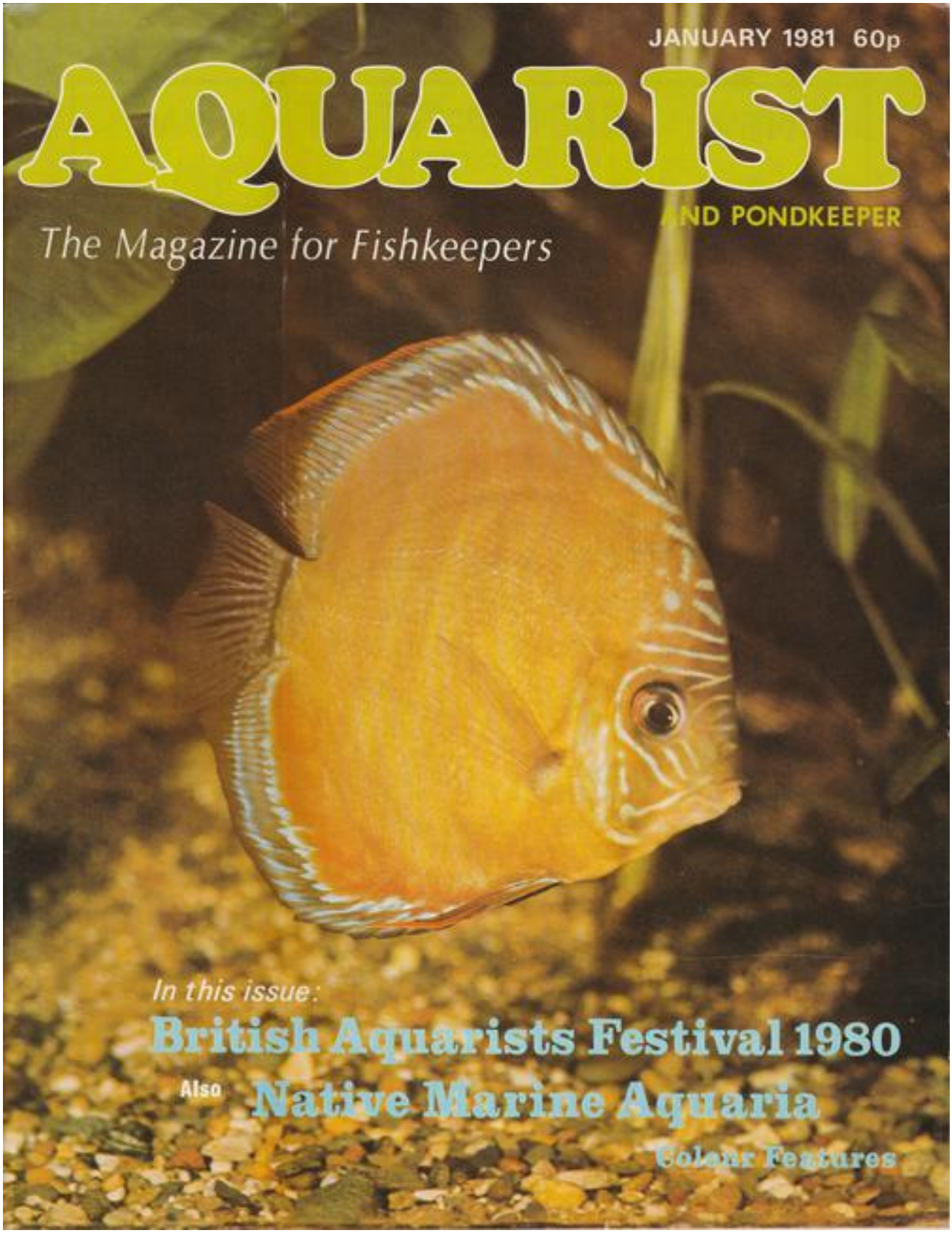
JANUARY 1981 60p

# AQUARIST

AND PONDKEEPER

The Magazine for Fishkeepers



*In this issue:*

## British Aquarists Festival 1980

Also **Native Marine Aquaria**

Colour Features

# THE AQUARIST AND PONDKEEPER

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Ron in his fish house studies his guppy tanks. Note the battery of small air pumps, soon to be replaced.

# Meet the Aquarist - No. 5 Ron Baldry

by B. Whiteside

RECENTLY, ON A warm summer morning at ten o'clock, I headed for London's Underground and set out for Mile End on the Central Line. My goal was the Isle of Dogs, in the East End, and puns about Barking ran through my awakening brain as I loaded a film into my camera in the hope of making a permanent record of some of the interesting fishes and plants kept by Mr. Ron Baldry, a reader who lives at Millwall, E14.

Ron kindly met me at the station in a luxury limousine—which was appropriate because he is a chauffeur—and I got my first impression of how the rich must feel being driven round in their luxury cars as Ron whisked me off to the very attractive home where he and his wife Lily live.

Mr. Baldry is not a man to stand on ceremony and within minutes Ron and I were on first name terms seated on garden chairs, beside Ron's beautiful, little, garden pond, chatting away, as his wife Lily laid on regular supplies of coffee. Ron has kept fish for only two-and-a-half years; but I should certainly not have guessed that had I not been told because he has some of the most impressive fish that I have ever seen. Lily's interest in fish has grown along with Ron's although, as yet, she has

not allowed any tanks into the house; however, this minor restriction has not limited Ron's interest in fish—as his pond and his fish house show.

The back garden area is not very big—but I doubt if anyone else could have made better use of it. An attractive, paved area for garden seats is enhanced by a beautiful array of geraniums and fuschias growing in pots; and it leads down a couple of steps to the actual garden—which was an absolute blaze of colour when I called, with roses, dahlias and carnations scenting the morning air.

The focal point of the garden is Ron's raised pond, surrounded by a stone-wall rockery. The fibre-glass pond is a Kittiwake model: it holds 100 gallons and cost £28.00 in a sale. He set it on abase of sand, built the surrounding stone-walled rockery, and paved the remainder up to the edges of the flower beds. Ron's little pond is

Ron Baldry beside his garden pond.

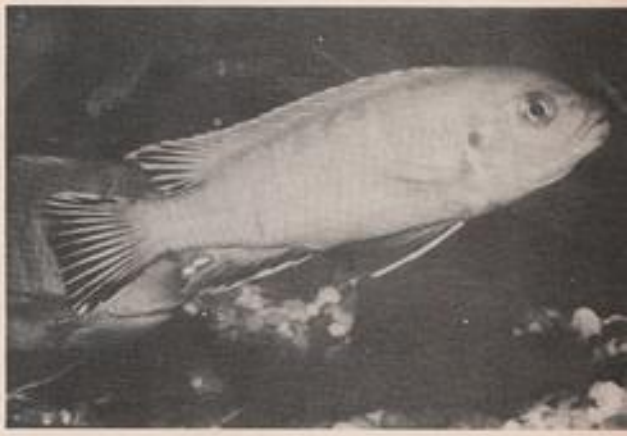
filtered and aerated by two pumps, one operating a fountain and the other a filter—which Ron designed for his own needs. It's simply a plastic lunch box with a series of holes punched in its base. A 1 in. pad of plastic foam covers the base of the box and acts as the filter medium. The filter box is situated at the top of a little waterfall. Dirty water from the pond is pumped up into the top of the box via a fitted tube and percolates down through the plastic foam and out through the holes in the bottom of the box—from where it runs back down the waterfall into the pond, getting aerated in the process. Sediment from the water is trapped in the foam rubber—which can be easily removed and washed every few days. The unit operates with the lid in place; and a strong growth of aquatic plants, surrounding the filter box, hides it from view.

The pond supports a vast array of aquatic plants—from water-lilies and water hyacinth to *Cyperus* rushes. The most striking is a several-feet-high clump of *Lobelia cardinalis*, growing in a basket in the pond. It's intensely-

A corner of pond showing *Lobelia cardinalis*, water lilies and water hyacinth. Note netting to keep out fish-loving cats.

bright, scarlet flowers glowed in the sun during my visit. Equally as striking as all the plant life in the pond is its collection of large to massive goldfish, carp, koi and shubunkins. The largest fish was about the size of a plucked chicken and had to swim on its side when it came to the shallow end for food. Ron hopes to move it—it's known as 'Jaws'—and some of the other large fish to an environment that will provide more space when he can find a suitable place for the bigger fish. Despite somewhat overcrowded conditions the fish were very obviously in excellent health and colour and seemed happy and contented. They were relatively tame and quickly appeared at the surface when pond pellets or F.D. shrimps were scattered there. Their owner believes in feeding his fish on the best foods,

A beautiful *Pseudotropheus* species in Ron's cichlid tank.



A few of Ron's beautiful guppies.

never mind the expense, and Ron's thriving stock confirms his attitude and his success.

