a flourishing society and the club has made its mark at inter-club and open shows with a win over Bracknell A.S. in an inter-club show, a win over Weybridge and Guildford and a first gained at the Hounslow Open. Yearly award cards have been presented to: livebearers: 1, Mr B. Hozer; 2, Mr R. Joyce. Labyrinths: 1, Mr A. Kemp; 2 and 3, Mr K. Smith. Characins: 1, Mr C. Young; 2, Mr P. Grosvenor; 3, Mr R. Joyce. Pairs: 1, Mr D. Smith; 2, Mr K. Smith. A.o.v.: 1 and 2, Mr P. Grosvenor; 3, Mr J. Sweeney. Cichlids: 1, 2 and 3, Mr P. Grosvenor. Barb: 1 and 3, Mr P. Grosvenor; 2, Mr V. Robinson. Coldwater: 1, 2 and 3, Mr N. Rickards. Best fish of the year award, Mr D. Smith.

. . . OFFICERS for 1968 for SOUTHEND, LEIGH & D.A.S. are: president, Mr D. Edwards;

vice-president, Mr R. Pasmore; secretary, Mr M. J. Willis (17 Arandel Gardens, Westcliff); treasurer, Mr D. M. Cheswright; journal editor, Mr P. F. Capon; librarian, Mr S. Norris; hon. adviser, Mr A. J. Mason; refreshment secretary, Mr T. King; committee members, Mr D. Finch and Mr R. Wallings. Three table shows held at the same meeting resulted in the following awards: Best fish of the year: 1, Mr R. Wallings (guppy); 2, Mr A. J. Mason (*A. australis*); 3, Mr D. Edwards (comb-tail); 4, Mr M. J. Willis (*Copina guttata*). Breeders egglayers: 1, Mr B. Dunn; 2, Mr D. Cheswright; 3, Mr A. J. Mason; 4, Mr P. F. Capon. Breeders livebearers: 1, Mr D. Cheswright; 2, Mr B. Dunn; 3, Mr R. Pasmore.

New members are welcomed to the club's meetings (the first and third Tuesday of each month at St. Andrews Hall, Electric Avenue, Westcliff, entrance in Westborough Road).

. . . NEW secretary of SWILLINGTON A.S. is Mr G. Nash and all correspondence should be sent to him at 105 Beacroft Road, Castleford, Yorks. The club's home furnished aquaria competition, judged

by Mr and Mrs J. Skinner, was won by Mrs N. Stringer.

... OFFICERS for this year for **BASINGSTOKE & D.A.S.** are: vice-president, Mr R. Eccott; honorary life vice-presidents, Mr and Mrs E. Leavy; chairman, Mr R. T. Ridley; secretary, Mr D. Wallis; treasurer, Mrs J. Lovegrove; show secretary, Mr A. Marshall; committee, Mr F. Lange, Mr L. Lovegrove; Mr A. Blake, Mr J. Rapley and Mr J. Lockett. Results of recent major club table shows include the following. Championship cup class: 1, Mr T. Errey (*N. oomaha*); 2, Mr L. Lovegrove; 3, Mr A. Marshall. Breeders' finals: 1, Mr D. Ridley (tiger barbs); 2, Mr A. Marshall (zebras); 3, Mr D. Ridley (*P. kribia*). Yearly points cup: joint first, Mr L. Lovegrove and Mr A. Marshall (14 points); 2, Mr T. Errey (11); 3, Mr D. Ridley (10); 4, Mr D. Wallis (9).

... AT THE sixth annual general meeting of **NEWPORT A.S.**, Mr T. F. Wall, the club's magazine editor and a member of the executive committee since its formation, was elected chairman. Other officers elected were: secretary, Mr I. G. Phillips (34 Brangwyn Crescent, St. Julians, Newport, Mon.); treasurer, Mr J. Lowndes; show secretary, Mr M. J. Parry; junior representative, Master A. Berry; committee, Mr E. Myer, Mr N. Newsway and Mr A. J. Payne. Officers reported on a highly successful year, with membership at its highest level and a healthy balance of cash in hand. The annual open show had attracted a record entry and inter-club competitions held with Barry, Cheltenham and Keynsham (Bristol) societies amongst others had proved extremely popular. Meetings are held on the first Tuesday of each month at the R.A.O.B. Club, Stow Hill, Newport, at 7.45 p.m. and the secretary would be pleased to furnish any further details.

