Contents include:
The Dolphin Cichlid
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International Worm War

Who ever would have thought it? There we all were believing that our European cousins were letting us into the Common Market for our own sweet natures when the truth is that their bodgy eyes were fixed on one of our most treasured natural resources! In fact, so eager have some members of the Community been to anticipate the access to this treasure that, according to a news item in the Daily Telegraph, smuggling operations have already begun. "The Wapping Worm War" is how the paper headed its story and—you’ve guessed it—it’s our valuable tubifex worm colonies in the lower Thames reaches that have been threatened: "...a thriving illicit export business has sprung up to keep pampered fish on the Continent supplied with the tasty British worm!". However, it seems that this activity is to be countered. Our intrepid Worm Protection Patrols, in the shape of the Thames River Police, are keeping watch to catch the smugglers operating in the Wapping area. Collecting of tubifex is these days a controlled activity, with a limited number of licensed worm collectors being 'recognised' by the Port of London Authority, who think of the tubifex worms as their own.

Actually, both U.K. fishkeepers and aquarists on the Continent, if they really are dependent on our 'tubis', should be getting worried about the future for supplies of this excellent fish food. Every year the Thames is becoming clearer. Fishes have been thriving in regions that once were killer-waters for them. It seems to us that as conditions improve for the fishes they will worsen from the point of view of the tubifex—it is, after all, no secret that their enormous colonies depend on the dispersed sewage solids that have largely constructed the 'mud' banks in which the worms are found. There's a dilemma for the fishkeeper who is also an environmentalist! Worms from any other part of the world could never be acceptable to us; after all, what U.K. aquarist would want to use tubifex nurtured on anything other than good old British sewage?

How 'Easy' are Marines?

Some traders have suggested to us that articles on tropical marines that present the difficulties involved in this section of aquarium-keeping are likely 'to put people off'. We do not agree that this could be the result when the facts are presented as in FISH's current 'Tropical Marine Project' series by Roy Pinks. Our author set out from the start to record all his experiences, good and bad, as a representative freshwater tropical aquarist who had become attracted to marines. We have considered that this is one of the best ways to give interested aquarists an insight into the new techniques and procedure with which the marinist is involved. It is true that there are still two approaches to marine aquarium-keeping being made in this country and that the practical aspects of our current series have not been concerned with the so-called 'natural system'. At the present stage of the marine hobby the more that experience-based observations are recorded and findings are discussed the better it will be for the future, and we shall continue to welcome practical notes from practicing marinists.
LETTERS

Nature and Aquaria

IN reply to Mr Collingbourne’s letter in your August issue, there are a few points I would like to raise. Firstly he is quite correct—Nature does equip fish for their natural surroundings much better than man could, but the majority of our pet fish are kept in aquaria, which is not what Nature designed them for. Mr Collingbourne’s comment on wild fish being more colourful was an interesting one; which particular fish did he have in mind? Surely the original wild guppies and bettas, to name but two, were rather drab compared to those we see nowadays. The females of the species obviously don’t object to this apparently odd coloration or they would not be prepared to mate so easily; the same, of course, can be said for fin shape and size. As for the mutant shapes he refers to, I fail to see how most of these harm the fish in any way. Granted the lengthened fins and benigne growths, referred to as cancerous tumours, may slow down the fish’s swimming speed but in the sensibly populated aquarium it needs neither streamlined speed nor camouflage.

The purpose of any hobby is to provide satisfaction for its followers whilst maintaining or improving the standards of the subject involved. If hobbyists can produce aesthetically pleasing (to most of us) varieties without harming the fish, physically or emotionally, then so much the better.

Ahingdon, Berks. G. R. HALL

Angry Breeders

WITH reference to Mr J. Lee’s letter in your July issue, titled ‘Angry Breeders’, there are procedures laid down regarding complaints about judging at society open shows, and I assume he is complaining about the Northwich Open Show at which FNAS listed judges officiated.

May I suggest to him that if he and the other exhibitors who are dissatisfied with the judges’ decisions feel strongly enough, they should write to the FNAS Council, of which I am a member, who would be prepared to investigate their complaints.

I would also like to point out to exhibitors in general that if they do not complain to the proper authorities but prefer to moan amongst fellow aquarists there isn’t much hope of any remedy being found. Having said all this I would point out that judges are only human, but if blatant flaunting of rules and conditions are carried out some sort of investigation should take place.

Manchester M25 6QA

Daniel Glen
Assistant Secretary
Federation of Northern Aquarium Societies

WITH reference to the letter ‘Angry Breeders’ (PFM, July), this spokesman for a ‘group of top breeders’ should have said ‘pot-hunters’. There seems to be a group of about a dozen people going to shows with the foregone conclusion that they must win; if they don’t it is the judge who is condemned.

Let us take the example the correspondent quotes, the show in Cheshire. The zebras which won were in very good condition, evenly matched and very good size and must have been very highly pointed on everything except ‘difficulty of breeding’. The 2-2½ in. discus quoted, which were second, were over 12 months old but still only 2-2½ in. and badly matched for size. I think the owner must have been optimistic even entering them. The judges have my support and sympathy in judging this class and for picking the best fish and not succumbing to the clique and their pot-hunting pets.

I think the thing which upset the ‘top breeders’ most was the fact that the young man who won the class was a junior at only his third open show. The only way to overcome this moaning is for the breakdown of the marks of the top three in each class to be put on view and not just the total.

If you print this letter please omit my name and address, because I enter open shows and some of these ‘top breeders’ are also ‘top judges’, but that’s another story.

Halifax Aquarist

Guppy Colour Standards

PLER UnWIN’S remarks on the subdivision of standards into colour classes (July, 1972) took me rather by surprise, if only for the fact that their rationale is elusive. Take, for example, Mr Unwin’s statement that ‘Some blue guppies

Continued on page 219
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LETTERS

continued from page 312

look distinctly green. Now, I am not quite sure what Mr Unwin means when he states this, as I have never seen a blue guppy which was actually green. Barring fluctuant colour-blindness, I can only suppose that Mr Unwin is referring to the fact that there are blue-green guppies, and that these guppies are relatively difficult to classify. This thought, is hardly a startling revelation since it is not uncommon for a single strain of guppy to throw blue, green and blue-green fish. Furthermore; the entire problem can easily be solved by combining the blue and green classes into a single blue-green class (something which I, as a nemesis of IFGA thought, have long supported and which was suggested in the April, 1971, FGA Journal by Malcolm Delingpole).

Mr Unwin also states that 'It is one thing to say "red" but quite another if we are called upon to explain "redness" to someone who has never experienced it.' Come now, Mr Unwin! And I suppose it is one thing to say 'guppy', but quite another, and so forth. Again, I can only hope that Mr Unwin was expressing some higher idea than the one which comes across, such as, perhaps, the fact that most 'red' guppies are in fact closer to orange, due either to a lack of overlaying blue guarantee or another genetic imperfection.

But this is not all that Mr Unwin erroneously presents. If I am to believe Mr Unwin, one is unable to distinguish between one colour and several colours, and then Mr Unwin literally creates a problem by throwing in a 'red herring'. 'It is often hard . . . to discriminate . . . red-eyed cream from pink-eyed albino.' The real question is not how to discriminate, in all cases, between the two types, but rather, quite simply, 'why should one even bother?' This is the first suggestion I have heard to class the two types separately.

Also, as if all this was not enough, Mr Unwin closes by offering to 'start the ball rolling' by 'doing away' with the speartail. Such generosity!! To Mr Unwin's question, 'Do I hear any more offers?' I answer, rhetorically, 'Yes, let's get rid of the Unwins!'

Long Beach, California, USA  
B. BROWN

BAOR Aquarists

Myself and a few friends are very keen aquarists but because we are serving with HM Forces in BAOR we are unable to join up with any clubs and would like, if it is not too difficult or costly, to form a club of our own. We would be very grateful for any tips or help from any clubs in England who feel that they are in a position to help us out in any way, regarding necessary documentation, officials etc., and of course it would be nice to be in correspondence with UK clubs to keep abreast of happenings and changes that we miss out on by being away from the country. Would anyone who can help us please write to me at the address given below.

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Two of the component plates of the Rena GE undergravel filter system
A South American Cichlid for the Enthusiast

The Dolphin Cichlid

Aequidens itanyi Puyo

By RUDOLPH ZUKAL

In the autumn of 1966 I took home four specimens of the dolphin cichlid from the well-known firm of H. Hartel in Dresden. The fish stood the fairly long car journey well, although I did lose one fish a week later. Apart from Meinken’s work on the subject I knew nothing about these fish. They were imported for the first time into Europe in 1963 by Heinrich Espe of Bremen, from the chalky, deep and peaceful waters along the tributaries of the lower Itanyi river in French Guiana.

The adult fish have almost egg-shaped bodies, compressed at the sides—in the young fish the body is not so ovoid. Among my three fish I recognised the male by its strong, elongated fins; the two other fish I took to be females, and this later proved to be correct. Both sexes are similar in colour, varying from a light sea-green to cinnamon-brown. A black band stretches from the upper corner of the gill cover to the end of the soft rays of the dorsal fin. Meinken stated that the stripe is not visible in the adult fish and will only appear very occasionally. It is replaced by six black, irregularly shaped, patches stretching across the body. The iris of the eye is green-gold. Males reach a size of about 3½ in., but the female remains somewhat smaller.

As for living quarters, a 30-36 in. community tank is suitable. Smaller inhabitants need not be removed; I have never seen these fish exhibit any aggressive tendencies towards other species.

Photographs by the author

Translation by F. MARSH
Shortly before Christmas of 1966 I noticed that several plants had been up-rooted in one corner of the tank and that two pits had appeared in the sand. Furthermore I could see that the smaller of the two females had torn fins and stayed nervously in the far corner of the tank.

At feeding time this female would rush to pick up her food and then race back to her corner. I recognised from this behaviour the signs that the pair were prepared to spawn, so I immediately prepared a breeding tank (approx. 17 gallons). I laid large stones on the gravel and used normal tapwater at a temperature of 79°F (26°C).

For some time after the pair were put in the tank nothing at all happened. The fish were extremely timid; at every movement outside they rushed through the water and banged against the glass so that I was afraid they would injure themselves. Indeed, for the first 3 days they would not feed. Every time I approached the tank, I did so with extreme caution and carried out every action as slowly as I could. At last, the fish acclimatised themselves to some extent and I was able to take a picture of the male. And that was that for the day! The fish rushed behind the rocks and lost their colour. Imagine my astonishment therefore when next day I saw the female looking at the eggs. They must have spawned during the night.

At first, I was very disappointed because I had wanted to record the event in photographs. Next day, I saw an egg with fungus on it and by the afternoon the whole spawning had disappeared—probably eaten by the male. However, 14 days later the fish spawned in the afternoon, during my absence. This time I was clever and removed the father. But it was useless. The eggs disappeared again, this time eaten by the female.

After this episode I placed the fish together in the tank again and fed them with a plentiful live food diet of suitable size. It occurred to me then, as I prepared for the third spawning, what a great deal of patience we aquarists must have. But this time, patience was rewarded.

The appearance of the female’s ovipositor and the cleaning of the stones was the first sign of the approaching spawning. The first eggs were laid like a string of beads by the female, very carefully,
and not one laid on top of another. The male remained fearful and timid but in spite of this he fertilised the eggs. During the spawning the parents continually changed positions—first the female laid some eggs, then the male fertilised them; then the female returned to her laying position.