While sitting beside the pond Ron told me a rather frightening story. One day he wished to catch a fish and taking a net he put his hand into a tropical tank. He felt a strange, tingling feeling in his arm until he removed it from the water. He made a second attempt—and again felt the tingling in his arm. He removed his arm from the tank and looked carefully around the interior of the aquarium. The glass tube on a heater had completely shattered and the live element was exposed! He was very lucky in that he wasn't well earthed himself or I would not be writing this report about him. Ron called in an electrician—who told him that the person who had wired the system had done so wrongly.

The large fish in the tank wasn't so lucky: it obviously got a shock strong enough to paralyse it. Ron was advised to destroy the fish for its own good; but he adopted the attitude that if a person had suffered a similar experience the person would have been given some sort of resuscitation. One or more times daily for the next few weeks Ron massaged and 'exercised' the fish; and believe it or not it gradually revived and was able to move and swim normally.

I asked Ron about the netting that covers his pond and he told me it is there to keep out local cats that used to make a meal of his pond fish. He also recounted a tale of a coldwater fish that he bought when it wasn't very big. It was kept in an aquarium situated quite close to the roof of his shed. The fish was well fed and grew considerably. Some time later, when Ron had occasion to wish to move the fish to larger quarters, he discovered that the fish was then too big to lift out through the narrow space between the top of the tank and the roof of the shed!

I was then invited to enter Ron's fish house. Many of the fish houses I've visited have been rather untidy structures containing dirty tanks but the meticulous neatness evident in Ron's garden and pond was fully reflected in the fish house and in his array of tropical tanks. The fish house is 10ft. × 5ft. and beautifully finished. He obtained a lot of polystyrene fish boxes from his local dealer and cut them into sections with which to insulate the roof of his fish house. The interior walls are lined with old office dividers, which, indeed, make the 'room' as neat as many an office—complete with cushioned bench from which to view the tanks. Ron previously had bother with condensation in the fish house and he found a coating of mildew over walls and fixtures. He solved the problem by fitting an extractor fan—such as one would have in a kitchen. A second, ordinary fan can be switched on to regulate the interior temperature of the shed in summer.

Currently Ron has a battery of small air pumps (see photograph) supplying his tanks; but he has just purchased a very large pump which he hopes to situate outside the fish house and insulate to keep noise levels low. He very obviously favours U/G filtration and aeration and his tanks are spotlessly clean. His tanks are lighted by Gro-Lux lighting because it shows up his fish to advantage.

A 52 in. × 20 in. × 15 in. tank houses a mixed collection of larger fish—especially Mbuna cichlids. Ron told me that he got annoyed when he bought Mbuna cichlids on occasions and discovered that they were incorrectly named; so he took himself along to the appropriate embassy and complained that a country that exported fish didn't take the trouble to ensure that they were sold under the correct name. A gentleman at the embassy apologised—and quickly returned with an illustrated book to help Ron identify his fish. Unfortunately the book was 'on file' so Ron was unable to take it with him when he left the embassy. When about to leave Ron told the gentleman to inform the ambassador that he was very disappointed to note the absence of any tanks of fish on display in the embassy. "Would you care to put that in writing, sir, and sign it?" he was asked. "Certainly!" said Ron; and he did!

Ron's cichlids include kribensis, *Pseudotropheus auratus*, *P. venustus*, *P. trophicops*, convicts, blue acaras; and rams in another tank. The rams share their quarters with kribensis, sunset gouramies, monos, catfish (see photograph)

A Catfish which shares a tank with kribensis, rams and monos.

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# Beginning with Tropicals (7)

by Roy Pinks

NEVER TRY TO MOVE an aquarium with water in it, otherwise it will protest to the point of splitting its sides; hence, it is very important that you decide unequivocally about where it is to be situated before you fill it up. I have to assume that you want it in the principal living room of your home, in which case you should consider some purely domestic factors. It should not be in a gangway, where it is likely to be knocked or grazed by passers-by, and certainly not where it will constitute a focal point for small children, whose first instinct will be to bang on the glass and trace designs all over it with sticky and grubby fingers. So it needs to be high as well as secure. Don't underestimate the very real danger to fish of bangs on the glass and similar shock-causing actions. You will sometimes get away with it, but these often cause death, either instantaneously or after dark when the victims are still suffering from the impact. Another thing to avoid is constant switching on and off of bright lights, as these are anathema to nervous fish. The drift of cooking aromas and tobacco smoke will also cause trouble, though to some extent these can be countered by close fitting tank covers. In deference to the needs of the plants, a west facing situation is to be preferred, and because we shall wish to conserve heat, avoid placing the tank near to a window which is frequently opened, or in a direct draught.

**Second Tank?**

It is always on the cards that you will wish to add a second or third tank to your collection, and this factor should also be borne in mind when planning the placement of the first tank, but be sure that if you do decide to expand your activities you have some purpose in mind. At all costs do not acquire a second tank because the first one is not making quite the impact you hoped for. If this is the case you may be sure that there is something wrong with your management, so get this right before you press on. Above all, make a mental note of your available time, and if you don't have enough for other essentials, defer expansion until you are in a better position to cope with the demands of an extra installation. And can you afford the extra upkeep in terms of electricity and other maintenance costs? I do not wish to be off-putting, but the point I want to get across is that one well maintained and prosperous tank is worth ten tatty ones. By all means indulge yourself in one magnificent display tank, and spend all your money and spare time on it. You will get applause from all round for this, and, as you deserve, you will get a lot of pleasure, too. But if you cram into your room more than you can manage you will become an early casualty of the hobby, and your hardware will soon feature in the "For Sale" column in the local paper.

Perhaps the most lethal competitor of the home aquarium is the television, and whilst experienced fishkeepers have no illusions about which is the most interesting, beginners will often be unexpectedly in something of a quandary. This is because, traditionally, the television is placed in the most dominating position in the room; this dates from the time when it was really something to have one, and the wretched thing has cashed in on this ever since, and has successfully stifled virtually everything requiring human initiative and freedom, and in many homes it controls the whole domestic routine. If your tank is to compete with it, it has to be pretty good. At the same time you will have to service the tank from time to time, and you must remember that there must be complete hush to permit Norden to emit his quavery songs, hence the two are not compatible. If you can eject the television, as I have done, to another room, then all will be well. You may enjoy your fishkeeping, you may even read books and converse with fellow aquarists or even non aquarists, come to that. It's not that I have anything against television—I just like some sort of freedom from it, and prefer to keep it in its place.

**Aquarium Cabinets**

There are some extremely pleasing cabinets being marketed now. They feature tank space at the top, and sometimes more below. Often the lower accommodation is dedicated to storage, either in the form of cupboards with sliding doors, or shelves. These are made in a variety of sizes and shapes, and the price range is extensive. They are not quite right in one respect—the lids nearly all slope towards the front. As the tops, deriving heat from the tanks and the lighting, are ideal repositories for indoor plants, a design change could be to advantage. The home handyman could well make one to his own design at a fraction of the price, as I did, and this enables personal preferences to be incorporated at a minimum of cost. It is, of course, very important to situate such cabinets in a position of good frontal light, as the other three sides are completely enclosed.

I doubt whether many beginners will begin their careers with monster aquaria, but this has been known to happen.

It has also been known that they have failed to allow for the weight of water on the bearing capability of the floor, with terrible consequences not always confined to the tolerances of their own families! Against the possibilities of such disasters I would strongly recommend that anyone contemplating installing aquaria where accidents could prove costly should turn up their insurance policies just to check whether the more obvious damage would be covered. If not, or if there is doubt, the insurers should be consulted. It would cost little by way of extra premium to cover the general range of mishaps likely to arise from this source.

## *Major show for Scottish Borders in 1981*

THE BORDERS SHOW, a spectacular three-day event, is to be held in the Scottish Borders over the English bank holiday weekend, 29th-31st August 1981.

Founded on the traditions of the agricultural show, horse show, country and game fair, The Borders Show will also feature special events and attractions to create an enjoyable day out for the whole family.

Whithaugh Park, an 830 acre country estate with holiday lodges, riding stables, a salmon river and shooting moor, is providing facilities for The Borders Show. The park is situated near Newcastleton in Roxburghshire, with easy access to Carlisle.

It is conservatively estimated that as many as 10,000 visitors a day will be attracted to The Borders Show and they will come not only from Scotland and the Borders but in large numbers from the North and Midlands of England as well as from further afield and overseas.

The Borders Show will be a forum and showcase for national and international business, agriculture, industry and commerce as well as highlighting the Scottish Borders as a centre for tourism.

The launch of this annual event in 1981 will be the Borders' major contribution to the International Gathering, Scotland.

Major landowners, industrialists and community leaders are being invited to attend an inaugural meeting, under the auspices of the Borders Regional Council, to draft articles of association for a show society and a charitable trust.