... SAD NEWS from **AIREBOROUGH & D.A.S.** Because of continual increases in the cost of producing the magazine, the committee have reluctantly decided to discontinue its production. However, great activity is reported on other fronts. At an inter-club table show at Barnoldswick, from the 18 fish benched by Aireborough members eleven cards were won. Forty members and friends attended the very successful annual dinner and the annual awards were presented. Individual winners were: specified class, Mr Whiteley; novice class, Mrs Iveson; A.O.V. class, Mr Lister;

Badge of the Month



Goldfish Society of Great Britain. The secretary of the Society is Mr W. L. Wilson, 57 Constable Gardens, Edgware, Middlesex.

junior class, Master Lister. Home furnished aquaria competition: Mr Whiteley. Member of the Year award: Mr R. Lister.

... CONGRATULATIONS to **LONG BEACH A.S.** (California) on their eighteenth birthday. With regular club attendances in the region of 110 members and guests, the society's future looks healthy.

... **COVENTRY POOL AND AQUARIUM SOCIETY** plan special junior sections in the table show classes this year (junior members are those under the age of 21) and a new trophy, presented to the club by Mr Mayer of Bulkington, will be presented each year to the junior member who gains the highest number of points in society table shows throughout the year.

... MR PHILLIP MOORHOUSE won a decisive and well-deserved victory in the **BRADFORD & D. A.S.** monthly competition for the Arthur Thornley memorial trophy. Twenty-four members took part in the competition and Mr Moorhouse was one of the seven who entered fish every month although he has to travel a great distance to attend club meetings. Results were: 1, Mr Moorhouse (37 points); 2, Mr A. Firth (17); 3, Mr P. Barritt (14); 4, Mr T. N. Batey (12).

... THE HERBERT CUP, presented by **RUGBY & D. A.S.** to the member who has attained the highest marks for tropical fish entries in table shows throughout last year, has been won by Mr R. Dyeon with an aggregate of 555 points: 2, Mr R.

Fox (525); 3, Mr R. Delday (410); 4, Mr A. Whitmee (390).

... **TOTTENHAM & D. A.S.** take great pleasure in announcing that the post of president has been accepted by Mr (Nipper) Harris. The committee for 1968 is composed of: chairman, Mr F. Williams; secretary, Mr B. Field; show secretary, Mr S. Mooney; treasurer, Mr R. Mostram.

... THIRTY fishkeeping enthusiasts attended the inaugural meeting of **HOYLAKE & D. A.S.**, held above the local pet shop. The following committee was elected. Chairman, Mr A. J. Bland; secretary, Mr D. J. Webster, 33 Fulton Avenue, Newton, West Kirby, Cheshire; treasurer, Mr J. Harrison; committee, Mr J. Dooner, Mr W. McComb, Mr W. Davies, Mr J. Gordon. Readers in the area will be made very welcome at meetings and the secretary will be pleased to supply further information.

... THE FOLLOWING changes are announced in the Council of the **INTERNATIONAL MARINE STUDY SOCIETY** for this year: exchange journalist and librarian, Mr T. Beard, 20 Maes Gweryl, Conway, N. Wales; membership secretary, Mr K. Martin, 9 Lennox Drive, Walcot, Swindon, Wilts; public relations officer; Mr M. J. Parry; treasurer, Mr I. G. Rose. Other society magazines for exchange would be welcomed by the librarian. The I.M.S.S. look forward to a year of even greater activity after the many innovations that took place last year. These ranged from the adoption of a revised constitution and new name, the inauguration of a directorate-council to run the society, of a Technical Advisory panel and a Judges, Shows and Standards committee, as well as attendance and displays at open shows, lectures and slide shows given to other societies.