After the spawning, although reluctantly because the female was already guarding the eggs, I took both parents out. The rock, with the eggs on it, was placed in a perpendicular position so that the air from a nearby air-stone could travel upwards near them. So success came at last—and not only did I have my set of photographs but I eventually had a handsome count of 300 young dolphin cichlids.

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After the female has deposited some eggs on the stone the male swims closely above them ensuring their fertilisation as the milt is released

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Meetings and Changes of Officers

ABERDEEN AS. President, Mr D. Strachan; vice-president, Mr A. Sayers; PRO, Mr G. M. Rose (34 Berrywell Gardens, Dyce, Aberdeen). Meetings: YMCA Rooms, Union Street.

BISHOPS CLEEVE AS. New Chairman, Mrs J. Bishop.

BRADFORD & DAS. Acting President, Mr Philip Charley; New time, Meetings to commence 7.45 p.m. promptly.

BRISTOL AS. Meetings: second Monday of month, Bishopston Parish Hall, Bristol, 7.45 p.m. Visitors welcome.

CHESTERFIELD & DAS. New venue, Lecture Rooms, New Square, Chesterfield, fortnightly at 7.45 p.m.

HEMEL HEMPTSTEAD AS. Chairman, Mr Alan Tuffs; vice-chairman, Mr Andy Dukles; secretary, Mr J. Stewart (40 Alum Road, Berkhamsted); assistant, Mr R. Halliday; treasurer, Mr G. Whitley; show secretary, Mr S. Collins (6 Pulleys Lane, Hemel Hempstead, Herts); assistant, Mr E. Beer; social secretary, Mrs M. Whitley; Press secretary, editor, Mrs J. Collins; catering, Miss S. Tuffs; librarian, Mr A. Walker; junior representative, David Whitley.

KINGSTON AS. New President and newsletter editor, Mr A. Ashworth.

NOMAD AS. Change of name to CATERHAM NOMAD AS.

NORTH WARWICKSHIRE AS. Change of venue to Pyke Hayes Congregational Church, Chester Road, Pyke Hayes, Birmingham 44 (opposite Pyke Hayes Park), every fourth Thursday of month.

RHONDDA AS. Chairman, Mr G. Pinkham; vice-chairman, Mr D. Hallet; secretary, Mr D. Richards; treasurer, Mr D. Endfield; show secretary, Mr M. Williams; assistant, Mr C. Pick; Minute secretary, Mr T. Click; editor, Mr L. Davies.

STOCKTON-ON-TEES AS. Chairman, Mr W. Bowman; secretary, Mr C. W. Buck (22 Darby Grove, Thornaby, Teesside, TS17 8RX); phone Stockton 853841; treasurer, Mr L. Osman; show secretary, Mr E. Simpson; other officers, Mr D. Keddle, Mr L. Collins, Mr A. Stephenson, Mr B. Osman and Mrs E. Bowman. Meetings: first and third Monday, 7.45 p.m. at the Thirley Inn, Maritime Place, Stockton, Teesside. New members welcome.
Readers' Queries Answered

Fish Nutrition

My hushhounds are doing quite well on their meat and offal diets but does this mean that they will run into trouble with a calcium deficiency, or don't they require quite the same vitamins etc. as we do?

Although information about the precise nutritional requirements of all types of fishes is not available, it is reasonable to assume (and good fishkeeping to act on the assumption) that their dietary needs are much the same as those recognised for other animals and man. Your hushhounds would undoubtedly derive benefit from a whole-fish intake occasionally, most particularly to provide the skeletal elements that you correctly assume to be necessary. Enthusiasts for large predatory fishes usually feed at least occasionally with live fish, such as a goldfish, but you could also see whether your fish is prepared to accept fresh crabs (cut into pieces if necessary) from the fishmonger as an occasional 'extra' to help the supply of minerals and other essentials that might at present be in low supply.

Lime Test

I have some attractive pebbles and would like to know if there is a simple test I could make to tell me if they are limestone.

Immersion of a few of your pebbles in dilute hydrochloric acid (from the chemist) would show if carbonates usually associated with lime are present, since you would then see many small bubbles of carbon dioxide effervescing from the pebbles as the acid reacts with the carbonates. If the tested pebbles are to be used in aquaria they must, of course, be washed vigorously in several changes of water to remove all traces of the hydrochloric acid. This acid is highly corrosive and should be treated with great caution; use it only in glass containers.

Clearing Ponds

I understand there is a 'white peacock' available from chemists which clears the water in fish pools. Could you please give me the name of this substance and the quantity to be used for a 500 gallon pool?

Like natural waters, garden ponds are apt to undergo seasonal clouding and when phoned and healthy they will usually clear spontaneously unless something unusual is causing the trouble. However, the process does take time and in order to speed it up help may be obtained by the use of a proprietary substance (obtainable from an aquatic shop) such as is advertised by Bioaquatic Laboratories or by the use of a pond filter as produced by King British Aquarium Accessories Co. Ltd., combined with a water-circulating device. We do not have any information of the substance that you ask about; compounds are available for clearing swimming pools but these cannot be used with fish or water plants.

Beetle Invasion

Just over a week ago I dug, lined and planted a garden pool 6 ft x 7 ft by 2 ft deep. I put plants in 3 days ago and then I noticed a number of swimming (diving?) beetles. In 2 days I have caught and killed 23 of these and I have hardly caught the lot. The beetles are black and sized from \\ to 1 in. Could these have flown in? I understand golden orfe will kill and eat the larvae, I had intended this pool to be a spawning pool for orfs and fantails. Would it be wise to include a couple of golden orfe?

Many of the aquatic beetles are very strong fliers, moving from one patch of water to another, mostly in the evening, and they will certainly have arrived in your pond by this means. You do not appear certain that it is the great diving beetle that you have in your pond, and in view of the size you quote for them it seems unlikely that it is this species. The main trouble with aquatic beetles is that their larvae can be a nuisance in breeding ponds. The inclusion of orfe would not be a reliable method of eliminating them and the orfe themselves will do as much harm as the larvae in a breeding pond. Persuade with your efforts to catch the beetles when they come to the surface, as they must do to get a fresh supply of air. Your beetles will probably not be breeding in your pond this year— as the adults hibernate during the winter in the mud at the bottom of a pond you could clean your pond out in the late autumn to make certain that no debris is present at the bottom this winter, but there can, of course, be no protection from re-entry of the insects from natural waters next summer.

Bloodworms

About 2 weeks ago I introduced 10 red ramshorn snails into an aquarium in the garden. I was not sure that there are a number of small worm-like creatures, red in colour, about 1 in. long, squirming about in the water. Are these young snails? There is no sign of a shell. If not, can you tell me what they are?

The description you give of the small worm-like creatures—"bloodworms"—about suggests very strongly that they are 'bloodworms', the larval stage of the Chironomus midge. These are a really rich red in colour and although they spend much of their time in mud tubes that they make they can propel themselves about with a contracting movement so that they do appear to be 'squirming'. They are not only harmless to fish but are a very rich food for them and will be snapped up by both coldwater and the larger tropical fishes.

Goldfish Breeding

I am very keen to learn how to breed goldfish. My father has promised he will buy a tank and goldfish. I have read a lot of books but they do not give much detail about the difference between a male and female. I would like to get two pairs of goldfish
could you advise me which goldfish to get?

It is not so easy to breed goldfish in an aquarium as it is in a pond and you should not get an aquarium less than 24 in. by 15 in. by 12 in. in size for this purpose. Again, it is not at all simple to tell which is a male and which is a female fish. It can only be done at all when the goldfish are mature, which is usually not until they are about 18 months old, and during the breeding season from about May to August. Then the females look rounder as they are full of roe and many, but not all, of the males will develop small white spots on their gill covers. A far safer method to start with is to let the fish sort it out for themselves, buying half-a-dozen small assorted fish this year and hopefully these will include both sexes to breed next year. For breeding, the tank should be planted thickly with water plants (it is not necessary to put the plants in gravel—bunches of Elodea densa or hornwort can be submerged in the tank by tying the bunches to a stone or by using lead wire to weight them). At spawning time the fish chase round and round the tank and eggs are released into the plants, but the eggs will be eaten unless the parents are removed as soon as the spawning process is over.

Two from One?

I'm hoping you may be able to explain a mystery. Three weeks ago I bought a lobster, about 6 in. by 6 in. Now instead of one I have two, both the same size. The new one is lighter in color and at first I thought that the original one had shed its shell. So I lifted it out of the tank but it was dead although complete as regards body, legs, eyes and feelers.

You were right the first time when you suspected that your original lobster had merely cast a shell. Crustaceans do shed their shells in this fashion from time to time since the hard chitinous skin or shell cannot grow to accommodate the growing body within. The lobster shell cracks along the centre line of the carapace and the lobster withdraws every part—antennae, legs, eyes—from the inside of the old skin, leaving behind a complete outer skeleton, even down to the eye coverings. The new shell hardens within hours.

Aqua GLOSSARY

No. 2

A PFM guide to the meanings and accepted pronunciation of the scientific names of aquarium subjects, arranged by word-roots in alphabetical order

Cephalo (Greek): head. Pronounced 'keff-al-oh'. A distinctive feature associated with the head region of a fish can appear linked with cephalo(o) in the scientific name, as in the genus name Ophicephalus ('oh-fye-keff-al-us') of the snakeheads (ophis, Greek: snake). Also, the genera Bunocephalus ('bue-no-keff-al-us'), Licecephalus ('lee-see-oh-keff-al-us'), Petrocephalus ('pet-roe-keff-al-us'). Examples in specific names are Abramites microcephalus ('abra-me-tees mick-roe-keff-al-us'), Tilapia macrocephala ('til-ah-pee-ah mac-roe-keff-al-ah').

Echino (Greek): spiny, hedgehog-like. Pronounced 'ek-in-oh'. For example, the generic name of the Amazon swordplants, Echinodorus ('ek-in-oh-dorr-us'), which typically have seeds with 'beaks', giving the fruit a prickly or hedgehog-like appearance (suffix from dor, Greek: spear). Also the marine genera Echidna ('ek-idd-nah') and Echinus ('ek-in-us'); the sea urchin, and the specific name of the prickly-headed goby Paragobius echinocephalus ('par-ah-goy-ee-oh-oh-keff-al-us').

Micro (Greek): small. Pronounced 'mick-roe'. For example, the lamp-eye Micropanax macrophthalmus ('mick-roe-pahn-choks mac-roe-thal-muss') has a generic name meaning 'small panchax'. The specific name of the headstander Abramites microcephalus ('abra-me-tees mick-roe-keff-al-us') draws attention to its small head (cephalo, Greek: head) just as the specific name of Haplochromis microstomus ('hahp-loh-choh-muss mick-roe-rost-o-muss') indicates the small mouth (stom, Greek: mouth) of the marine squirel fish.

Petro (Greek): stone. Pronounced 'pet-roe'. For example, the genus Petrocephalus ('pet-roe-keff-al-us'), literally 'stone-head' (cephalo, Greek: head), very blunt, rounded head. Also the genus of lampreys Petrostoma ('pet-roe-me-zon'), literally 'stone-sucker' (myza, Greek: sucker).

Ptero (Greek): wing, fin. Pronounced 'ter-oh'. For example, the wing-like profile of the angel fish and its flat leaf-like form given the generic name Pterophyllum ('ter-off-ee-um') of phyll, Greek: leaf. Also the fish genera Malapterurus ('mal-ap-ter-ur-us'), Pterophyllum ('ter-oh-lee-bee-aas'), Polypterus ('pol-i-ter-us') and Proteus ('pro-top-ter-us').