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and swordtails. The *P. tropheops* share their 44 in. × 20 in. × 20 in. tank with a variety of other fish including cardinals and neons. Another tank houses a delightful collection of albino sharks and clown loaches that are always on the move.

Two smaller, growing-on tanks house male and female guppies, respectively—which leads me on to what I found to be the most exciting fish in Ron's collection: guppies. Good-quality guppies have always facinated me; and Ron has got a collection of what are the finest guppies I have ever seen. He has got a 54 in. tank, with a divider down the centre, and a lot of very good guppies in both halves. The males are big-bodied, with sturdy, brightly-coloured dorsals and delta tails. Many of the large females also sport an unusual amount of colour in the dorsals and tails. I wondered if, when young, the guppies had been fed on brine shrimps. Ron told me that he didn't bother with live foods: he uses only dried and freeze-dried foods in a wide variety for all his fishes. When I asked if he sold any guppies, Ron said that he didn't. Fishkeepitg is his hobby and if he sold fish it would become business rather than pleasure—and Ron obviously gets a lot a pleasure from his fish and his pond. He tends to give away fish to neighbours and youngsters and has got numbers of other people started in the hobby. He spoke highly of his local dealer—and he's ovbiously a good customer.

Ron's beautiful guppies lose a lot when reproduced in a monochrome photograph but I hope the print gives some idea of their shape. My spirits rose when Ron offered to give me some of his guppies to take home to Ireland with me on the flight that same day; but they quickly sank when I remembered that security regulations on the aircraft permit only ladies' handbags, and gentlemen's briefcases containing only papers, in the cabin of the aircraft.

Soon it was time for me to leave Ron and Lily to head back to the Underground and central London; but the kindness with which I had been treated did not end at the front door. Ron packed me into the car and took me off on a tour of the Isle of Dogs—followed by a drive back to the centre of the capital. When he dropped me off he got me to write down my name and address and promised to send me, by air, some of those guppies that had really taken my fancy.

Ron has telephoned me twice since I arrived home. Today he phoned to say that the guppies should be on their way to me soon. He'll let me know when they are taken to Heathrow so that I can get ready to take a trip to my local airport to collect them. If I can produce from them a few guppies as good as Ron's I'll feel rather smug. I'll report my progress in *W.Y.O.*

The subject of this feature would not claim to be an expert; but in two-and-a-half years Ron Baldry has produced fish, a fish house and a pond that would be the envy of many a much more experienced aquarist—including your reporter; and Ron's infectious enthusiasm has set numbers of other people on the happy road of fishkeeping.

I shall long remember the warmth and kindness shown to me by Lily and Ron. I hope I'll have the pleasure of meeting them again.

Baby fish emerging—all but the tail is free.

# *Xenotoca eiseni*

A true livebearer with mammal-like attributes

*by Jørgen Hansen*

LIVEBEARING aquarium fishes have always been very popular amongst aquarists, but unfortunately it has nearly always been the most colourful species, which have been bred. The more ordinary looking livebearing species have mostly been for sale over a short period of time, and then suddenly it is impossible for years to get hold of any.

*Xenotoca eiseni* is one of the new livebearing fishes in the hobby, and it has become very popular amongst aquarists although it has only been in the aquarium trade for a few years.

*Xenotoca eiseni* belongs to the family *Goodeidae*, and within this family males do not have a *gonopodium* which is otherwise significant for other livebearing species. Instead the anal fin of the male has a little notch after the first 6-7 fin rays. The male has a bluish touch over the whole body except at the base of the tail, where he has a large red spot which, in fully grown males, can measure 1 × 2 cm.

The female is grey/brown all over the body. When she is young there are a number of black spots on the hind part of the body, but as she gets older these spots will disappear and instead she will have an indistinct horizontal line in the middle of the body. She is not so dark on the belly. Just in front of the anal fin she has a dark spot and when a birth is close one can see the eyes of fry through the thin skin of the mother.

The shape of the body is high, and both male and female have one thing in common in that the anal fin is placed so far back that the distance from the beginning of the anal fin to the base of the caudal fin often will not be more than 2 cm. The female will grow to a size of 8 cm. while the male will be a bit smaller—5 cm.

*Xenotoca eiseni* was collected in 1894 by Dr. Gustav Eisen. He found the fish in a branch of Rio Grande de Santiago near Tipec in Mexico. It should also be possible to find it in Rio Tamazula, Tuxpan, Rio Lermas, Rio Panucos and Rio Balsas.

In 1896 the fish was described as *Charcodon eiseni* by Rutter, but in 1960 it was moved to the genus *Xenotoca*. In the various books and magazines one can find synonyms such as *Xenotoca variata*, *Goodea atripinnis* and *Goodea eiseni*.

I got my pair of *Xenotoca eiseni* in August, 1979. The male measured 4·5 cm. and the female 5 cm., and she was nicely thick and round. The pair was placed in a 40 litres tank with a dense plantation of *Sagittaria*, and on the surface there was a thick layer of hornwort (*Ceratophyllum demersum*). A week later the female gave birth and I was very surprised to see how big the fry were at birth. They measured 18 mm. and in this brood there were 11 babyfish. The male was in the same tank as the female when the birth occurred. Seven weeks later the female gave birth again, and this time there were 12 baby fish. I was lucky to see the birth and it was very exciting.

When a birth is getting close, the area near the vent begins to look somewhat pointed and distended, and at the same time the female is very restless and swims quickly around in the tank. Suddenly, a baby fish is born, and one is really astonished to see how big it is. 15 mm. in size at birth is not unusual. Some of the fry are born normally with the head first while others are born with the tail first—breech birth. Often a breech birth lasts longer than a normal birth. It is not uncommon that 3-4 fry are born nearly at the same time, and immediately

*Continued on page 31*

Baby fish emerging tail first, ventral side uppermost. The *trophotaeniae* is clearly visible.

# *What is Your Opinion?*

An attractive collection of Pond Plants. How many can you identify?

*by B. Whiteside, B.A., A.C.P.*

BEST WISHES to all my readers for a peaceful, happy and prosperous New Year. I hope you will continue to send me your letters for publication. In return I'll try to provide you with an interesting variety of opinions—numbers of which I'll probably disagree with—which should entertain, educate, inform and, on occasions, aggravate you.

The first of this year's letters was written by 15-year-old Miss Susan Rodger, of 'Stenton,' Bellevue Road, Kirkintilloch, Glasgow G66 1AP. Susan says: "I have been keeping tropical and coldwater fish for about 18 months now and do so with great pleasure. I have a 48 in. tropical community tank and a 24 in. tank for my coldwater fish. I also have a red-eared terrapin named Darwin, and a female Herman's tortoise called Homer. Darwin is kept in a tank in our greenhouse—which is attached to the house—in summer; and in winter he stays in the house. If the greenhouse gets too hot for him I put him out in the garden in a shady place. At one end of his tank is a mound of stones with creeping Jenny growing round it. This gives shade. He enjoys eating garden worms, spiders, juicy caterpillars, meat, some fruits, small amounts of bread and bits of fish—but not from my tank! I don't think he likes flies because he only swims up to them and then scrambles away. He basks on his stones when it is sunny—not very often this past year.

"I bought him last August for about £1·00. He was about the size of a 50p piece—if you can imagine a round 50p piece—and has grown a lot since then. I find his behaviour very amusing and would recommend a terrapin to any person willing to clean out a tank two or three times a week, and who can spare a little meat."

Recently, while digging in the garden, I unearthed the shell segments of my long-gone tortoise Tojo. How easily did you get your tortoise to go into hibernation this winter? In what does your tortoise hibernate, e.g. a box of hay, and where do you keep the container?

Photograph 1 shows a July view of an attractive pond belonging to a friend. Drop me a line if you can identify some or all of the plants growing in the pond. I'm afraid I know only a few of them because I have never kept a pond. A little diagram included with your letter would be useful. How well is your pond surviving this winter?

**Land Crabs**

"With reference to your mention of land crabs in the October issue, here are details of my experience of these little animals," writes Mrs. B. D. Mason, who lives at 68 Cavendish Road, Kersal, Salford, Lancs. "I bought two well over a year ago, and they arrived beautifully packed—they are virtually weightless so wouldn't mind being dropped a few times in the parcels' office—with several spare shells, and a packet of food. I already had a book on them. I adapted a nice, little mouse/hamster cage with a transparent front and waited to have all the fun I'd been promised by the advertisement and by the writer of the book.

"In fact, I very rarely saw anything but their shells. They are nocturnal anyway and hardly ever emerge from their shells far enough for me to see anything at all but a pair of eyes and some 'feelers' that did plenty of twiddling; and truth to tell, this was the most movement I ever observed. Very occasionally I was treated to a view of them actually emerging far enough from their shells to eat and drink. Taking them out of their cage so they would 'run about in the most animated fashion' only made them very disgruntled and disappear entirely into their shells, for hours on end. One day I realised that one of them was dead. I traded the other one in for a pair of kuhlii loaches. N.A a good idea for a pet, a land crab!" (Please drop me a line if you have kept land crabs. B.W.)