... **YATE & D. A.S.** have moved to the Hoese Shoe Inn, Downend and are now meeting on the first Monday of each month. The committee elected for 1968 are: chairman, Mr J. B. Powell; vice-chairman, Mr D. Walsh; treasurer, Mr G. Smith; secretaries, Mr and Mrs P. Wright; programme officer, Mr D. Singer; float members, Mr T. Green, Mr J. Willet, Mr A. Snell.

... AT THE annual general meeting in December the following officers were elected to serve during 1968 for **WAKEFIELD & D. A.S.** Chairman, Mr J. Carrier; vice-chairman, Mr G. Gledhill; secretary, Mr F. Cooke

(21 Jacobswell Lane, Wakefield); treasurer, Mr T. Moseley; show secretary, Mr G. Boneby; committee, Mr J. Grace and Mr K. Collins. In future, meetings will be held on the second and fourth Tuesday in each month at The Central Youth Premises, Zetland Street, Wakefield.

... **NEWLY-FORMED BRENT A.S.** aims to cover all aspects of tropical fishkeeping, with particular interest initially in assisting other societies. Anyone wishing to join will receive a very warm welcome and should contact the secretary. Meetings are held on the first and third Tuesday of each month. Elected officers are: president, Mr Laurie Pavitt, M.P.; vice-presidents, Dr R. O. B. List and Mr Bernard Elliott; chairman and secretary, Mr T. D. Smith (97 Fleetwood Road, Dollis Hill, London, N.W.10); vice-chairman, Mr C. S. D. Swinburne; assistant secretary, Mr T. Butler; show secretary, Mr A. Benson; assistant show secretary, Mr J. Williams; treasurer, Mr J. Line; delegate, Mr P. Shrimpton; committee members, Mr M. O'Connell and Mr B. Shrimpton.

... **OFFICERS for 1968 for HENDON & D. A.S.** are: chairman, Mr Henry White; secretary, Mr Keith Purbrick (3 Holme Way, Stanmore, Middlesex); show secretary, Mr Joe Gorman (431 Honey-pot Lane, Stanmore, Middlesex); treasurer, Mr Pat O'Connell; vice-chairman, Mr Alan Stevens; assistant secretary, Mr Ray Maynard; assistant show secretary, Mr Charlie Spencer. Other officers elected were Mr Reg Juden and Mr David Finch and Mrs Betty Robertshaw.

... **NEW secretary of AIREBOROUGH & D. A.S.** is Mr G. E. Walker. All correspondence should be sent to him at 2 West End Terrace, Guiseley, Nr Leeds, Yorks. A new venue for club meetings is also announced. This is St John's Schoolrooms, Henshaw, Yeaton, Nr Leeds.

... **MRS CROFT of DUDLEY & D. A.S.** achieved the highest number of points in club shows throughout last year with a total of 55. Mr D. Frost was second with 25, Mrs G. Smith third with 23 and Mr G. Rothin fourth with 21.

... **HORSFORTH A.S.** have a problem. Too many new members! The influx of over 50 members to an original 17 members in less than a year has meant that accommodation problems would soon have arisen. The entire first floor of the public library has now been taken over (the

club now has a fully equipped canteen, snipper room and ballroom complete with stage at its disposal) and it has been decided to limit the number of full members to 75. So intending members should hurry along to their first meeting (7.45 p.m. on the first Monday in each month at the Public Library, The Mechanics Institute, Town Street, Hoesforth) before all places are filled.