Semi (Latin): half or part. Pronounced 'semmy'. Common in specific names: Acanthophthalmus seminocetus ('a-can-thoh-thal-muss semmy-sink-tuss') is the kuli loach and the specific name refers to the half-bands (cinectu, Latin: girdle). Also Barbus semisulcatus ('bar-buss semmy-fash-ee-oh-lah-tuss'), Hemidus semitaeniatus ('hemmy-oh-duhs semmy-tiny-alt-tuss').
Personal COMMENT

The current series in PFM on tropical marine fishkeeping has evoked some useful and controversial comments from readers, which are to be reviewed later. There is one matter, however, which I think cannot wait till then, and it was brought to my attention by Richard Sankey, director of The Tropical Marine Centre, Kingsbury, London. In a most stimulating letter on a range of aspects of the series he informed me that he was soon leaving for the Far East to obtain material to expose the full nature of the collection of marine animals by the use of chemicals. In particular in his letter he quotes the use of sodium cyanide for the collection of fishes in the Philippines. Although the technique enables the shipper to supply cheap fishes, the degradation of the environment is an inevitable sequel, and the atrocity committed on the fishes themselves, which slowly die, is to most of us an invisible and abominable process—and probably a growing one—of which we should all be urgently aware.

It must be tremendously encouraging for those of us who care for the integrity of the hobby and for the sanctity of natural resources in like measure that this effort is being made, and I fear that Mr Sankey’s findings may prove to be more depressing than one could imagine. Coupled with Commander Courtlau’s observations on corals, the reading may indicate that drastic governmental action in the affected locales will prevent an irreversible disaster from happening. It has been pointed out before in PFM, but just how unreliable local administrations can be in this connection, which makes it somewhat of the aquarist in importing countries has some responsibility in the chain of events.

What is at issue? Briefly, the use of certain chemicals in the collection of marine fishes makes them easier to catch and to ship. The effect of such scientific devices is usually residual and the fish dies much sooner than one would have dreamt was possible. What makes it so difficult for the aquarist to detect is that the fish behaves, more or less normally except that it generally declines food. At the point where aquarist and fish first meet this is a common symptom of both drugged and undrugged fish, and as every marine enthusiast knows, success is the moment when the latest specimen takes and retains its first mouthful of food. Every marine fish you buy therefore, which you do not positively know to have been fed in the retailer’s tank, must be suspect. Conversely one may be reasonably sure that fish which are seen to be feeding keenly and behaving in a spirited fashion, will have been acquired by normal methods of capture, and will prove reliable within the limits of the factors of locality in your particular aquaria.

What can be done? One can, as I am now doing, give publicity to the racket, for such it is. We must label those who knowingly participate in it as racketeers and treat them as such. We must find out more about the racket itself and consider countermeasures, in the meantime avoiding any doubtful sources of supply. It is likely that many retailers will be unaware or only partly aware of the problem, and it may therefore pay off for aquarists to question them on this aspect before purchasing their fish. If they are unable to discuss the matter intelligently or avoid the issue it is unlikely that they are going to be very cooperative if you subsequently complain to them about the deaths of new acquisitions attributable to poisoning. Most retailers disclaim responsibility for marines as soon as they are in the plastic bag, anyway.

At this stage I do not know to what extent it is possible to detect the presence of dangerous chemicals in the corpses of fishes after lapses of any given periods of time, but I am following this point up. On the face of it, if post-mortem examinations could establish traces, the purchaser would seem to have legal recourse at retailer level if at the time of purchase he had been assured that he was buying clean stock. I suspect that detection is quite difficult in practice, and if traces diminish as time passes one might even consider the testing of sacrificial fish from each major consignment to establish whether or not there is cause for concern.

It would be greatly reassuring if the trade itself took some steps to underpin the efforts of those like Mr Sankey, and I have no doubt that in time a small proportion of retailers will certify their stocks before sale. This in itself would be an immense boost to confidence, but I am the first to
admit that the terms of such certification would be most difficult to establish within the scanty framework of what we know about the subject at present. In the interests of all concerned I look forward to enlightenment on the issue. Any ideas, however superficially absurd, which might help will also be very welcome, and I shall be most interested to develop the fullest possible probe into this sordid activity in future articles.

We find it rather astonishing that sodium cyanide should be the substance said to be involved, since from the intensely toxic nature of cyanide to living things it would seem unlikely that any recovery could occur that would allow some useful 'catch' after its use. However, whatever the compounds used, and we have heard of others, for catching and for inducing inactivity during transport, the remarks of Arpee are not the least diminished. —exseton.

A verbal agreement is binding in law. Rightly, informal understandings by word of mouth must be held to be sacrosanct if confidence between buyer and seller is to be maintained. How does this work out in practice in the fish business?

When it purely affects the hardware of the hobby I doubt whether there are many complaints from either customer or seller, largely because a lost sale or failure to supply here and there can be compensated for in some other direction. When it comes to terms, there are quite different considerations and the ethics seem to vary greatly between individuals, let alone the groups into which their interests naturally place them. The following shortcomings are by no means exhaustive and no attempt is made to suggest a code of practice, but readers will I am sure have their own views as to what is what, or perhaps as to what should be what.

There is the customer who airsly quotes a list of species and departs with several in a bag, having ostensibly asked the retailer to get him the remainder. The latter, at some cost and difficulty, gets the balance from various sources and is quite put out when the customer has second thoughts when next he visits the shop. There is the other type of customer who reserves various fishes against pay day and who sees things quite differently when the time comes. Other customers are temporarily embarrassed by a lack of space or cash or both and the retailer is asked to hold the best specimens for a week or so. Twenty neon are set aside for the elderly lady who in the event only wants a true pair. The most delicate and expensive specimen in the marine tank is preempted for the company director, who scarcely appreciates that during the 14 days' waiting period before he can accept it, the creature will have eaten a pound's worth of potted shrimp or perhaps half of the next most expensive specimen in the same tank.

Then there is the retailer who can get anything and everything for anyone and usually does so whether he is biased or not. The surprised but inexperienced customer may therefore expect to be confronted from time to time with specimens he has merely thought about but has certainly not ordered. There are other sellers who will keep anything back for you but who sadly announce the death of everything you mention when you later turn up full of expectation. You are less than impressed when you see 'your' fish swimming around in somebody else's tank a few days afterwards. Or you go along to collect that magnificent pair of cardinals, only to be confronted with two stunted dwarf-like creatures difficult to identify as fish at all.

We are all familiar with situations such as these: some of them are amusing and some are highly unethical regardless of viewpoint. If they are to be avoided one can only assume that some universal practice needs to be established, though in so doing it must be realised that offence would be given both ways when it came to enforcement of it. As things are at least the retailer can make his own code irrespective of what customers and customers can go elsewhere if they don't like the treatment they get. Disapproval is shown in various subtle ways, more telling in the long run than the reactions in the law courts, and generally the message gets across.

One of the trickiest things to get right is just what the course of action should be in the case where a customer has reserved without deposit a quite valuable fish which subsequently dies whilst in the custody of the retailer. This is matched by the embarrassment of wondering whether or not to decline acceptance of a fish which a retailer has obtained for a customer, which turns out to be both overpriced and of poor quality. In the absence of any clear guidance about this sort of thing—and irrespective of what the law precisely requires—there is fertile ground for the most unpleasant of misunderstandings.

I am almost persuaded that only a really tough and impartial attitude on the part of both parties is the logical solution to these situations, but have personally found that a large measure of goodwill exists in the trade, which operates more in favour of the customer than against him. It strikes me that if the customer saw himself in the retailer's shoes more often fewer dilemmas would arise. Such would at any rate make it easier for the buyer with a genuine grouse to get a fair hearing. On numerical grounds alone his chances would seem greatly enhanced.
How a Greenhouse can be Used as a
Small-Scale Fish House

By F. W. COLES

FOR very many years people with greenhouses have kept fishes in them, it having been recognised that mutual advantages could accrue from this association. In the past it has been the cold-water side of fish-keeping where this has occurred, and the main interest has, in most cases, been in the plants, the fishes being in some cases merely to keep down the algae in the greenhouse ponds! Some people with an equal interest in both fishes and plants have kept fancy goldfish as a vital part of their hobby. The advantage of having water in a greenhouse, to provide a humid atmosphere, is well known to gardeners, and ponds have been sunk in the centre of large greenhouses and boarded over where a path is necessary. In some smaller houses, a border has been replaced by a pond to provide the same result.

Nothing has changed in this partnership of fishes and plants today with, of course, the exception that aerosol chemical sprays cannot be used where fishes are present, and an insecticide of a non-toxic nature must, of necessity, be used instead.

Tropical fishkeepers usually commence with a tank in the house, and gradually accumulate more as their interests widen, until the lady of the house puts her foot down about the number of tanks, and alternative accommodation must be sought. Many people thereupon go the whole hog, and acquire a fish house, either by building one, or buying a wooden building to convert into one.

If a brick building is built the inevitable condensation is no worry, but in a wooden building this can have a very deleterious effect, and shorten the life of the hut seriously. The method of insulation has a large bearing on this, but even if an inert and non-hygrosopic material like polystyrene is used, condensation will occur behind it, in every crack and crevice, and in really cold spells the place can be streaming. Space heating will largely nullify this, but, in most aquarists' houses it is not used for one reason or another.

It is usual in visiting fanciers' establishments to find all manner of buildings, insulations and heating being used, but it is very rare indeed to find tropicales being kept in greenhouses. But why is it not done? On the face of things the advantages and disadvantages are similar to coldwater fish-keeping; and coldwater fishes are kept in greenhouses.

A greenhouse is warm in summer, and very little electricity would be used in the tanks. True, the ventilation would have to be watched, as small greenhouses can get very warm indeed in summer. The fish we keep, however, will be subjected to similar temperatures naturally, so that should be no problem. No artificial lighting will be needed at all, which will be another saving in electricity, there being an excess of light available necessitating the careful choice of aspect for the tanks. Facing north would be good, or west may be even better to make use of the evening sun. The tanks will need to be screened to prevent the excess growth of algae, but as they will need insulating against cold if the greenhouse is unheated in winter, perhaps the best solution would be to build round them an insulated cabinet, which will provide both requirements.

This cabinet could be provided fairly cheaply by using 2 in. by 1 in. battens to make the framework, and covering the outside with hardboard. The tanks themselves could be double-glazed at the front by putting another glass against the angle-iron frame: the small ½ in. airspace between the two glasses would help, too. It will be necessary to keep the tanks covered by glass, and in this connection it can be arranged for the cover glass to slope one way so that the inevitable condensation will run back into the tank without standing on the top of the tank frame and causing rust.

An overall door for the front of the cabinet can be made of 2 in. by 1 in. wood, with strips of ½ in. round beading tacked on to provide a seating for the glass, which can also be retained by similar beading on the other side. This is better than using putty, as a broken pane can be replaced quite quickly if panel pins are used to fix the beading. It would be better to make the door to lift off rather than being hinged, space being at a premium in small greenhouses, but it should be arranged so that it is a close fit round the frame to prevent the loss of heat as much as possible.

The door would not need to be used except in winter and could be laid aside during the warmer months.