**Cryptocoryne Spp**

A very interesting article about *Cryptocoryne usteriana*, written by Dr. Jens V. Bruun, appeared in the March 1980 issue of the magazine; and it attracted a number of readers' letters. One such letter, written by Mr. Hall, appeared in my July 1980 feature. Dr. Bruun was kind enough to take the trouble to write a reply to Mr. Hall; and I'm delighted to say that he also sent us a copy. No doubt you will find it as interesting as I have. Dr. Bruun wrote: "Dear Mr. Hall, thank you for the kind note in the July number of *Aquarist*. *Cryptocoryne usteriana* is better known under the names *C. balansae* or *C. aponogetifolia*—which are synonyms. The plant has been investigated by the world-famous Danish botanist, Niels Jacobsen, who has made the big study of Cryptocorynes in Asia. It was he who told me about the new nomenclature of the Cryptocorynes (nomenclature = names). The plant is common in big aquarium shops in Denmark. The plant picture with my article shows the plants in Denmark's Aquarium.

"On now to *Tuberculata melanoides*. In Danish shops they often try to destroy these snails because of stupidity. I know some few shops in which they do not destroy the snails, so I can tell aquarists to go to these shops to get the snails.

"About protein = egg-white: it is not especially albumen. Albumen is a protein in animals. Protein is the building brick from which all living cells are built. Protein is made of small chemicals known as aminoacids. Most aminoacids form chains; chains form protein molecules. This is a very short description of protein formation. If the magazine would like more information about this, it must inform me and it will receive articles about it. If you should wish to have more details, or have other questions, then just write; and excuse the mis-pellings. Kindest regards, Jens V. Bruun, Engstion 12, 2630 Tasstrup Danmark. Phone: 02-99-70-01."

I was delighted to be allowed to read and quote Dr. Bruun's letter. Although we had already discovered that *C. usteriana* is more commonly known as *C. aponogetifolia* in the United Kingdom, this is the first time that I have learned that *C. balansae* is also the same species.

Last summer I spent a considerable amount of money

*Cryptocoryne usteriana (C. aponogetifolia)* which cost me 55 pence.

purchasing one or two plants of a large number of species of tropical aquarium plants; and an equally large amount on photographing them to illustrate future features and articles. Photographs 2 and 3 show the plants of *C. usteriana* and *C. balansae*—as they were when I purchased them. Although the plants are of different sizes, a careful study of the photographs seems to confirm Dr. Bruun's facts that they are, indeed, the same species, *C. usteriana*. Had I had the opportunity to read Dr. Bruun's letter sooner I could have saved myself the time, money and trouble I spent on buying and photographing two plants that we now know are *C. usteriana*. So, from now on you'll know that plants offered for sale under any of the three names listed will be, if properly identified, *C. usteriana*.

Incidentally, I'm often asked by readers where specific

*Cryptocoryne usteriana* bought as *C. balansae* at 35 pence.

*Tuberculata melanoides* (malayan sand snails).

aquarium plants may be purchased—especially uncommon species. Occasionally I have been unable to help in the past; but recently I purchased some excellent plants, by post, from Mr. Barry R. James, of Everglades Aquatic Nurseries, Baunton, Nr. Cirencester, Gloucesterhire; and I invested in a copy of Mr. James's plant catalogue. I was pleased to discover that he stocks a wide variety of plants—both common and uncommon—including the proverbial Java moss. In fact, Mr. James said: ". . . I will always buy Java moss in any quantity from anybody so please make a plea in your column for aquarists not to throw away rarer plants. . . ." I hope to include further comments from Mr. James's letter later.

Photograph 4 shows some *Tuberculata melanoides* (I call them Malayan sand snails)—as mentioned by Dr. Bruun's in his article and letter—taking a turn round the front glass in one of my tanks. This snail is attractive and interesting (it is a livebearer) and does not normally damage aquarium plants. It's the only species of aquatic snail that I would not discourage from my planted tanks.

**Spelling**

Recently I wondered if the spelling of *Ceratopteris thalictroides* had had the spelling of its second name changed to *thalicroides*, the spelling that appears throughout the book *Aquarium Plants*, by Dr. Karel Rataj and Thomas J. Horeman. (The plant is better known as water sprite or Indian fern). I consulted *The Aquarist* plant expert, Dr. Vivian de Thabrew—who told me that the original spelling, *C. thalictroides*, was and remains correct. It's reassuring to know that this old favourite has retained its name in a period when other favourites—such as giant Hydrophila and water wistaria have had their frequently-used scientific names altered. I was interested to learn that Dr. de Thabrew has two new books about tropical plants with his publisher—they may well be available by the time you read this—and that he is in the process of preparing an additional two books about coldwater plants. I look forward to reading all four books when they are available.

Things tend to change quickly in the realms of proper names within our hobby and parts of some books may be out of date shortly after they are published because of continuing research by experts. That's where *The Aquarist* can help to keep you up-to-date with current changes and developments. Those of us who do not claim to be experts can often make contact with the experts and pass on to you their latest findings so that you too can keep abreast of current developments.

**Miami Seaquarium**

Mr. Peter Burgess, B.Sc., L.I.Biol., wrote to me from 35 Macdonald House, Orkney Street, London SW11 5DW; and the subject of his letter should be appropriate for a cold January day. Mr. Burgess says: "In response to your (recent) article asking for opinions on public aquaria I would like to suggest a couple which I consider to be well worth a visit. During a trip to South America last year (1979) I had a brief stopover in Miami, Florida. Being a fish-lover rather than a sunbather (I placed) the Miami Seaquarium at the top of my list of places to visit. The Seaquarium lies on the Richenbacker Causeway which links Miami City with Key Biscane. Getting there is easy, for a local bus service—not a Greyhound—takes you right outside the entrance and also connects with another bus to Miami airport. The entrance fee to the aquarium was $6—half-price for children—and worth every cent.

"There are regular displays of killer whales and dolphins, the latter being staged in a large and natural-looking open-air enclosure which was used as the film set for the TV 'Flipper' series. Other attractions include a manatee enclosure. These animals (sea-cows) are rare nowadays and are native to Florida waters. A large shark pool commanded the attention of a crowd of people, especially at feeding times when these huge creatures lunge out of the water to bite chunks out of a large piece of meat suspended above. The pool contained a variety of species including the hammerhead and saw shark. There also co-existed a number of smaller fish which presumably 'bridged the gap' between the sharks' main meal times.

"In one part of the grounds there is an enclosure of water with a central island. Its inhabitants included green iguanas, and birds such as flamingos and pelicans. In a tree above perched a king vulture. The splashing of a small turtle turned my attention to the water. I got quite a shock when I noticed that the surrounding water contained a variety of tropical marine fishes, including trigger fishes and small groupers (sic). The triggers had a habit of moving to the shallow banks to lie on their sides, exposing part of the body surface to the air. Any suggestion why? It was a hot day, around the lower eighties, so perhaps it was to increase body temperature. Whatever the reason, it gave an ideal pose for a photograph.

"The indoor aquaria were equally fascinating. A large, circular building housed a number of marine aquaria around its perimeter. The tanks were well furnished

with marine fish and invertebrates. Some of the displays depicted certain underwater habitats such as mangrove swamps and brackish water. In addition there were two enormous aquaria which housed the larger species, including some of the local sport and food fishes.

**Coral World**

"The second place I visited was on return from my South American trip, when I spent a few relaxing weeks in the Virgin Islands—which are situated near Puerto Rico. On the north-east coast of St. Thomas—one o the U.S. Virgin Islands—lies Coral World. It is the second 'marine park' to be built; the first stands in the Red Sea at Eilat, Israel. At $5 entrance fee it is excellent value. An observatory stands some hundred feet offshore. There are three levels to the obseravtory. The entry level has a comfortable bar with a superb view of the surrounding coral reef and nearby islands. The middle level houses a circular 'reef tank' which I'm afraid to say was sparsely decorated. The lower level contains the underwater observatory. It comprises a circular room with twenty-four viewing windows that look out into the sea some fifteen feet below the surface. Outside lies the coral reef and its many colourful and bizarre occupants, which are free to come and go as they please. However, daily feeding of the fishes by one of the staff encourages some of the fish to be permanent residents. Some of the fish visible from the windows included groupers, snappers, squirrel fishes, damsels, wrasses and flutemouths. The sergeant-major fish were particularly abundant. I also saw single specimens of a sand-diver (*Synodus sp.*) and the trunkfish (*Lactophrys triqueter*). A large, green, moray eel made a brief appearance past one of the windows. Occasionally an enormous shoal of small, silver fishes would come into view near the water surface, probably following a mass of drifting plankton. There is excellent light penetration in the crystal-clear waters and I managed to take good 'underwater' photographs using films as slow as 64 ASA.