LATEST news about the NATIONAL FURNISHED AQUARIUM EXHIBITION to be held in Bradford on 13th-16th June. Judges will be Barry Pengilly (Lancs.), Geoff Skinner (Yorks.), A. G. Jessop (London), G. Reid (Scotland) and the entries will be judged to F.B.A.S. standards. Catering facilities have been arranged for the 2 days of establishing the Exhibition and throughout the time it is open to the public. A full Press preview is being organised for immediately after the judging and it is hoped to have T.V. coverage. Entries will be accepted from 1st March and entry forms will be provided in v.f.s.t. Entry fee is 25s and 24 in. by 12 in. by 12 in. stainless-steel aquaria and hood, with heater, thermostat and lighting, will be provided by the organisers. All exhibits will be of standard size and lighting, in accordance with regulations to be provided with the entry forms.

... **AS** a result of the great success of their three-day show last year, **BRISTOL T.F.C.** intend to repeat the venture this year on 27th-29th June. This year's committee are: chairman, Mr L. Littleton; vice-chairman, Mr F. Barry; treasurer, Mr M. Taylor; secretary, Mr W. Holland; assistant secretary, Mr C. McGrath; reporting secretary, Mr P. Wright; programme officer, Mr G. Stone; librarian, Mrs P. Wright; auditors, Mr G. Dyer, Mr T. Kimber.

... **LEAMINGTON & D. A.S.** report that, last season, the average numbers for each of the 15 table shows held was 30. Which seems like a fine effort!

... **BRISTOL A.S.** enjoyed a very fine film show recently, put on by member Mr Ralph Berry. Together with films of local interest, fishy topics were covered by film of the prize presentations at last year's

M.A.A.S. show and a look around the fish house and ponds belonging to Mr L. Emery. At the monthly table show, for a.o.v. coldwater not previously shown during 1967, Mr H. Jago took the first, second and fourth places, with Mr R. Lewis third.

... **MR S. CROFT** is the chairman of **DUDLEY & D. A.S.** for 1968. Other officers are: president, Mr C. Grace; secretary Mr D. J. Bull; treasurer, Mrs J. Croft; show secretary, Mr J. Vickery; librarian, Mr A. Stonall; editor, Mr E. Morse; committee, Mrs J. Morse, Mr R. F. C. Hadley, Mrs G. Smith, Mr B. Jewkes.

... **MR T. DICKENS** is secretary of **THORNE A.S.** this year. His address is: 29 North Eastern Road, Thorne, Nr Doncaster, Yorks. Other club officers are: chairman, Mr H. Candow; treasurer, Mr B. Duffield; committee, Mr C. Green, Mr H. Green, Mr R. Snowdon.

... **MERSEYSIDE A.S.** members enjoyed a very informative meeting when vice-president Mr M. D. Murphy put his knowledge at the club's disposal to answer members' questions. Many problems were solved and queries answered on topics such as filter media, plants and the preparation of wood for use in the aquarium. Slides of club members' fishes were shown and, by answering questions put to him on the various species of fishes, Mr Murphy advised on the keeping of the particular fish with regard to feeding, water conditions and breeding.

... **TROWBRIDGE & D. A. & P.S.** continues to thrive and meetings of between 40 and 50 people are now usual. Visitors and new members are always welcome at meetings (details of which can be obtained from the secretary Mrs S. Scudamore, 45 Trowbridge Road, Bradford-on-Avon, Wilts.). Some of the club meetings recently enjoyed include the pre-Christmas social evening and the annual dinner-dance. More serious matters included a stimulating talk by Mr Wheeler on fishkeeping in general and live-bearers in particular; results of the furnished jar competition held at this meeting were 1, Mr Patrick; 2, Mr Bull; 3, Mr Jones.

... **CHANGE of venue for next month's HUDDERSFIELD T.F.S.** open show is announced. It is to be held now at the United Commercial Travellers Club, Manchester Road, Huddersfield on 10th March (see Dates for Your Diary column).