A small experimental set-up has been in operation here for a few months, involving three 24 in. by 15 in. by 12 in. tanks (the tanks being 15 in. wide, instead of 15 in. high), and it is be-
coming apparent that the fishes are much healthier and more lively in their new environment. It has also shown that plants are growing much more satisfactorily in the daylight now available, and it seems that livebearers in particular relish these conditions. The tanks are screened except for the front quarter of the top, and about 2 in. down the front, as this keeps the growth of algae down to a reasonable amount and yet provides full daylight in part of the tank, and shadow in the rest, and the fishes can choose the position they feel they need, and indeed can frequently be found using both areas. This screening at the moment is temporary and is provided with pieces of hardboard, laid on top of the tanks and fastened to the fronts by clips. At the moment it is adjustable, but when an optimum arrangement is achieved a more permanent (and I hope more handsome) arrangement will be made.

This project would probably never have been started if a really efficient power filter had not been available, it being thought that any accumulation of green water could very quickly be rectified by the use of the filter. The normal air-driven filter, unless left on all the time, would not cope, and probably would not give results quickly enough to allow it to be transferred from tank to tank as necessity arose. So far it has only been necessary to use it on the top tank of the three, which seems to need more shading than the other two, but it is hoped to adjust this in time.

Another thing is that when one is frequently in the greenhouse the urge to grow plants increases, and setting up a small tank or two for this purpose alone becomes a feasible proposition. Plants have an unfortunate fate with many people because they are forgotten so often, but this does not occur when the greenhouse must be visited to tend to the fish.

This opens up the possibility of experimenting with plants, and growing the same kind both as submerged and partially submerged subjects. Indeed the plant can also be grown as a marginal type in soil with only the roots in water, and under these conditions (natural to so many of our aquarium plants) they can be flowered, the seed harvested and new ones grown, which could be better plants with increased vigour, as vegetative reproduction does tend to weaken the subject after a time.

The one thing which must be stressed in trying this kind of arrangement is that care must be taken in using the modern types of insecticide in the greenhouse but, apart from that, many people without a fish house could run more tanks than can be accommodated in the home, if a small part of the greenhouse can be spared to accommodate the tropicales. The most fanatical plant grower will have to admit that a more humid atmosphere, which the tanks will provide, can be of benefit to his plants, even if the aquarist side of his hobby is merely a sideline.

Wanted or Unwanted in the Marine Tank?

Coping with Copepods

SHOWING the exciting 'newness' of the marine branch of our hobby is the example of diversity of experiences reported with copepods.

In the past I have read of aquarists who have gone to great lengths to rid marine tanks completely of these crustaceans and who, having done so, have a determination never to let them 'darken their doorsteps' again. This I believe may lose them a valuable asset, for I have no doubt that the right kinds of copepods can be very beneficial if used properly by the discerning aquarist.

The copepod that I have found useful is typically very similar in body structure to the common European freshwater species Cyclops albida, but does not grow quite so large, but it does have the same properties as C. albida as a fish food. The first antennae are absent and the rami of the tail are more elongated. It is snapped up readily by marine fishes, who recognise it as a small part of their previous natural habitat! I raise this particular fellow profusely in sea water jars at aquarium temperature and feed the fish at least once daily. I use sub-gravel filtration on my tanks and this seems to suit this copepod immensely.

Those copepods that take cover remain alive for their natural lifespan, unless, as is usually the case, they are subsequently spotted by some browsing fish and rapidly eaten. The larval stage, known as a nauplius, is too small to be eaten by adult fishes but will rapidly grow in the aquarium, giving a natural environmental food.

The copepods feed on microscopic plant and animal organisms and will therefore serve to provide vital trace elements in the diet of our fish.

Günter Stierba in some of his work reminded us that 'cyclops' were more valuable as a fish food than daphnia, and where would we be 'freshwater-wise' without this?
Different species of cyclops are difficult to identify but whether those with long antennae like Cyclops strenuus, Diaptomus cencius, or D. gracilis or those with short antennae like Canthocampus stenophilus, their value to the aquarist is without doubt.

Marine cyclops are even harder to distinguish and some are very easily confused with some of the parasitic plankton, so obviously the choice of a suitable live food is important and anything 'sipping' out from 'living rock' should be eyed with suspicion.

The ease with which copepods are raised makes them a year-round supply of live foods. I place seven jams jars on the cover glass of a tank and fill these with tank sea water. I put a shell or coral piece in each jar from the tank bottom and 'seed' each jar with copepods. No feeding is necessary as the light will produce the food needed in each jar; after a few days, when the copepods have established themselves, I use the jars in rotation, just tipping half of the water in the aquarium and then topping up the jar with tank water again.

I have noticed this food 'worrying' the butterflies, who appear not to know where to feed first with all the delicious live food around. I have had sea horses browsing from the rocks for 10-12 hours a day and reaching mating condition in a community aquarium.

Some of the fish I have watched looking into the feeding of 'filter feeders' the nauplius stage providing your own 'plankton'.

Should you wish to eliminate copepods from the aquarium for some reason, then a normal dose of Scaren or something similar will soon wipe them out, but do not use treated aquarium water for topping up your copepod breeding jars, or you may lose the whole batch, until the effectiveness of the remedy wears off.

I have also watched small anemones and shrimps eating this form of live food, and feel very happy knowing that, when deciding whether to feed the fish or not and striving to obtain that all-important balance of 'enough but not over feeding', if a fish misses out on the flake, freeze-dried or fresh, it can catch its own meal, especially that newly added fish spending its time fearfully in some coral cave.

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**GUPPY WORLD**

A word of advice in the ear of any guppy breeder anxious to produce the 'zebrinus' type. (For the uninitiated, this trait shows itself as a series of vertical, pigmented bars in the caudal peduncle region of the male. For the absolute beginner, the caudal peduncle area is the narrow portion of the body where the tail joins it.)

Female guppies being the enigma they are, the breeder usually selects a male displaying this trait and crosses it with any female he can lay his hands on. The male, in the geneticist's terms, is homozygous for zebrinus (ZZ) and the female is either Zz or zz (zz females carry no zebrinus whatsoever.) Because all the male fry of this mating display the zebra-like markings the breeder is lulled into thinking that there is a sex-linked trait found on the male Y chromosome. Don't you believe it!

If you test the female progeny by using methyltestosterone you will find that they are carrying the stripes, even if they do not display them. If that hormone test is beyond you, try crossing brother to sister (full sibling); the results of this cross will usually produce 75% zebrinus and 25% non-zebrinus.

This gene is located on either an X chromosome or on an autosome, a fact which should simplify future breeding programmes.

By PETER UNWIN

The main drawback to writing a regular guppy feature is that some of what you have to say has already been said before. This is fine for the beginner or the man who missed it the first time around but might irritate the regular reader.

One idea I saw recently seemed new to me, though having said that no doubt some future 'Reader's Letter' will quickly shoot me down in flames.

However, undaunted I continue... This particular aquarist made use of 24 in. by 15 in. by 12 in. tanks (the extra 3 inches being on the tank depth).

He filled these tanks initially with just 3 inches of water, in which he placed his newly born fry. In such a quantity of water they readily found the newly hatched shrimp used as a first food.

As the guppies grew, the breeder added water to the tank until it was filled to the brim, arranged so that this coincided with the development of the adult fish.

Judging by the magnificence of the adults I witnessed on my visit the fish had benefited from their tailor-made surroundings.

Continued on page 231
A POPULAR RIVULIN

Rivulus
cylindraceus

By J. LEE

Photo: R. ZUKAL

Pair of Rivulus cylindraceus: the male is the darker-coloured fish

It is often difficult to describe the coloration of the fish that we see in our hobby and even when they are swimming about in their tank in front of us many of them look alike. This certainly applies to the family of toothcarchs that I am about to describe—the rivulins, a group of the family Cyprinodontidae.

Rivulus cylindraceus is a well-behaved fish and will often remain motionless in front of the tank so that it can be inspected very thoroughly, but even so its coloration is not easy to describe. Unlike many in its group it is not a brilliantly hued fish but given the right environment it looks well in the tank. The female is a pale olive to brown colour with a faint trace of green in the fins. Her dorsal and anal fins are rounded and smaller than the male’s and there is a plain dark patch with a gold or yellow surround in the top portion of her caudal peduncle.

The full size of the species and a size suitable for good breeding results is about 2-2.5 in.—the females as a rule being slightly larger than the male. The male has a chocolate to dark-brown coloured back. A dark brown or greenish line divides the body horizontally. Below the line his belly region is a reddish-orange colour that deepens in the throat region, and the whole of the body is peppered with dark green and tiny red spots. There are black patches in the caudal and a touch of white in the dorsal; the other fins bear a trace of orange when the fish gets excited.

The tank I prepared for breeding my specimens happened to be one that I had made myself and it was a rather unusual size—22 in. by 9 in. by 9 in. I followed my usual routine of disinfecting it thoroughly and selecting the place in which to set it up. I prepared the water from aged and matured water and fresh soft water sources which, on testing, showed about 8° D.H. water hardness. The mixture was well agitated and aerated and allowed to stand for a few days. At the time of spawning the temperature was 73-7½° F (23-24°C). I floated a dense layer of Rivia on the surface and planted a selection of Eichh. alfredi, Ludwigia, Vallisneria and hornwort. The pair of fish seemed to approve thoroughly of this set-up and started to breed almost at once.
Now for their strange breeding behaviour. The male suddenly put on his best coat of colours and appeared to approach the female in a most pugnacious manner. For a while an endless chase took place with the male becoming increasingly persistent. The female, however, seemed to have other ideas—when pursued too hard she took refuge in the thickest part of the spawning site and, sinking to the bottom of the tank she lost all her colour and lay there as if she were dead or planning ‘possum’, obviously showing her partner that she had lost all interest in his bustling behaviour.

A word of warning at this point in connection with this species. Unless they are well fed at the time of spawning, or have a dense carpet of plant life on the top of the spawning tank, the parents will eat the eggs, to which they are extremely partial.

The spawning process continues for a few days until the female is spent. The eggs cling to the plants and to the Ricia at the surface. At this stage, either the parent fish can be removed or, if you have more fish to spawn, the female can be removed and replaced by another; in this case the plants must also be removed and replaced by fresh. The eggs should be shaded from too much light and the fry will hatch over a period of 8-14 days. While housing the eggs during this period make quite certain that you have eliminated all the snails that might be in the plants or the snails will eat the eggs for you.

When rearing the fry I have found that first feeding with Infusoria and the yolk of an egg squeezed through fine muslin with frequent partial water changes play a big part in their quick growth. Because of the fact that the eggs hatch in relays and some fry are much smaller than others it is easy to overfeed the tank. Bear this in mind or pollution will result in a tankful of dead fish. Once out of the fry stage the young fish feed heavily on micro worms and Grindal worms. A little trouble may develop amongst the males when they begin to reach adult size, but bullies can be separated out and removed.

An interesting feature about the Rivulus is the way in which they will jump out of the water surface and, using their fins like rubber suckers, will stick to the cover glass. I once had a tank of mixed Rivulus and the worst offenders in this respect were some Rivulus hartii. Until I got used to this trick I had averaged one fish per night on the floor when removing the cover glass to feed. These fish will stick to the glass, out of the water, for as long as 12 hours or more without moving. Before some would move I have had gently to remove them myself before dropping them back into the tank. Then within 10 minutes the same fish would jump up and stick itself to the cover glass again. This habit became a source of great amusement to my wife when she went into the fish house to feed them in the afternoons—there could be up to two dozen Rivulus sticking to the cover glass as if asleep. So an essential rule to the keeping of these fish is—a good, tight cover to the tank.