"The observatory is open at night time; although I was unable to make such a visit. The otherwise dark waters are illuminated by lights so that the nocturnal life of the reef is revealed. Apparently at night time huge tarpon (*Megalops atlanticus*), reaching five feet, hunt around the observatory for smaller fish.

"In addition to the observatory there is also an indoor exhibition of marine aquaria which houses many of the native fish species. The tanks are decorated with living seaweeds, corals and sponges and numerous other invertebrates. The overall effect was truly outstanding. There was also a fluorescent coral display. Four aquaria hold a variety of living corals and sea anemones which fluoures-cence as a result of overhead ultraviolet lights being in use.

"Although one can join a guided tour to Coral World, I do not recommend it for it allows only a few minutes in the underwater observatory which, for anyone interested in fish, is sheer cruelty! Make your own way there and find yourself viewing through the window for hours. A wonderful way to round off a visit to Coral World is to walk a few yards to the adjacent sandy beach, put on a snorkel and mask, and join the fishes in their salty world. Paradise!"

Blakemore Road, Walsall Wood, Wesc Midlands WS9 9JW, heads the following letter, written to me in beautiful italic writing by Mr. Christopher Charles Moore. Chris says: "I enjoy your column immensely and look forward to the whole magazine every month. I particularly like the 'club-like' atmosphere and the feeling that people matter as much as their fish. As an invalid I have rather more time than many of your other readers to spend with my fish—a fact that said fish might have definite views on. . . . I have two 36 in. tanks, one housing guppies—nine adults and 12 juveniles, one small, young angel, four *Corydoras paleatus*, one 2 in. *aymonieri*, one platy of obscure parentage, and eight white cloud mountain minnows; the second, sited temporarily (honestly!) on the dining room table, initially housed my eight-year-old daughter's two veiltails, two moors, and an assortment of nonedescript beings loosely termed goldfish. Now, as a result of bullying resulting in the demise of the two moors, the nine most belligerent goldfish have taken up residence in a friend's pond. Before the tank had a chance to look empty a young friend arrived on the steps complete with plastic bucket. 'Can you look after these until I get my new 48 in. tank? Only I've sold my old tank.'

" 'These' turned out to be seven angels, a red male and a green female swordtail, and an extremely antisocial, 3½ in. aymonieri. These were rapidly followed by a pair of ailing kribensis, six zebra danio, and two loaches said to be weatherfish. I don't know if it is recommended but this unlikely brew is now in with the goldfish. The female kribensis did not survive the mandatory 24-hour salt bath and one of the smaller angels was bullied to death by a larger, all-gold angel. This latter and the aymonieri have subsequently been sold, so harmony prevails.

"I look forward to your product reviews dealing with more basic aquarium equipment, e.g. filters and pumps, so that we novices can pick our way through the never-ending maze of bumph. My own problems are not just restricted to a minimum cash supply, but also to the fact that because travelling any great distance without a car is beyond me I cannot easily exchange news, views, ideas and such through a club—though I don't know of one locally, anyway. With regard to this, local dealers are a bit of a non event. Such fish as are on sale are often in a very sorry state indeed with a fair leavening of dead fish in most of their stock tanks. They also appear to use the same suppliers since I've noticed the same colour strain of guppies is available in all four shops at the same time. Often they appear to be the runts culled from a breeder's development stock!

"Why do manufacturers of U/G filters refuse to recognise that tanks larger than 24 in. × 12 in. are becoming more popular with hobbyists? Apart from King British no one makes a 36 in. × 12 in. Maybe it is thought that the sheer size negates maximum efficiency.

**Filters**

"I'm quite sure that the technically minded can grasp the significance of X litres/p.m. at a depth of 12 in. as claimed by the pump manufacturers; but what is more important to us mere tyros is: how many box filters, U/G filters etc. a given pump will drive. In conclusion may I ask you if, through your column, you could enquire if anyone has any surplus equipment, i.e. pumps etc., and especially fluorescent lighting suitable for 36 in. tanks, and/or old magazines dealing with fishkeeping, that I could acquire.

"Continued health and success to you and yours and may your column long continue to shed a ray of light and wit in our otherwise mundane lives!" (Thank you for your kind comments, Mr. Moore. Perhaps some of the many people who write to me have a spare piece of equipment that they no longer use or want. I've always found the vast majority of aquarists to be extremely generous; and I feel sure that some with a spare item of equipment will contact Mr. Moore. B.W.)

Several readers have asked about the progress of my *Aponogeton ulvaceus* and my Cape Fear spatterdock. The former has not got only three, small leaves despite its having been moved to another tank. It seems as if it won't be making any progress. The spatterdock is making much better progress: although its leaves are not sturdy like those one sees in occasional photographs, it now sports ten leaves and looks most attractive. I hope to include a photographic record of its progress in a future issue.

I've used up a lot of this month's feature with reports of my own experiences so I'd better conclude by letting a few readers have a say before I run out of space.

**Best plants**

Mrs. Sue Whittenham resides at 37 Crofton Road, North End, Portsmouth, Hants. She says: " . . . The plants that grow best for me are species of *Sagittaria* and the Amazon sword plant. I'm told we live in an area of very hard water—although I've never bothered about water chemistry—but whether it's that or the fact that my two tanks receive maximum sunlight all the year round because they are situated in my conservatory, I don't know. I did try black paper stuck to the outside of my tanks at one time, but it cut out so much light that plant growth was seriously affected and I had to have illumination on all day to see my fish. I now allow the sides and back of my tanks to become covered with algae and keep only the front glass clear. It looks natural, my fish are thriving, and my plants grow normally.

"A useful tip that I discovered accidentally concerns the use of activated charcoal in internal box filters. Some brands of charcoal have pieces which are small enough to get stuck up the outflow tube, and I found it a nuisance having to poke a knitting needle down the tube to clear the blockage. Then I hit upon the idea of enclosing the charcoal in a small, nylon bag—which is also useful when it comes to rinsing as all I have to do is rub the bag of charcoal between my hands under a running tap. My source of cheap, nylon bags is an old pair of tights. Cut the foot from the tights at ankle level and you have a perfect-sized bag for your aquarium charcoal."

I was interested to receive a copy of 'Guppy Gossip', the club magazine of Haringey Aquarists' Society, from Mr. Adrian Dempsey, the magazine's editor, whose home is at 31 Oakfield Road, Stroud Green, London N4 4NP. The H.A.S. meets on the first Thursday of every month at Pax Hall, 59 Park Road, Hornsey, London N8, at 8.00 p.m. 'Guppy Gossip' contained seven printed sides of A4 paper and contained club news and a few short articles—including an illustrated one entitled 'How to Photograph Aquarium Fish', by M. Desborough. The title 'Guppy Gossip' has an alliterative appeal; but I searched the magazine in vain for any information about guppies.

Did you visit any of the big shows in the autumn? One reader who visited the Alexandra Palace Show in October told me he found it rather disappointing—a view which he is perfectly entitled to hold. I should be pleased to receive the opinions of other readers who visited aquarium shows last year. For you, what is the appeal of the tableaux displays?

Mr. Colin Lindsay's home is at 4 Moygashel Park, Moygashel, Dungannon, Co. Tyrone, N. Ireland, and he says: "Living here in Northern Ireland doesn't give one much scope for fishkeeping; fish are hard to obtain—our nearest shop is 20 miles away; and equipment is expensive and usually limited in the chemists' shops around Dungannon. Thus the fish bought—on average once a year by me—need to be hardy, yet exotic in their own right, limiting me to the easier kept species; which makes me very envious of other aquarists as I leaf through your magazine. The only discus I have ever seen here was one-eyed and cost £5·00.

**Pond fish**

"In order, therefore, to make the hobby more exciting, I turned a short time ago to pond keeping, digging and lining a pond of 5 ft. × 4 ft. × 2 ft. I knew our local chemist kept common goldfish, so I bought four for £1·20—which I thought was good value—and installed them, expecting to supplement them with more exotic varieties as time went on. How mistaken I was! The so-called common goldfish turned out to be real beauties. One, rightly guessed to be a male, is pure golden: not a trace of white, with a long flowing tail as long as his body, now around three inches after only five months' residence. The other three vary from white to orange to red and in my opinion rival any koi.