Dates for Your Diary

2nd March, **FEDERATION OF BRITISH AQUATIC SOCIETIES** Assembly.
10th March, **HUDDERSFIELD T.F.S.** 10th Open Show, United Commercial Travellers Club Manchester Road, Huddersfield. Booking 12.00-2.15 p.m. Schedules from show secretary Mr P. Bone, 1 Bradshaw Drive, Honley, Huddersfield.
21st March, **TOTTENHAM & D. A.S.** Open Show. All enquiries to show secretary Mr S. Moorey, 44 Connon Road, Marwell Hill, London, N.16.
20th April, **THURROCK A.S.** First Open Show. Grapey Lane, Grapey, Essex. Booking 10 a.m.—1.30 p.m. Schedules and entry forms from Mr D. C. M. Darrant, 24 Kingman Road, Stodford-le-Hope, Essex.
21st April, **STOCKTON-ON-TEES A.S.** 3rd Annual Show. St Joseph's Church Hall, Norton. Schedules from Mr J. Chamberlain, 15 Farring Street, Stockton-on-Tees. Phone 64173.
27th April, **WINCHESTER A.S.** 1st Open Show. Schedules available from show

secretary Mr R. Hanchett, 2344 High Street, Eastleigh, Hants.

28th April, **YORK & D. A.S.** Open Show.
4th May, **TROWBRIDGE & D. A.S.** Open Show.

12th May, **BRIDGEND & D. A.S.** 1st Open Show.

12th May, **WORKSOP A. & Z.S.** Open Show.

8th June, **LLANTWIT MAJOR A.S.** Open Show.

12th-16th June, **NATIONAL FURNISHED AQUARIUM EXHIBITION** at St. George's Hall, Bradford 1. Entry open to all.

18th June, **SWILLINGTON A.S.** 3rd Open Show. Schedules available later.

27th-29th June, **BRISTOL T.F.C.** Open Show.

29th June, **BASINGSTOKE & D. A.S.** annual Open Show. Carnival Hall, Basingstoke. Schedules from show secretary, Mr A. Marshall, 61 Pittman Close, Basingstoke, Hants.

14th July, **MEDWAY A.S.** Open Show. St John Fisher School, Chatham, Kent.
27th July, **CROYDON A.S.** Open Show. Stanley Hall, South Norwood, London,

S.E.25. Information from Mr D. H. Crowley, 186 Harrington Road, South Norwood, London, S.E.25.

27-30th August, **PORTSMOUTH A.S.** Open Show. Portsmouth Community Centre, Twyford Avenue. Schedules available from show secretary Mr W. Ryder, 493 Commercial Road, Portsmouth.

28th-31st September, (Provisional), **NOTTINGHAM & D. A.S.** National Open Show.

8th September, **WARRINGTON A.S.** Open Show.

27th-29th September, **BRISTOL A.S.** Open Show. St. Botolph's Parish Hall, Bristol.

THROUGHOUT 1968: Keep your dates with the aid of the 1968 Pocket Diary for Aquarists (5s 6d post free from 1968's address).

Show secretaries are asked to remember to follow up preliminary notifications to us with the addresses of venues, and to let us know time of booking and time of opening to the public as well as the address from which show schedules can be obtained.