Mr. Brian TATE of the British Killifish Association writes: It is annual renewal time for The British Killifish Association, so if you are interested in joining, now is the best time. Membership subscriptions are: inland £2.50, overseas £3.50, and cheques made payable to the above Association can be sent to the BKA registrar, Mr. W. Daven, 28 Shaw Rd, Tipton, Staffs, England. Any enquiries for the Association’s slide shows can be made to the BKA services secretary, Mr. F. Bottom, 22 Arnham Rd, Willenhall, Staffs. If you wish to meet the BKA in action, then come along to the Killifish Only Show organised by the Collingham Group, Wetherby, Yorkshire. This annual show is to be held on the 10th September at Collingham. For general information about the Association contact the BKA secretary, Mr. K. Jenkinson, 12 Whitehead Bnd, Whithern, West Lothian, Scotland, enclosing a stamped addressed envelope.

Guppy World

continued from page 229

are guppies that are not hungry or active; make a mental note and during the next meal time check those particular fish carefully. If they are still off their grub then isolate them in another 'hospital' tank (ensuring, of course, that at least half the water has been transferred from their original tank).

If you are fortunate to have a member of the family who is too old for Gypsy and too young for Danny La Rue, get them to siphon out a third of the tank each week—it works wonders for both the guppies and the youngster’s pocket money!

Unlike the average showman-fishkeeper, the guppistastic is noted for his profusely of entries. One show I remember well saw one exhibitor alone benching 80 entries! When time is at a premium, collecting and jar-ing these fish on the morning of the event can be a harrowing experience, the result of such efforts usually being that the family come in for some unwarranted criticism just because our nerves are on edge. Yet this needn’t be.

Take my tip and set aside two aquaria with water from your other guppy tanks, devoid of plants and gravel, the only other contents being a stone or water circulatory device, plus the heater and stat. With a felt pen, mark their front glasses: one for males, the other for females.

On the night before the show, consult your Standards Handbook and select the entries you wish to exhibit. Make a note of what they are and transfer the fish to the appropriate reserve aquarium previously mentioned. Some live daphnia will take the edge off their appetites and keep them busy. When all the intended entries are thus transferred, cover both tanks with pieces of close-fitting styrofoam.

Collecting up next morning now becomes an easy and pleasant task, and what’s more you have ensured that you do not miss any, a happening so common when you are trying to find fish that will insist on playing hide-and-seek in the normal planted aquarium.

On returning from the show, replace the fish in your two reserve tanks and return them to their permanent homes later in the week.
TROPICAL MARINE PROJECT—8

Tried and Trusted

CLOWNS and DAMSELS

FIRST thing you are told about selecting tropical marines is that if you want eternal peace you should select only one specimen of each species for each tank. This, of course, is nonsense—or, at least, qualified nonsense. Probably nothing looks worse than a tankful of single specimens. In freshwater fishkeeping what really makes a community tank is a well chosen shoal of one single species, which looks good in its own right and enhances the charms of the remaining occupants of the tank.

To achieve this in a marine aquarium is considerably more difficult and there are not very many species that can be assembled economically to form this central group. There are species which naturally shoal, but such are the physical—and possibly the psychological—constraints in the average sized tank, that it is too much to expect these habits reliably to prevail. In some cases you might get away with it, in others, you would not. An example is the blue-green fork-tailed damsel (Chromis cyanae), which seems less quarrelsome in the company of its own kind than does many other damsel fishes, but since they will grow fairly quickly a careful watch must be kept on the adequacy of accommodation, particularly when they are associated with other species.

My own choice for a small school fell on the common percula clown, whose orange and white markings and graceful deportment have immediate appeal to the most sceptical. This fish is never expensive and one can obtain specimens of varying

By ROY PINKS

Photograph by BARRY PENGELLY

Not an unduly quarrelsome species, the tomato clown (Amphiprion ocellaris) is an extremely brightly coloured (blood red and white) tropical marine that is rated by the author as a good choice for the beginner's first aquarium.

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wonder what the outcome might be. Clam shells, with their inviting interiors, also give the clownfish a certain amount of amusement, yet they spend less time in these fascinating places than I expected.

All in all, they have been an unqualified success and I think the average beginner would find them a fair test of his abilities. I must stress, as for all marines, that only perfect specimens which have been in a dealer's stock tank for several weeks should be accepted by the novice. This will enable him to get some degree of 'feel' for what is a good specimen and what is not. Marines have superb colours, even at the point of death, so freshwater standards cannot be applied. Solid, meaty, and glowing fishes, with clear eyes and no body blemishes whatever, are the ones to look for, and at first refuse all else. The whole clown group is attractive in a community sense, though one avoids associating maroons with tomatoes, so they say.

There are the most appalling pitfalls in trying to form shoals from some of the other clownfishes, so that this is best left to others to experiment with, and for us to read about. It is common belief that clowns are susceptible to oodinum after a water change, and my own experience rather goes along with this proposition. For this reason the three-stage copper sulphate treatment, described earlier in this series, seems to be a particularly wise precaution to take whenever introducing new fish of this group to an established tank. Apart from this, and a tendency to be choosy about their food at times, the percula clown is a real winner, and I doubt whether even experienced marinists will be able to recommend another species so clearly filling the bill as a shoal fish.

You must not expect clowns to disport themselves in the same way as a shoal of bloodfins, shall we say. Their whole method of locomotion is as different as two things can be, and the clowns will be found tumbling their way around the place, quite lacking the rapier-like quality of freshwater schooling species. These gyrations may often give the fishkeeper quite a nasty turn because they are so suggestive of immediately imminent death. Some specimens stand on their tails and others roll awkwardly from side to side. Others will be found feebly wallowing in the upper water in the corner of the tank, possibly standing on their heads from time to time. This is all part of the act, and recovery is swift and certain if you make any attempt to catch them. The worst symptom is a tendency to rest on the floor of the tank, and if this happens too frequently you should keep a close check on things until matters are restored to normal.

My own trio of perchulas keeps company with numerous other species, but none of these are clowns. For all their beauty they can tangle with one another rather badly, and the bigger they get the more unpredictable do they become. I have a small tomato clown in my 24 in. tank and it has been a constant source of delight, possibly because there are no other clownfish for it to compete with. Next to the percula I regard it as a good choice for the first tank, because at about the 2 in. mark it is not unduly quarrelsome and its colour, a most brilliant light blood red and white, is one of the very finest sights in the tropical marine aquarium. The particular specimen I have is almost unique in one respect, in that it appears to put whiteworm quite low on its list of food preferences. It nevertheless has a good appetite for Tetramin flake food and similar preparations, and I have also found that Phillips' flaked fish food, which is universally popular with species that accept this type of substance, is especially favoured.

Foremost amongst my initial selection were fishes that created an immediate and startling visual appeal. One cannot be blamed for this approach, because there is nothing very subtle about tropical marines and if it is their lavish and brilliant colouring that attracts you—and why not, indeed—you might as well make a real feature of it. The temptation, therefore, to pack as many types of clownfish as possible into a community tank will probably not pay off. Not only may individuals turn nasty, but their sameness of style may give rise to regrets. If there is ever a tank to spare, though, some clowns associated with anemones would be my immediate choice, for there is another matter altogether! A marine spawning is always news.

The damselfish were the next group to choose from because they fulfilled two of the requirements demanded by the beginner. One is that they should be hardy, and the other that they should be eye-catching and preferably cheap. Here they score all the way along the line, but they do have the very serious drawback that aggressiveness over territory is part of their nature. Let us examine this for a moment, for it is not the passing unpleasantnesses one encounters in freshwater community fishkeeping, but fierce and fundamental determination to fight and to destroy, such as one associates with the more predatory and larger types of cichlid.

This unfortunate tendency is both unpredictable and variable and can be individual. It could be said that the smaller the specimens the less likely will be the incidence of trouble, and further, it is wise always to put the little fish into your tank first, followed by the bigger and perhaps fiercer species at a later date. Although this is not guaranteed to work it has been found to be a safer plan than the addition of small fish to tanks already 'owned' by large boss fish, who nearly always make life intolerable for newcomers, often with fatal results.

Perhaps the yellow-tailed blue damsel and the blue damsel are the most exciting of the 'simple' fishes. Their range of colour, according to mood,
from palest blue to a shimmering emerald green, is truly magnificent and is reminiscent of some of the finest possibilities of the Siamese fighter. I have a slight preference for the yellowtail on account of the colour contrast, and I must admit that my diminutive specimen, which I bought a little over 6 months ago and which hasn’t grown at all, excepting in personality, makes me very partial to this species. This particular mate has suffered some quite harrowing treatment from other damselfish, but has always kept its end up. It lives in a nook in the coral at the front of the tank, and it is perpetually in evidence. It has never had a day’s sickness, nor has it spurned my food offerings. It has assumed superb condition and has kept out of scraps. Considering its size in relation to its companions, it is also quite a wonder that it has any fins left!

In the larger tank there lives the blue damselfish, which was given a truly terrible time for a whole week after joining that community, by a Dascyllus aruanus (black and white striped damselfish), sized and abetted by a D. trimaculatus (domino damsel). It resembles the yellowtail in general habits, though it excavates the aquarium gravel diligently and to a far greater extent, and is often seen carrying lumps of it in its mouth from one end of the tank to the other. Both of these fishes have behaved acceptably as community specimens, and certainly their colour contribution has been more than a justification for the modest investment called for.

Three other fishes of the damselfish group—the domino, and the two forms of striped damselfish (Dascyllus melanosoma and D. aruanus), need perhaps a little more careful consideration. The jet black and unusually discoid body shape of the domino, associated with its three white ’eyes’, seems justification enough for the inclusion of this fish in a novice collection, and provided that the fish is a small one I agree that the overall effect is both unusual and agreeable. This species can reach a size of several inches, though, and I think it unwise to buy the larger specimens, not just because these tend towards enhanced spitefulness, but also because age is said to bring about a degradation of colour from the jet black to a more muddiness, and this is indeed a sad thing and no real recommendation at all.

My dominos have been rather more aggressive than the blues but less aggressive than the striped dascyllus. On the other hand, I cannot say that the death of one and the fact that the second had lymphosarcin when I bought it, have convinced me that this is a particularly healthy fish, but I suspect that I have been oddly fortunate in this respect.

Much more care is required when choosing specimens of the striped damselfish, because here one is on very doubtful ground. D. aruanus (which has the normal tail) seems to be more aggressive than D. melanosoma (which has the black tail). Its body shape, however, is rather more pleasing—chubbier, and the stripes seem to me to be more becoming.

They are both very striking species, however, and I feel that one can hardly pass them by as pure showpieces. If I had to choose I would opt for the melanosoma because I think it is a better bet as a communal proposition. The aruanus, even in the smaller sizes, can be a real brute, and unless very careful measures are taken to provide a tank layout designed to combat the worst tendencies of such fussy characters, lots of trouble can ensue.

It will be found, with experience, that fish like this may pick quarrels only with those of their own kind or with those of the same family, but it should not be assumed that what happens in one tank will necessarily hold good in another. The Dascyllus in my small tank gives the neon goby quite a bad time, but in the larger community the goby goes his way quite unmolested, and the Dascyllus there is perhaps the fiercest fish I have. Orange, white, red, blue, blue-green, black, white and blue stripes all look wonderful together, and when you add a touch of blue-tinted pink damselfish you have what looks like a really complete collection. This little fish, only about an inch long when I bought it, was, and still is, a breathtaking beauty, and its rather longer than usual fins (ventral and anal are black dashed with blue), make it reminiscent of a humming bird, for its mobility and daintiness also match the part.