"Even more surprising, I noticed spawning about two months after they had been introduced. I removed the parents to a small tank while the eggs hatched—more eggs were removed from the tank plants later—and now have over 200 baby goldfish from ½ in. to 1 in. long. So any Irish readers who would like any should contact me. If the babies resemble their parents they should be worth the trouble. Unfortunately I have great difficulty in obtaining pond plants here—especially

*Elodea canadensis*, which I particularly like. Would anyone care to swap or sell any?" (I can appreciate some of your problems, Mr. Lindsay, because I live about 25 miles from my nearest tropical fish stockists. My fish-buying expeditions usually amount to only one or two per year; although I must say I have seen good discus on sale on numbers of occasions. If, like myself, you cannot buy aquatic plants in a local shop why not do as I do and send for some to one of the firms that advertise in *The Aquarist*. I named a reliable supplier earlier in this month's feature. If the cost of postage and packing makes you pause to think, just consider what it would cost you to make a round trip of 40 miles or so to buy plants in a shop. B.W.)

**Aquarium gravel**

Recently I required some aquarium gravel to top up the level in one of my tanks. The only gravel available in a local pet shop was a branded bag containing a stone of gravel. I was unable to see the colour or grade of the gravel because it was in a sealed bag; and obviously I was unable to test it for the presence of calcium carbonate in the form of limestone chips, shells, marble etc. I did not need 14 lb. of gravel but decided to buy the bag anyway or contemplate a 50 mile round trip to a dealer's shop. I was quite surprised when I got out a £1 note to pay for the bag of gravel and then discovered that it cost £1·45. Is that not rather expensive; or am I just out of touch because a good few years have passed since I bought aquarium gravel—as opposed to gravel bought and subsequently used in an aquarium? (Incidentally, I've since tested several samples of gravel from the £1·45 bag that I bought and I'm pleased to report that I found no evidence of pieces of calcium carbonate in it. I tested the sample using dilute hydrochloric acid.)

For a future *W.Y.O.* please send me your opinions on any of the following: (a) the brand/type of tungsten bulbs that you use over your tanks to encourage good plant growth (some brands/types do not last very long in such situations as, no doubt, you are well aware); (b) the first foods you feed—including manufactured foods—to baby livebearers and baby egglayers; (c) current ranges of aquarium heaters and aquarium thermostats—both separate and combined units; (d) heater/thermostat holders that aren't big enough, or don't stretch enough, to hold modern units; and those that do accommodate them; (e) good brands of scrapers/cleaners for removing algae from the glass of an aquarium; mention also those that don't do a very good job, or snap in two, or require razor blades that one can no longer obtain, or necessitate rolled up sleeves and wet arms to clean the lower regions of the glass—if such items exist; (f) planting sticks—including those that quickly plant and uproot a plant in one easy movement; (g) breeding white clouds; and (h) good, dwarf plants for the front of a tropical aquarium.

Best wishes once again for 1981. Please drop me a few lines—on any topic—unless the price of a stamp would mean your having to starve your fish. Good-bye until next month.

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after the birth the fry will swim up to the surface to get their swimbladder filled with air.

Immediately after the birth one can see a ribbon-like structure *trophotaeniae*, on the vent of the fry which has functioned as a sort of umbilical cord and placenta. This ribbon-like structure is flat and rich in blood.

The female does not look well at all after she has given birth. Most of all she looks like an empty sack. The skin of her belly is hanging loosely down and now and then it looks as if it is curved inwards. The first time one sees her after a birth, one can really get worried that she can manage to stay alive. But mostly there is no reason to be worried. Immediately after she has given birth she has a very good appetite and if one does not make sure that the fry can find places to hide, then she might devour her new-born offspring. One can move the female immediately after the birth but in that case one must make sure that the type of water and the temperature in both tanks are the same.

Soon after the female has given birth she is ready for a new insemination and approximately 7 weeks later she can give birth to a new brood. When my female gave birth for the first time there were 11 fry and the next time, 49 days later, there were 12 fry. The third time —46 days later—30 fry were born.

Right from birth the fry can be fed with *Artemia*, micro-worms and dry food.

When the fry have reached the age of 108 days they can give birth to their first brood of baby fish. This means that they were actually sexually mature 46 days earlier, when they had reached an age of 63 days or 9 weeks.

After each birth a new insemination must occur if one wishes to get offspring, as the female cannot store sperm and produce multiple broods as in the case of swordtails etc. The male does not possess a gonopodium. Instead he has a short and very muscular tube, *pseudophallus*, at the vent and this may be capable of forcing sperm out during mating.

In the upper third of the ovary the eggs are produced. When they have been inseminated and hatch out they are stored in the remaining two-thirds of the ovary, where the wall contains a series of blood vessels. The eggs are smaller than in typical livebearers, and the yolk is smaller which means that the fish larvae can not get all their nourishment from the eggs alone. Each fish larva develops a number of flat, ribbon-like and blood-rich structures called *trophotaeniae*, which convey nourishment for the fry from the mother.

If this form of receiving nourishment from the mother sounds familiar, then you are right. It is what happens with mammals and not with other animals in the world (says the biology books), but no one has told the *Xenotoca eiseni*.

We are left with the open question, is the nourishment the fry receives from the mother absorbed in the same way as it is in mammals? If this is the case we have in the fish found a parallel development to the mammals, which is unique.

# Why didn't somebody tell me? (Part 4)

by Jim Finn

THERE I was, quietly enjoying a good look through Dick Mills' latest book when the 'phone rang.

Before I had time to give my number a rather exasperated voice said: "That you Jim? I need your help quick!"

"What's up," I asked.

"We've got a flood. Can you bring a spare tank?"

"Yes, I've got a two-foot one empty at the moment."

"Good. Get round as quick as you can will you."

"Just a minute, . . . don't hang up yet . . . who am I talking to?"

Sorry Jim, this is Bob. See you in a few minutes, okay?"

"Okay," I replied, and after setting the phone back in its rest nipped out to the fish house for the spare tank.

It did not take long to get round to Bob's house and I knew I'd found the right place when I saw the water creeping out under the front door.

I knocked, and somebody splashed down the hall to let me in.

Bob stood there in his bare feet with his trousers rolled up to the knees and a look of despair on his face.

Did he have problems!

A three foot by eighteen by fifteen tank on an ornate stand in his hallway had suddenly cracked with a noise like a bullet and sent about thirty gallons of water cascading over a new hall carpet. Bob's wife, Linda, wasn't very happy with the situation to say the least, but she had rallied round and the inhabitants of the tank reposed in buckets, jars and fruit bowls all over the living room.

With the fish reasonably safe for the present, we began the task of salvaging first the carpet, and then the tank.

The crack had appeared right across the front glass almost from corner to corner. We stood looking at it for a few minutes while Bob slowly shook his head.

"How could it happen?" he said. "It's three-eighths plate glass."

When we had cleared all the gravel, plants and rocks out we carefully lifted the tank down to inspect the damage more closely, and as we moved it I realised what had caused the problem.

"Where's the polystyrene from under the tank?" I asked as we shifted our burden carefully on to the floor.

"What polystyrene?" said Bob. "I didn't have polystyrene under my old tank."

It turned out that Bob had had a three-foot angle iron tank on this stand for a number of years and had only recently changed over to an all glass one.

Angle iron tanks, especially if put on stands from new, did not need to stand on polystyrene or packing of any sort as the glass bedded itself in to the soft putty to take up any irregularities or pressure points.

Although the silicone used to stick the all-glass tanks together is flexible it doesn't have the same 'give' by any means.

When I ran my hand over the top edge of the stand I found a rather uneven patch which co-incided with the start of the crack across the front of the tank.

The weight of the water had meant an increase of pressure on the glass at this point and a vibration had suddenly caused it to crack. It could just as easily have been the base glass that had shattered, but perhaps it was lucky that it hadn't or an electric wall plug might have been soaked as well.

There was nothing we could do for the tank that night and it was obvious that we were never going to get all the fish into my little two foot tank so we finally bagged them all up and took them round to a couple of empty aquariums in my fish house.

When they were safely installed in their temporary homes and my wife had made us a nice hot cup of coffee, Bob came out with the classic phrase that I heard so often:

"Why didn't somebody tell me!"

"About putting polystyrene under tanks you mean?" Everyone probably thought you knew. You have been keeping fish for quite a long time you know."

"But that sort of thing didn't happen with angle iron tanks."

"On yes it did, but not as often because it depended on the thickness of the putty. If you skimped then you could find yourself with pressure spots on the tank frame and the result would be the same. With an all glass tank it becomes essential to put polystyrene, or something that will absorb the irregularities, under the tank. Polystyrene is best because it is light, easily obtainable and pretty easy to cut to size, but several layers of corrugated cardboard would do just as well. That does have the disadvantage of not being waterproof like polystyrene, however, so you can end up with it getting a bit soggy and not doing its job quite as well if you are not careful."

"I'll be careful all right," replied Bob. "I'll get the new glass tomorrow and we can repair the tank, then I'll make sure it goes on its sheet of polysytrene when we set it up this time."