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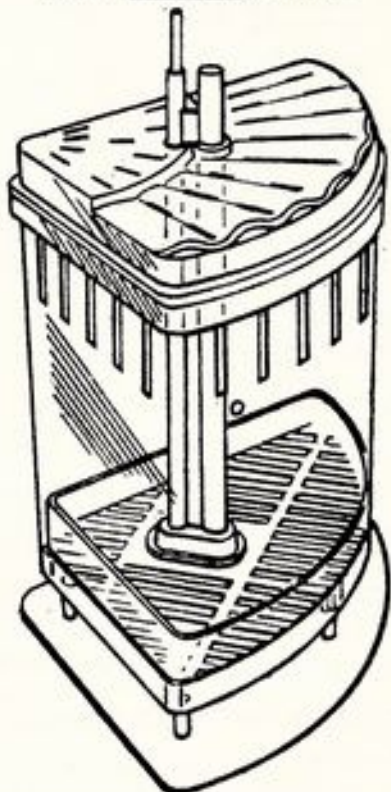
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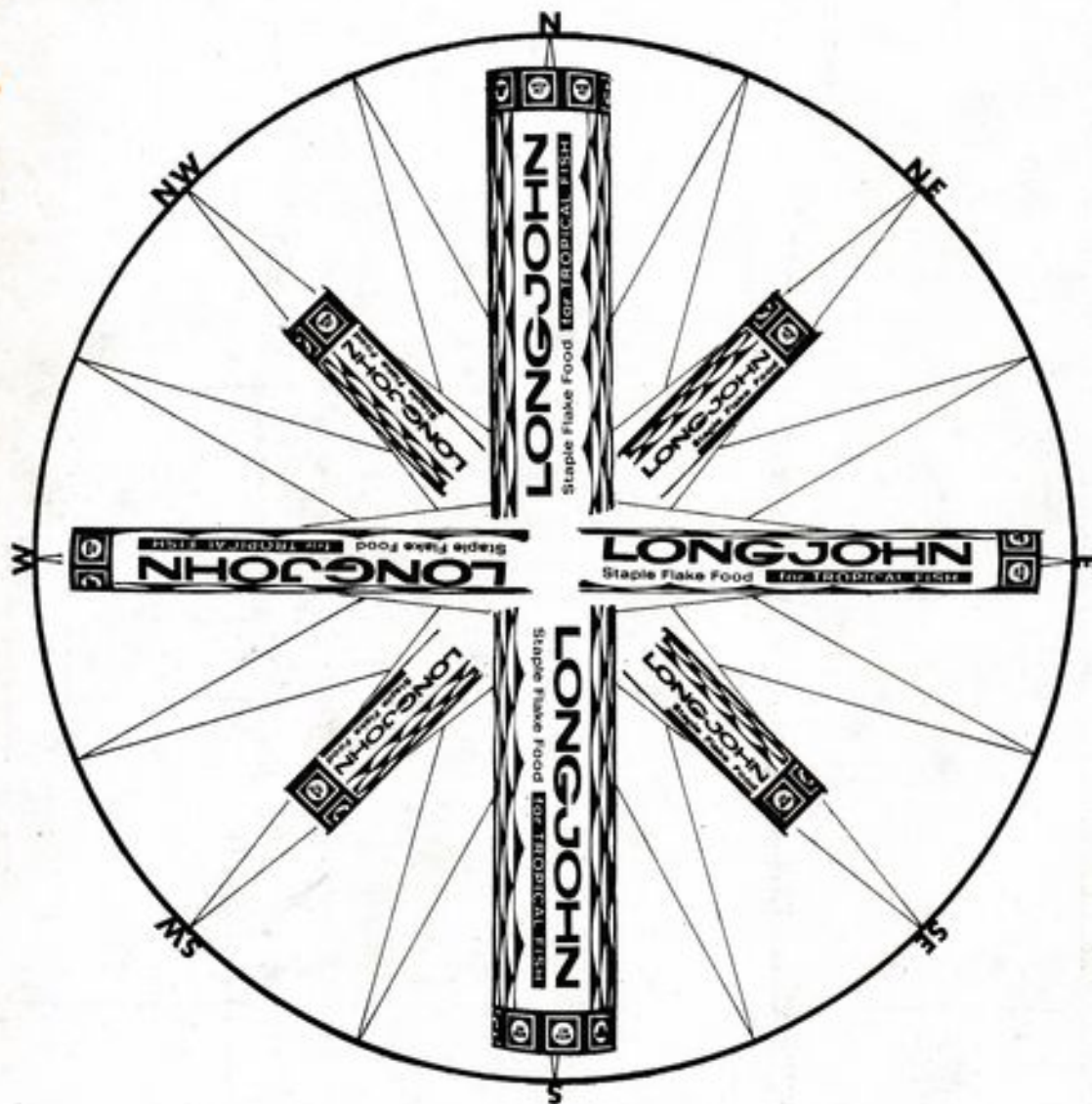
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