The specimen in my collection has doubled its size without losing its colour appeal, and I hope very much that it will retain its characteristics into old age. The pink sheen of its underparts is seen into prominence as it flashes around the tank and it often stands on its tail and does a sort of pirouette in mid-water, presumably in protest against another member of the community. It is not an aggressive fish but somehow seems to get into disfavour with both the tomato clown and the Dascyllus, no doubt because it is no respecter of territory. For this reason it has parted with bits of fin from time to time but its rate of recovery has been very swift. For some months it suffered from a succession of white lumps on the body, and at times I thought it would succumb, not because it looked sick but because the growths looked so formidable. The ministrations of the neon goby and perhaps the addition of some copper sulphate may have turned the tide, because today it is as clean as a whistle. It might even have benefited from my particular brand of aquarium-keeping, but I am not pressing this notion.

Of the fishes mentioned in this article, none cost more than £1. 50 with the exception of the tomato clown, which was a little over £2. It is true that none of them are unusual recommendations for the beginner but some of the exclusions may attract comment. Their great value to me, and I hope to many readers, will lie in their proven worthiness to
the novice, subject to the reservations I have listed. Their survival alone would not induce me to raise a single word in their favour, but their clear improvement over albeit a shortish period of 4.5 months makes me optimistic that the easier tropical marines are a reasonable challenge to any fish-keeper who is prepared first to read up his subject, and secondly to apply himself honestly but not unduly energetically to this branch of the hobby.

My next article will deal with the more difficult fishes involved in my experiment, with special emphasis on maintaining maximum diversity of colour and form in a community environment.

To be continued

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**Is it New to You?**

Photographs by CLIFF HARRISON

**The Pearl Sucker Cat**

*Ancistrus hoplogenys*

A South American catfish that has turned up in imports recently is the pearl sucker catfish *Aancistrus hoplogenys*. The specimen pictured here is owned by Mr Derek Lambourne and was photographed in one of his aquaria.

A member of the Loricariidae family, *Ancistrus hoplogenys* is a very accommodating fish. Its natural habitat ranges over the upper two-thirds of the South American continent and it can tolerate a wide range of conditions—temperatures from the mid-sixties to the mid-eighties (°F) and water conditions, varying from fresh to brackish (as long as it is not too salty). About 5 in. is said to be its maximum length. It is a nocturnal fish and will accept dried and live food. Some colour variation has been noted between specimens which may be anything from a blue-black to a deep shade of grey. Mr Lambourne’s catfish could only be induced to have its underside photographed by being ‘shooed’ against the glass, which accounts for the hand to be seen behind the fish in the picture on the right.
Breeding the

DWARF RAINBOW CICHLID

By JAMES DUNBAR

Photographs by
the author

I had not been keeping fishes very long when I spotted in one of my local dealer’s tanks some beautiful specimens. These had golden brown backs, red bellies, and a sparkling golden dorsal fin. The pectoral fins were of a beautiful blue. The dealer told me the fish was a ‘kribensis’. I fell for one and took it home with me.

At home I placed it in the community tank, got out my fish identification book and searched through it and identified my fish as *Pelmatochromis kribensis*, or dwarf rainbow cichlid. The first few days I was very disappointed with it because it showed only a drab brown colour. At that time I didn’t know that some fishes lose their colour on being moved from the dealer’s tank even for a short journey.

Female *Pelmatochromis kribensis*. The rotund belly of the fish is bright scarlet when the excitement of breeding is at its height.

Male *Pelmatochromis kribensis*. The more elongated dorsal and anal fins are among the features that can be used to distinguish the male from the female. Compare also the body outline of the fish with the one at the top of the page.
In about 2 days my disappointment turned to joy when I saw the fish in its full colour, just as in the book's colour photograph. It was then also that I found from the book that my fish was a female. I decided that I would have a go at breeding these beautiful fish.

It was a few months before I saw some more kribensis for sale. These were adult fish priced at £6.00 a pair. When I counted them in the tank there was an odd number; the dealer looked for me and the extra one was a male fish. When it was introduced into the community tank he and the female immediately got on well together.

Breeding Aquarium

They were in the community tank for 2 weeks, during which time I set up one of my 18 in. by 12 in. by 12 in. tanks with newly washed gravel, two flowerpots and some plants placed around the front of them. The plants were Indian fern (Ceratopteris) and ambulax (Lemaphila sessiflora). During the 2 weeks the kribensis had been fed with flakes, tubifex worms and daphnia, along with the other fish in the community tank.

The pair were put into the prepared tank and during the next week the fish excavated a deep depression below one of the flowerpots; they also cleaned the walls and roof of the selected pot. This made me think that the fish were about to spawn, and when I came home from work the following day I found that they had spawned. I decided to leave the parents with the eggs, but next day the eggs had disappeared. I took it that the parent fish had eaten their eggs.

The pair were returned to the community tank and brought back to spawning condition on the previously mentioned foods, and then returned once again to the breeding tank. After the usual cleaning and digging the fish were ready to spawn again. This time I was lucky enough to see the whole spawning procedure. I had just arrived home from work, and when I looked into the breeding tank, there was a single row of eggs. The fish had just begun to spawn. The female circled the male, entered the flowerpot, turned upside down and laid another row of eggs. She came out, circled the male once again, her belly scarlet, body nearly bent in two and fins glittering. She nudged the male once, which was also in breeding colours. His belly was not quite as red as the female's but his tail had taken on an even brighter gold than I had previously seen. He entered the flowerpot and turned upside down, fertilising the eggs.

This went on for nearly 2 hours, and when the spawning was completed I immediately took out the fish, as I had decided to hatch the eggs artificially this time.

The female inspects the interior of a half flowerpot in the aquarium during her search for a spawning site

I placed an airstone an inch in front of the eggs, allowing a gentle flow of air bubbles to pass before them to replace the fanning which I read would have been carried out by the parent fish. The water was treated with a proprietary methylene blue solution to prevent the eggs from developing fungus.

Eggs and Fry

There were about 90 eggs, of which 30 went bad and were removed with tweezers. On the third day the eggs started to hatch and fall to the bottom of the flowerpot. They lay there in a wriggling mass; some of them seemed to be jumping about. On the seventh morning most of the fry were taking short excursions through the water; by night-time all were free-swimming fry. On a count there were 44 fry free swimming, so that a further 16 eggs had gone astray. All the 44 grew to a size at which they were sold to a local dealer.

This was my first encounter with the spawning of an egg-laying fish. *Pelmatichromis kribensis* is certainly a fish I would recommend any aquarist to try to spawn.
The Water Garden in SEPTEMBER

If you are known to specialise in anything you are bound to get the occasional caller asking for advice. I do wish, though, that some folk would choose a time when I am not fully engaged. In July, for example, I was enjoying a Sunday lunch when the bell went and a very worried gentleman pored out his worry. One of his pool fishes was chasing another and would not stop it. Should be take the offender out of the pool? Questions of this sort may well amuse those of us who take our hobby seriously but one may well wonder what happens when some odd happening occurs and the pool owner has no knowledgeable neighbour on whom to call or book to consult.

I see that Frances Perry’s excellent work THE GARDEN POOL has just been republished. At £1.75 this is a good buy if you need a reliable, well-illustrated handbook. Mrs Perry says that if kept in bounds the yellow flag (Iris pseudacorus) is an admirable plant for the water garden. The keeping of this lush pool subject in bounds appears impossible to me. If planted in its own special spot in a corner of a medium-sized pool, the plant invades the territory of its neighbours. Plant a rhizome in a plastic planting basket and you may feel you have restrained this wanderer—but forget to snap off every seed pod in July and in the following spring there are young irises firmly established in every basket in the pool, between every paving stone around the pool and even among the potato rows! My very large clump of this iris is being taken to a local pond. In its place I have invested in a few more white and blue kinds of Iris laevigata. With me this is a slow grower and it needs no check to its growth at all.

Another aquatic which may have to go because it is high uncontrollable with me is the water fringe (Nymphoides pumiloides). Current price on a piece of this pool plant is 20p. Once it is established you have several pounds’ worth of it—if you can find a dealer who will take it! Because growth starts so early, the water fringe is able to cover a small to medium pool by late June. Fortunately, water lilies have greater strength and they push through water fringe, which then has to be pulled out by the handful just when it is coming into flower. The answer may be in severe pruning of water fringe in the autumn so that there are fewer plants to make such a mass of vegetation in the following spring. The plant itself is handsome with its small, water-lily-like leaves and brilliant gold flowers.

** * **

Various fishes must act differently according to the pool and to the owner. So often I come across the statement that because the tench is a bottom-feeder it is not worth having in the garden pool as you will not see it again after its introduction. My green and my gold tench appear along with all other fishes when they hear me nearing the pool. The tench rarely take food from the surface, but wait until particles of the flaked or live foods start to sink. I was interested last July to note the habits of tench introduced into two garden pools constructed by my neighbours. In both cases the tench acted in the same manner as my own.

** * **

I am grateful to A. S. Cooke of the Nature Conservancy, Monks Wood Experimental Station, for sending me a copy of his report ‘Indications of recent changes in status in the British Isles of the frog (Rana temporaria) and the toad (Bufo bufo)’. According to Mr Cooke it may be assumed that the toad population like that of the frog has declined considerably. In fact, so Mr Cooke says, ‘the garden pond was the only habitat in which either species increased.’ What worries me quite a bit is that even pond-keepers of experience often do not know that although they may happily encourage friendly, useful frogs and toads to their neighbourhood by just having a garden pool, yet the likelihood of the local population of these amphibians being sustained is not good. Pool fish devour every frog tadpole they come across—and most are found by pool fish. I accept the opinion that toad tadpoles are rejected by pool fish. But this rejection is, so I find, of large active toad tadpoles. Toad spawn laid among marginals in my main pool this spring did not lead to my seeing one toad tadpole later on.

It is in our interest to protect these natural garden ‘insecticides’ and where there is room I recommend the construction of a second pool in every garden solely as a breeding ground for frogs, toads and newts. The second pool also allows the water garden enthusiast to plant more and different aquatics.
A Low-Growing Cryptocoryne for the Aquarium Foreground

By KAREL RATAJ

Photographs by RUDOLPH ZUKAL

This is a plant that is especially suitable for placing in the foreground of the aquarium. Its total height is only 2 to 4 inches (5-10 cm.), and of this half is leaf stalk and half leaf blade (this may be occasionally to give a distinctly longer leaf stalk or one just a little shorter). The leaf blade itself is spear-shaped and tapers from its middle to a sharp point.

The plant, which belongs to the Araceae family, comes from Ceylon where it grows in shallow water and in moist places at the water surface along the slow-moving watercourses. In the aquarium two forms, not previously differentiated by specialists, are distinguishable. The narrow-leaf form has leaves 4 inches (10 cm.) long but less than ½ in. (1 cm.) wide, whilst the wide-leaf form has leaves that are shorter (2½-3½ in., 5-7½ cm.), but double the width (2 cm.) of the narrow-leaf variety. The inflorescence is nearly 2 in. (5 cm.) long with a purple, very heavily warted blade.

C. nevillii grows well in the aquarium and is not an exacting plant in its requirements. It can tolerate bright light well and will also stand the lower aquarium temperatures. Its leaves are stiff and not easily damaged. New plants arise out of the dormant buds and root runners along the length of its white, branching rhizome, and under favourable conditions a dense tangle or tufty growth is achieved.