I nodded and then suggested that he should also look at

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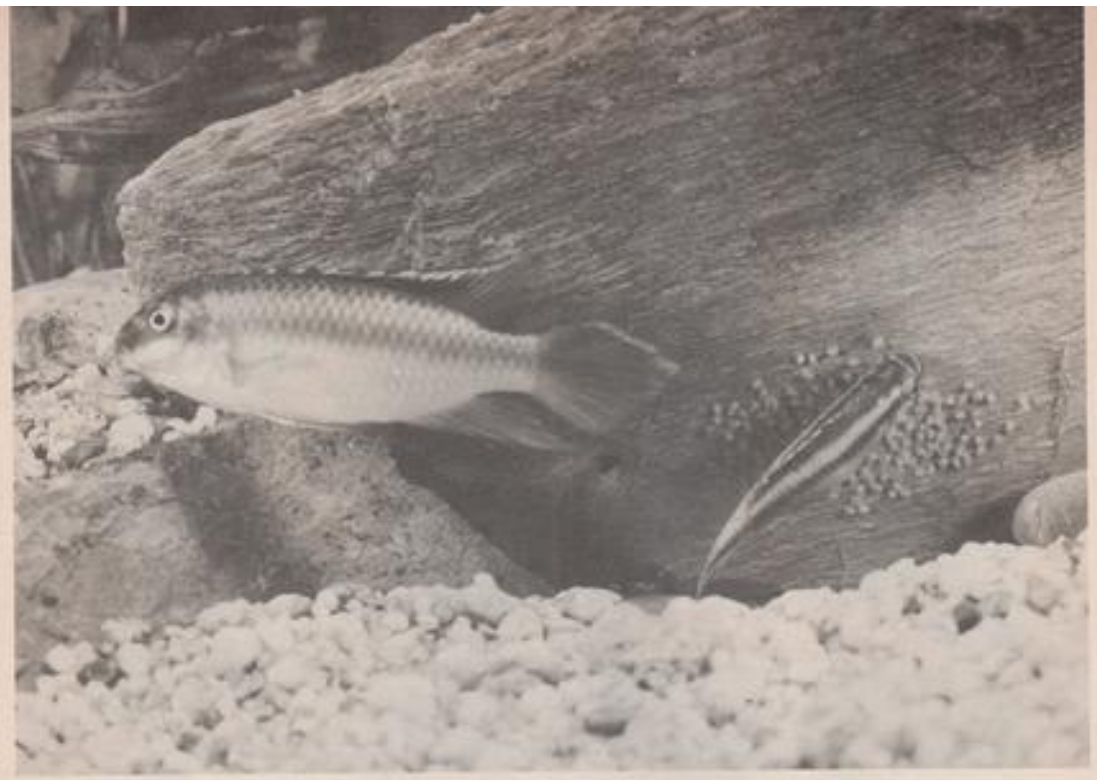

While the female lays the eggs the male stands by to fertilise them

# *Pelvicachromis pulcher*

## *Written and illustrated by Rudolph Zukal*

THE FISH WHICH is better known to aquarists as *Pelvicachromis 'kribensis'* belongs to the smaller representatives of the large Cichlid family. In its natural environment, tropical West Africa in the delta of the rivers Niger and Kribi, it attains a size of 10 cm, in the aquarium only 8 cm.

On the subject of the correct or incorrect nomenclature for individual species of the genus Pelvicachromis, many of which used to bear the name Pelmatochromis, Sterba writes: "Despite many revisions the position with regard to taxonomy is still far from clear. As yet one does not know whether it is a question of very variable species or whether the individual colour varieties already constitute separate species."

Many species are often confused by aquarists, as they are often very similar in body shape and coloration. According to Boulenger the genus Pelmatochromis has 37 species. After revision by T. Regan the number of individual species was reduced to 20-22. Species of the genus Pelvicachromis were imported to Europe as early as 1907, although not to any great extent. It was not until 1945 when this fish, imported under the name *Pelmatochromis kribensis* and named after the river Kribi in the Cameroons where it was collected, became widely known, that the question was discussed whether it was a separate species or a sub-species. In any case the fish was described as *P. kribensis* by Boulenger.

This small representative of the Cichlids is one of the most popular members of the family because of its splendid colouring. Perhaps its small size and peaceableness are other points in its favour. The species can be kept in individual pairs in community tanks. The temperature should be between 22°C and 24°C. Occasionally the fish digs in the sand, but this can be avoided with a tank floor of coarser material. The fish must be provided with available cover. I would advise against keeping several adult specimens in the same tank, for otherwise, sooner or later, fights between themselves will follow. Other species are avoided and hardly noticed.

The body of the male is slimmer and larger, the top of the head is wider. At the edge of the dorsal fin is a silvery,

gold-tinged stripe which continues as far as the tip of the fin. The upper part of the caudal fin is decorated with between one to five round, dark markings which have a bright yellow border. The fins are violet. The female has dark red, rather large spots on the sides of the body, is darker in coloration and has dark red ventral fins. In young fish, of course, this coloration is not so marked. The fish feel at home in a largish tank which has a generous number of plants and several hiding places. The water should not be hard. As already noted, they are peaceable, active fish which get along well with other species in the tank. They like live food most of all, although algae as well will be eaten readily.

The fish spawn in the following manner. The eggs are stuck against a firm substrate with the female's abdomen uppermost and the male fertilises them at the same time. For this purpose a flower pot is suitable, or a piece of slate or something similar set at an angle. The temperature must be raised to around 26°C and the water must not be hard. The female takes care of the brownish eggs, so it is advisable to remove the male after spawning has been completed. After three or four days the young are free-swimming and must be given very fine food. They swim in a shoal in close proximity to the mother.

Male fertilising the eggs

A pair is here shown inspecting a flower pot for spawning purposes (male above)

# Native Marine Aquaria

## by W. H. & P. A. Ashton

NATIVE MARINE AQUARIA are a neglected part of our hobby, even amongst those who, like my wife and myself, live on the sea's doorstep. There is something very satisfying in collecting your own specimens instead of being handed them over the counter in a plastic bag. This way you do not have to pay, either. Perhaps there is a little 'bring 'em back alive' in each of us.

Our marine tank is a three foot all glass one and we use under gravel filtration with Gro-lux lighting. The filters are anchored down with pea-gravel covered with crushed cockle shells, although we have previously been very successful without the cockles. The water we take direct from Morecambe Bay, not too difficult when, like us, it takes only twenty seconds to walk from our doorstep onto the beach.

Our collecting gear is always at hand; waders, nets, plastic containers, battery-powered air-pumps, my pipe and tobacco and a set of local tide-tables. The specimens are easily found; all you need is a keen eye. Hermit crabs are found in their hundreds in the boating pools, the pool walls hide shrimps, prawns, peacock worms, sea-squirts, crabs (both shore and edible), and blennies. At different times of the year other species are found in the pools, including some creatures unfortunately not suitable for the tank such as herring fry.

Local piers are covered in life, beadlet anemones, mussels, plumose anemones, barnacles, periwinkles, dog-whelks and their eggs and in spring the grey sea-slug laying its eggs. Shallow pools contain dahlia anemones, more hermit crabs, sagarita anemones, gobies, cockles and starfish. A word of warning, however; we have often found weaver fish on the bay.

There are rich areas everywhere; under every stone there is a completely new world. In various parts of Morecambe Bay you can quite easily find sea-urchins, pipe-fish, sea-hens, butterfish, brittle stars and countless other creatures.

Almost all specimens take readily to the tank. A few judiciously placed stones soon become home to the beadlet and plumose anemones, the sagartia dig down to the under gravel filter with only the tentacles showing; mussels 'tie' themselves to the glass with those amazingly strong strings and crabs fine dens. Water changes are not too important! However, should anything die it must be removed at once or else a water change becomes essential. Mussels are the worst offenders; when trouble appears check these first. Some specimens take to the tank too well. Plumose anemones move across the glass leaving bits of flesh behind; left alone these become full grown anemones.

Feeding is easy and cheap. A mussel (kept alive and fresh in the tank) broken up is ideal food for beadlet and dahlia anemones, shrimps, prawns, fish and crabs. This must be fed individually to the anemones; small amounts will be found by the others. Starfish will eat almost anything. In the absence of 'ready' food they wrap themselves around cockles and eat them out. In emergency part of a fish finger, with bread crumbs removed, is welcomed.

There are several ways of feeding the plankton eaters, plumose anemones, peacock worms etc. Proprietary

invertebrate food works but is expensive. A mussel squeezed into the water brings the peacock worms out to feed; a small change of water introduces plankton as does shaking out a piece of seaweed fresh from the bay.

The three most suitable seaweeds to start a tank with are: *Chondus crispus*, sea lettuce and coralline weed. Seaweeds in general are hard to keep, but these seem the hardiest.