Above: a small-leaved variety of Cryptocoryne nevillii growing submerged in an aquarium

Below: a close-up view of the inflorescence of this cryptocoryne, slightly larger than natural size
OVER 260 fishes were entered at the LOYNE AS Open Show and Mr F. E. Gregory of Oldhamborough won the best fish in show award with a sleeky barred trout that was awarded 86 points. Detailed results were:

COLDWATER

TROPICAL

The BEST fish in show award at the GLOSSOP AS annual open show was won by Miss Guille of Buxton. Details of the results are:


PRIZES AT THE BISHOPS CLEEVE AS Open Show were presented by Mrs H. C. W. as follows: 1st, Mr F. E. Gregory; 2nd, Mr C. T. M. Trimmer; 3rd, Mr T. F. H. Hopkins; 4th, Miss Guille; 5th, Mrs D. H. Gower.

TORBAY AS members have been enjoying some excellent lectures and slide shows this year. At the last meeting the slide lecture given by Mr D. V. Jones of Southampton AS was about fishkeeping and breeding was well appreciated. At the first of the season’s open-class shows, held at Torbay, Torbay members received a total of 43 points. Mrs Lucas of Plymouth was the special award for the best fish in show. Other results were:


WHEN KINGSTON & DAS held an open show in competition with Basingstoke AS, the home team were very impressed by the number of visitors who arrived—two mini-buses hired for the occasion. The result of the competition was a tie of 39 points each but, with the agreement of all members of Kingston, the trophy was presented to Basingstoke for their magnificent effort in having so many members make the journey. The lecture for the evening was given by Mr John Burke of Ealing on aquascaping, a neglected class on the show bench—a situation which PRO of Kingston, Mr. W. R. Adams, suggests should now be remedied at least by the listeners to Mr Burke’s lecture. An interesting venture was tried out on this occasion—suggested by Basingstoke who put up a trophy for it—when an open-class show was given to someone other than a qualified judge; on this occasion Mr D. Lambourche, secretary of Roehampton AS, was delegated Mr. N. H. Adams’ tasks with very interesting results.
JUDGES of the Competitive classes at The Aquarium Show '72 are to be: Mr S Croft (FGA), Mr A M Deakin (FNAS), marine judge (BMAA), Mr A Ibbotson (FBAS), Mr W Leach (GSGB), Mr K Nutt (FBAS), Mr J Stillwell (FBAS). Schedules for the competitive classes are available from PPS, 554 Garratt Lane, London SW17 0NY. There are 18 tropical fish classes and six coldwater classes at the Show this year. The latter comprise Native and Foreign (W) and Goldfish classes for Common, London shubunkin, GSGB singletail, fantail and oranda. For the first time at The Aquarium Show there are classes (Ya and Yb) for Tropical and Coldwater Marine fishes. For marine classes, competitors supply their own tanks and seawater.

SIXTEEN societies have entered the Society Tableau Competition to date. These are: Basingstoke, Bracknell, Clapham, Ealing, Erith, Havant, Hemel Hempstead, Hendon, Hounslow, Isle of Wight, Poole, Portsmouth, Runnymede, Southend, United Aquarist, Vauhall Motors. Entry forms for the competition are available from PPS's Offices.

THE CHESTERFIELD & DAS outing to Marinelund of Morecambe was fortunate in having sunny weather but the courtesy of all concerned would have made it an enjoyable occasion anyway. The aquarist who showed club members behind the scenes was very helpful and there were some very nice marine exhibits. The tanks were in first-class condition and the dolphin display was also good. It is hoped to make this family-outing type of activity an annual event.

Miss Maureen Lindsay, daughter of the late Mr Albert Lindsay, visited the Society to show colour slides of furnished aquarium and fish taken over the past three years at the BAF in Belle Vue. Recently two of the Society's members, Mr and Mrs Gabe, achieved success at the Castleford Open Show by winning the fish of the show award with a Lake Malawi cichlid. They can now enter the Champion of Champions competition at the BAF.

MID-HERTS AS Open Show was held this year in conjunction with the Cell Barnes Hospital Fete and all proceeds were donated to the Friends Society of that hospital. This year's show was only one day's duration which, it was felt, resulted in increased entries and a higher standard of fish. An innovation at the show was an individual aquascape class (Am) which received five very attractive entries. This class received very commendable comment from both hobbyist and general public alike and will be a permanent feature of all future shows. In addition there were six club, three individual and two schools furnished aquariums. FBAS judges were Mr Jeffs, Mr Stillwell, Mr Cannon and Mr Ginger.

Club tropical furnished aquarium: 1, Mr A M Deakin (HN&FCA); 2, Mr B C H Webb (GSGB). Goldfish classes for Common, London shubunkin, GSGB singletail, fantail and oranda. For the first time at The Aquarium Show there are classes (Ya and Yb) for Tropical and Coldwater Marine fishes. For marine classes, competitors supply their own tanks and seawater.
Major trophy winners were: Best fish in show award Mr R. Wright (Sorrelfins [affiliates]). Society with most points Mid-Herts (125). Club furnished, United AS. Cup for best Mid-Herts furnished aquarium, Mr. C. Withers. Aquarist trophy, Mrs. Marion Lander, Schools furnished aquarium shield, Hobbs Hill Junior. Brenchley Wood trophy (barb), Mr. D. Cruickshank. Champion trophy, Mr. R. Wright; Lander trophy, Mr. R. F. Rawlings; Wallis trophy, Mr. D. Mitchell; Tennyson trophy, Mr. W. Wright. House of Fishes trophy, Mr. R. Kerridge; Shield for tropical cichlid, Mr. R. Wright; Welch trophy, Mr. R. Wright; Jamieson Cup Mr. T. E. Hall. Albany Aquarium trophy, Mr. L. C. Little; Colin Johnson trophy, Mr. T. A. Cruickshank; Jill Marshall trophy, Mr. C. Withers; Bob Rowley trophy, Mr. T. E. Hall. Mid-Herts trophy, Mr. A. Lawman; K. W. Smith junior trophy, Miss D. Cowell; FBAS trophy for juniors, Miss D. Cowell. Major trophies for RAABs and for Danios were also awarded to Mr. R. Kerridge and for Looches and A.A.S. tropical eggplants by Mr. A. C. Tufft and Mr. A. D. Phillips respectively.

A cheque for entry purchased by Mr. S. H. Ross of East London received the award for the best fish on show at the SOUTHEND LEIGH & DAS Open Show. Details of the results:

**MEMBERS OF CASTLEFORD & DAS** were very pleased at the success of their fourth Open Show, which attracted over 700 entries from 37 societies. The best in show award was won by Mr. and Mrs. Gabe of Chesterfield with a dwarf cichlid. The award for the best exhibition went to Mr. J. S. Hall of Atherborough, and the society winning most points was Atherborough.

**Guppy** Mr. L. R. Gabe (Chesterfield); Mr. J. S. Hall (Atherborough); Mr. G. B. Barnes (Huddersfield); Mr. J. S. Hill (Atherborough); Mr. J. S. Hall (Huddersfield); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborough); Mr. J. S. Hill (Atherborou
The best fish in the show was a Dicolechus bicoloratus owned by Mr. R. Hoare from Harlech AS. The junior trophy was won by Mrs. Kevin Assun among the home club, the Ladies Best Exhibit Cup went to Mrs. Janet Pembroke of Woburn AS (Bristol). Roehampton AS won the Highest Pointed Visitors Cup and the FBAE Championship Trophy for Class Cb went to Mr. D. Reilly of Anson AS.

FEDERATION
NEWS
Next Month is the Supreme Championship 1972 Month

1972 Championship Class Results

Class Ba: Barbs (Medway AS Show)
Mrs. R. O'Coyle
(Class B Attachment)
Mr. K. Reesey
(Class A Attachment)

Class D: Cichlid (Tottenham & DAS Show)
Mr. R. Boxes
(Class A Attachment)
Mrs. L. Hepplewhite (Chesterford)

Class De: Rift Valley cichlids (Roehampton AS Show)
Mr. D. Lambourn
(Class B Attachment)

Class G: Catfish (Thurrock AS Show)
Mr. R. Wright
(East Dulwich AS)

Class H: Corydoras (Corby & DAS Show)
Mr. R. Newman
(Uxbridge & DAS)

Class K: Danio & minnows (High Wycombe AS Show)
Mr. D. Reilly
(Uxbridge & DAS)

Class Nb-m: Egillayer pairs (Yeovil & DAS Show)
Mr. A. Blake
(Basingstoke & DAS)

Class P: Guppy, female (Independent AS Show)
Mr. P. Coyle
(Class B Attachment)

Class Q: Swordtails (Runnymede AS Show)
Mr. S. Mason
(Class C Attachment)

Class R: Platy (E. Dulwich AS Show)
Mrs. D. Cruickshank
(Class D Attachment)

Class S: Molly (Southend, Leigh & DAS Show)
Mr. J. Hall
(Kingston & DAS)

Class V: Twintailed goldfish (Anson AS Show)
Mr. R. Assun
(Doncaster AS)

Class Xo-t: Breeders (Half Moon AS Show)
Mr. R. Assun
(Doncaster AS)

FORTHCOMING CHAMPIONSHIP SHOWS

- 2nd September: Bethnal Green AS
- 3rd September: Wellington & DAS
- 10th September: Woburn & DAS
- 16th September: Hounslow & DAS
- 24th September: Torbay AS
- 24th September: Washington AS

* Winners of Federation Championship Trophies in classes for single fish automatically become eligible for the Supreme Championship Trophy Competition (to be staged at The Aquarium Show '72 at the Royal Horticultural Society's Old Hall, London, S.W.1, 27th-29th October). Six awards are made at this Competition.

KINGSTON & DISTRICT AS celebrates the Silver Jubilee of its formation this year with an official dinner that is to be held on 4th November. Meeting place of the Society is St. Luke's C. of E. Primary School, Elm Road, Kingswood, on Thursdays, Surrey (second and last Thursdays of month). The secretary is Mrs. H. Fairhurst (17 Woodstock Avenue, Surbiton, Surrey; phone 01-644 8663).
In Brief...

...AT the first AGM of BANBURY & DAS a shield was awarded to Mr L. Poole for the best selection of fishes throughout the year.

...ANOTHER good Wednesday evening at Arden Road School, Snaith, when SMETHWICK & DAS heard Mr Don Johnstone talk on good and bad aquaria equipment with examples dating from 1945. The table show for camaraderie was won by Mr D. Johnstone (2), Mr A. Layton and for amphibians by Mr P. Troth (3, Mr E. Woodward).

...A BUSY and interesting evening for 40 members of WELBECK AS, CASTLEFORD when breeding, rearing and the well-being of tropical fishes was discussed. Mr Gordon Thackwray answered numerous questions, and this was followed by an auction of fish and plants. Master Gary Thackwray judged the table show; class winners were: a.v. male, Mr P. Baker; a.v. female, Mr D. Pitchford (best in show); junior, P. Baker.

...INDEPENDENT AS won their challenge match with WALTHAM-STOWE AS by 25 points to 15. This was followed by a coldwater show judged by Mr John Kellett. During the judging members took part in a fishy version of the radio game 'Just a Minute' with subjects devised by Mr Tom Leachman for members to talk on for one minute.

The last meeting in June was a preview show for the next NORTH-WEST LONDON GROUP as being held at Island Gardens, Walsall. The题目 of Mr M. Fisher of YEOVIL & DAS won best fish in show award with a sumpert bacth at his Society's inter-club show with WESTON-SUPER-MARE, the latter eventually won by 68 points to 57. Lecturer Mr J. Walker of Poole had various cultures on view to illustrate his instructions on keeping and feeding worms.

...VICTORY (from Gloucester) of Fishes gave DERBY REGENT AS the pleasure of talks by two experts at the same meeting. Mr Ian Sibbits illustrated his lecture on the Lake Malawi and Rift Valley cichlids with colour slides and Mr Roy Skipper spoke briefly on discus.

...A LECTURE on the part water play in fishkeeping by Mr F. Oliver presented members of WREXHAM TTS with many new ideas on the subject. They have also enjoyed a talk on collecting local marine by Mr C. Pritchard and an illustrated talk on breeding discus by Mr R. Ellis who has had much success with this in partnership with Mr G. Jones. Endavour trophy results are close at the halfway stage: Mr F. Oliver (326 points), Miss V. Jones (317), Mr T. Pound (313).

...SO successful was the Fishkeeping Exhibition held by LEICESTER FISKEEPERS' CLUB that the Society plans to revive in September its annual open show. The date and venue, at the time of going to press, are yet to be finalised but enquiries should be directed to Mr D. Freeman, 9, Dixons Street, LEICESTER.

...WEYMOUTH & DAS enjoyed its June meeting, a talk by Mr P. Carter on barbs and by Mr W. Hamilton on 'Why our fish do not always win'. Mr M. Medway was successful in winning in both classes, for a.v. cichlids and H.H. & C., at the table show.

...RESULTS of the table show at the June meeting of ILFORD & DA show 4th: a.v. catfish, R & S, Mr W. Rowe; A. H. F. Harrumphrey, I. A.; coldwater fishes, 1, 2 & 3, Mr W. Rowe, Breeders' class, 1 & 3, Miss J. Frostick; 2, Mr W. Rowe. A lecture and exhibition was held in partnership with the Anglers' Association and was open to the public. At the table show at the August meeting (second Monday in month), Mr Lawrence Church, Mr P. Haber, 1st and 2nd places: female puppys, Mr T. Murdock, Harlow; male puppys, Mr A. Kimberley; Leytonstone, 2nd place, Mr B. Kerridge, Harlow, northcups, Mrs H. L. Langmuir, Leytonstone, best in show. Overall points: Totteridge 84, Harlow 53, Leytonstone 11, Bethnal Green 2.

...HOW to make a pond in a weekend was the useful information conveyed by NEW FOREST AS in a lecture by Mr A. Williamson. The puppys class in the table show was won by Mr R. Higgison, London, who won a prize, Mr L. J. Perry.

...NOTTINGHAM & DAS show a good idea in their Bulletin, entitled to the EASTERN DISTRICT AS, Victoria, Australia — a suggestions box at meetings. This encourages questions members feel (wrongly) 'too silly' to ask and saves embarrassing those who feel unable to stand before a full meeting and ask verbally.

...Mr A. Robinson presented LEAMINGTON & DAS with a fascinating stage-by-stage slide show of how to use wood in the aquarium to achieve depth and balance enhanced by different light sources. The club has also enjoyed a cross-over quiz at which even the questions roused the opposition 'to valleys of disagreement!!
BRIGHTON & SOUTHERN DAS enjoyed a lecture by Mr Brian Baker on laboratory fishes. A coach trip to Inter-Pets of Dorchester was a great success. Mrs Corbin was invited. Dr Carverston showed us the new offices and dispersal department. Then after lunch at a local pub. Dr Carverston went on to the Inter-Pets fish farm in Walmington-on-the-Hill. Thanks to Dr Carverston and his staff, our members had a very pleasant and informative day.

NOMAD AS is now to be known as CATHERAM NOMAD AS.

RHONDA AS has been very successful in the Society's annual competitions. At the club's AGM he received the third year in succession the award for the highest number of points (105). Mr. D. Richards; 3, Mr. H. Thomas; and the furnished shed for a second year. He was also placed second and third in the K.C. Competition—the winner being Mr. J. Pick. The juniors of the society have now elected their own show secretary, Graeme Hartley.

WHEN BRACKNELL AS (FBAS-affiliated) entertained GUILDFORD AS the discussion on the fish in the table show was followed by a somewhat rousing action that everyone thoroughly enjoyed. Roy Skipper of the Bracknell Aquarium Society has had a second class by popular request, to the society. H.H. was joined by members of the THREE COUNTIES to talk about Cyprinid systems and show some excellent slides.

WASHINGTON AS holds its first annual outdoor show on 24th September; this includes an FBAS Senior Championship class for angelfish. Bristol AS reporting secretary, Mr. J. Thomas, writes: Brian Lyons and John Phillips are to be congratulated in producing 86% success on their exhibition at “Fry Feeding” at the monthly meeting. As a result several coldwater fans are now introducing herring shrimps as a source of clean live food and some tropical breeders are happy that they do not have to cope with hartings which often exceed the biological order.

Mr. R. Robinson of WHITLEY BAY AS won the shield for the Whitestrand Society Show, and judge Mr Alf Bailey awarded the plaque for best fish in show to Mr. J. T. Burn. At the next meeting Mr. R. Rogers took first and second place in the furnished section and was presented with the trophy for the competition with the most points by the chairman, Mr. Emmerton.

Presumptions of business has necessitated the resignation of secretary Mr. M. Rodgers. Mr. R. Mallan was nominated acting secretary.

MEMBERS Bernard Brenfield and Dave Longwood gave a most knowledgeable and interesting talk to fellow-members of COVENTRY POOL & AS when they demonstrated how to set up and care for a garden pond. Table show winners were: a.v. characins (12 entries), Barry and Frank Herst; Bristol shubunkins etc. (4 entries); Mr. Fred Watts; novices a.v. tropical (6 entries); Mr. Alan Nash; juniors a.v. tropical (6 entries); Austin Simmons.

BRADFORD & DAS are planning to get out and about much more in the near future. Visits to local dealers are being arranged and a visit to see behind the scenes at Belle Vue aquaria. Visitors are being urged, by means of questionnaires, discussions at club meetings etc.: to express what activities they want to see the club participate in so that all preferences can be catered for. Two very interesting recent talks have been given by Mr. Alec Froth on “man-made fish” (illustrated by examples that included marigold swordtails and golden ‘tangs’); and a talk by the president, Mr. Garry Fairclough, on his pet subject, marine. Secretary, Mr. Phillip Chorley has had to resign because of pressure of business and Mr. E. J. Brown has volunteered to take over the position for the rest of the year.

YORK & DAS members have enjoyed a lecture from Mr. P. Hogarth of York University on electric fishes. Members took part in an inter-club competition at HULL AS recently and although Hull won the competition overall by 33 points to 41 some York members were very successful. Mr. M. Richardson won in the bars, characins and cichlid classes, and won the best fish in show award; Mr. P. Casey won in the egglayer toothcarp, egglayer pairs and coldwater classes. Mr. A. S. Allison was first in the a.v. female class and took seconds in the rasboras, anabantis, catfish and loaches, breeders egglayers and egglayer pairs classes.

SLough & DAS much enjoyed a talk by Mr. Les Jocelyn of Bracknell on keeping and breeding cichlids. Table show results at this meeting (judges, Mr. T. Cruickshank) were: a.v. guppy; 1, Mr. R. J. Miles; 2, Mr. U. H. Young. Swordtails; 1, Mr. F. E. Bayley; 2, Mr. B. Withers. Platy; 1 and 2, Mr. U. W. W. Mollies; 1, Mr. F. E. Bayley; 2, Mr. A. N. Young. Another interesting talk, on tortoises and other reptiles, was given by Mr. Roger Winter who brought along eight of his pets including a feeding tortoise. The club's meeting on 25th September will include an exhibition of fish by a.m. in a furnished show jars and table show table for breeders a.v. and egglayer toothcarps.

ABERDEEN AS are holding their next meeting on the 29th September in the YMCA Rooms, Union Street, at 7.30 p.m.

Dates for Your Diary

Dates preceded by asterisks are of shows to which FBAS Championship Classes are allocated.

134 Sunday Park, Yate, Bristol (phone: Chipping Sodbury 21249).
1st September, REGATE & KENILWORTH Open Show. Codsall, Youth Centre, Chalford Valley Road, Codsall, Wolverhampton. Details: Mr. J. Wood, 64 Richmond Hill, Codsall, Wolverhampton.
2nd September, LUCAS & AS Open Show. Joseph Lucas Ltd., 401A S. Road, Codsall, Wolverhampton. Details: Mr. M. F. Stowe, 393 Codsall Road, Codsall, Wolverhampton.
4th September, WILLINGBOROUGH BISHOPS A.S. Open Show. Rectory Farm, Willingborough. Details: Mr. B. B. Bishop, Bish Brook, Willingborough.
5th September, WHITLEY BAY AS Open Show. Congresbury, Whitley Bay, Northumberland. Show schedule. Mr. R. Mallan, 40 Appleton Gardens, Hilborne Estate, Whitley Bay, Northumberland. (ceilings and toes)
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The stated aim was to encourage and promote close co-operation between the many aquarium and vivarium societies to their mutual benefit. The fee of 50p per member has never been raised. All Societies should send two Delegates to the Council Meetings and these should be voicing the considered views of their Societies. Ideally the Societies should 'run' their Federation with guidance from the Officials, Executive and various sub-committees. There is as at this date: The Council, the Officials, the Show Committee; the Judges and Standards Committee and the recently formed sub-Executive Committee. The latter to promote the benefit to be derived by membership of the FNAS; to counter any attacks upon it by other organisations; e.g. to counter poaching of its membership.

The FNAS has collated and distributes lists of approved Judges and Lecturers; additionally have available—Programme Aides, Judges' Blank Sheets, Diplomas, 'Stars' (coloured) for use on Prize Cards to indicate points awarded, 'Tank' Labels indicating Judges' placings of Exhibits. Posters of various types to advertise the Federation Society and Hobby. Perhaps most important of all is the Bulletin (to be reprinted), a Guide to FNAS approved standard methods of Judging and Open Show Regulations.

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1951 was British Festival Year. Earlier, the Governing Director of the Aquarist and Pondkeeper (Mr Bob Chapman) had put the idea of staging a British Aquarium Festival to Dr John Wilkinson. A few of us went into the pros and cons then put our favourable decision to the Council, where the go ahead was given. The A & P wanted the BAF to embrace all known Federations and the work to be shared (and rightly so)—thus Dr List of the FBAS was appointed Show Manager.

Mr Fraser Turner designed including the BAF Insignia and supervised the 'staging', we in the North did the stewarding. The stands and decorations, heating (tubular), painting and some 500,000 tanks were staged by outside specialist show contractors. The effect was neat row after row of tanks in Class order. The Festival was a big success from the exhibitions and visitors point of view, but due to the very costly use of contractors, the Aquarist and Pondkeeper suffered a direct monetary loss. All the following BAF's were entirely organised by the Federation of Northern Aquarium Societies. After the 1953 BAF the handful of willing workers and their wives, being reduced to near total fatigue, mainly caused by being left to clear away the whole of the water, gravel tanks, heaters, etc. and stands, said 'enough is too much'.

One of our number, Mr Harold Hall, then show manager, dreamt up the idea of Society Stand Displays. This passed the onus of staging and dismantling to the Exhibiting Society members taking the slavery off the backs of the few. It also proved to make a much more appealing Show to the general public. The stands were very attractive and the designs embraced novelty coupled always with aquatic matter and incorporating the Fish and Plants exhibits.

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