The above is only an introduction to native marine aquaria. The beauty of the hobby is that you never know which unusual find you will make on your next outing. You do not even need to live by the sea. We have brought a sea-urchin home alive and well over a journey of 120 miles in a plastic container with a battery air-pump and air-stone in a motorcycle pannier.

When we go to an aquarium, see the tropical marine anemones on sale and think of the much more attractive and colourful ones in our tank that we have collected ourselves from our shores, at no cost, we feel a smug sense of satisfaction.

# From a Naturalist's Notebook

by Eric Hardy

DO ANGLERS DISTRIBUTE plant-seeds between watersides, like birds and beasts? We know they introduce fishes to different waters, but seldom pondweeds as aquarists do. However, because a gravel-pit at South Harefield, Middlesex, is much frequented by anglers, London Natural History Society suggests that the discovery of scarce golden dock there was due to its burry seeds being carried on their clothes. It is also suggested that they brought the seeds of the rare bur-marigold, *Bidens frondosa*, by the Grand Union Canal, a plant which also grows by the canal at Linslade in Bucks. They further record another increasing alien bur-marigold, *connata*, by the canal near Iver Station, Bucks.

Their botanical report records a very scarce southern water-plant, pillwort water-fern by the large pond on Burgh Heath in Surrey, infertile as usual, though otherwise fertilised in water and releasing its spores under water. Another uncommon southerner, sterile shorewood, is in a pond at the old gravel workings on Worms Heath. South Essex still has a royal fern near Holdens Wood, Warley.

The bladderwort, *Utricularia neglecta* flowered freely in a pond near the A11, SW of Wake Valley Pond in Epping Forest. Quantitites of the brooklime *Veronica catenata* were found by the Thames at Hammersmith among commoner Thamesbank plants as angelica, hemlock water-dropwort, great water-dock and great yellowcress. Arrowhead and lesser water parsnip flourish by the east bank of the River Roding in south Epping Forest, hornwort, skullcap, water-plantains and purple loosestrife in Wanstead Park's Ornamental Water, and flowering rush and marestail elsewhere in the park.

**Thames salmon**

Before salmon re-entered the Thames lower reaches in recent years, historians quote 1833 as the last previous record. Now Alwyn Wheeler, of the British Museum, has confirmed the specimen caught in March 1861 at Weybridge and now in the local museum. It was an old fish out of condition and with upper and lower jaws beaked from age. It had previously been confused for a trout for it was only faintly spotted and scale-counting was not then used. Even though the British Museum confirmed it as a salmon so far back as 1911, it somehow was ignored by Thames historians. The fish had not spawned, but whether or not it had been in the river since entering the previous autumn, remains conjecture.

The common damselfly, a relative of dragonflies, is usually last seen on the wing about the end of September. I was surprised to watch one laying eggs on 12th October in a rain pool by Seaforth Dock, Liverpool. These dockland pools harboured two sorts of waterboatmen this year, too. I wonder if any of our local authorities could ever be so enterprising as Drummond, Wisconsin where a 27 acre sphagnum bog, the sort of place damselflies frequent, in Chequamegon National Forest, is being used as a third stage filter for the town's sewage water. The spongy mat of vegetation absorbes excess nitrogen and phosphorus compounds left in the water, as it takes some three months to filter through the bog. It then drains into the stream. Bogs are efficient consumers of nutrients and have been used for inexpensive tertiary sewage treatment in Finland for years. Biologists are now testing if the Drummon scheme adversely affects its ecology. This could happen if it were overloaded, as sewage acts as a fertiliser to increase plant growth.

**Freshwater "cockles"**

When a reader asked me where he could collect some pond-mussels and freshwater cockles to aerate his fishpond, I rather upset him when I replied there were no such things as freshwater cockles. Of course, the term appears in popular nature books, usually without any specific help. It is a bastard term for the smaller half-inch or so freshwater bivalves other than the pond and zebra mussels, in other words the four British species of *Sphaerium* and 16 species of *Pisidium*. The former have two siphons, the latter, one. Terms like horny orb shell are used for *S. corneum* in some books or for all these pebble-like shells.

The term is misleading and to be discouraged because they are not in the same genus as the true cockle, a marine *Cardium*. They are filter-feeders, like pond-mussels

but care must be taken not to leave them in the pond a moment longer than death, for they soon foul the water. Otters feed on these freshwater shellfish, especially mussels.

Northern aquarists have long benefited from cooling water run into some canals in South Lancashire and West Yorkshire which, by their warm water, bred not only goldfish, but rare molluscs and foreign pondweeds.

**"The Hotties"**

I have mentioned before one that still thrives with exotic fish, introduced by a local aquarist shop when it went out of business, then added to by aquarists, part of the St. Helens Canal called "The Hotties". It is below Church Street and so near the railway station that you see its steaming waters as the train pulls out of town. Here swim blue acara, angels, mollies, catfish, Jack Dempseys, guppies, zebras and red swordtails, big oscars, comets, gouramies, various goldfish, terrapins, etc.

Temperature averages 70°F. with water from the adjoining glass factory. Naturally the fish grow large and it is one of the few places in the country where anglers fish for specimen cichlids, especially in cold weather when other waters are frozen. The sharp-toothed cichlids bite through many a roach line's nylon trace when they take its bait, so wire is substituted. Some of the fish breed there. As well as big oscars, koi, convicts, guppies, bitterling and African mouthbreeding Tilapia, there are also native bream under the warm sprayers, roach, chub, carp and tench, one of the most interesting fish-stocks in Britain. An ideal subject for a student's dissertation!

I mentioned the other month seed-distribution by reptiles. The classic example of this is the famous large Galapagos Island tortoise and the Galapagos tomato, which is merely a small variety of our commonly cultivated species. The seeds may take 12 to 20 days to pass through its digestion, the longer they take, the less viable they are. Now tomatoes are often fed to pet tortoises in this country, especially when they are reluctant to feed after purchase. Do any of these spread their seeds further around the gardens when they roam at liberty? They did not seem to do this where we found them living feral in Palestine and Syria.

Though aquatic birds are the chief distributors of water-weeds and pond snails, vegetarian fish like carp may disperse sedges, etc., when feeding on their fallen seeds. The vegetarian water-vole is another disseminator.

**Whales**

Whales receive a big press these days, albeit mostly controversial. Aquarists became interested when dolphins, then killer whales became live exhibits at oceanaria. Most books on these aquatic mammals are a zoological list of species; but Blandfords continue their mammal series with an unbiased new book, *Whales* by W. Nigel Bonner, head biologist with the British Antarctic Survey (£10·95) an up-to-date review of the progress of modern knowledge of whales' specialised evolution, and how they overcome problems from deep diving sperm whales to rarer species locating a mate by "singing" voices in the space of great oceans. He explains the antics of Beaky, the friendly bottle-nosed dolphin notorious off the Isle of Man and Cornwall from 1972 to '78, which abducted two women and a child, as an animal separated from its own herd and socially fixed on humans in place of them.

I am surprised that its extensive bibliography doesn't include Morzer Bruyn's unrivalled 1970 Dutch and English *Field Guide of Whales and Dolphins*. Exaggerated interpretation of echo-location powers in their underwater calls has led people to attribute to whales greater intelligence than many biologists now accept. As a conservationist the author sees the ruthless over-exploitation by some industrialists, even Britain, aiding the demise of North Atlantic species.

The International Whaling Commission recently reduced 1981's legal whale kill from 16,000 to 14,500, adding the killer whale to the protected list (Russia killed nearly 1,000 last winter). The most endangered northern species is the bowhead whale hunted in the Bering Sea and there the eskimos permitted 1981 kill was reduced by only 1 to 17. Of the 24 member nations, 9 lined up with Japan against conservation of sperm whales and against control of the cold harpoon which bleeds minke whales slowly to death, until 1981-82 winter.

The biggest quota is 10,500 minkes.

Finally, catfish again. A 2 ft. specimen which left a fish-tank in a North Wales inn at Lloc last October was reported to have "stung" the palm of the woman who attempted to recapture it with gloves and a towel. She required hospital treatment for her swollen hand. The wound came from its fins, she declared. Most catfish have a fatty rather than rayed dorsal fin, and bony tubicles rather than body-scales. But there's a powerful spine at the foot of the dorsal fin which locks into a fixed erect position. This would have caused the trouble, though catfish are not venomous.

# British Aquarists Festival 1980

Oldham A.S. won fifth prize with this replica of Coronation Streets' 'Rovers Return'.

THERE IS A GOBY belonging to Mr. and Mrs. Neville Stevenson of Oldham that is unaware of its place in the history books.

It became the first fish to be awarded best in show points at the British Aquarist Festival by a judge from the Federation of British Aquatic Societies.

Mr. G. Liddle of Newcastle-upon-Tyne joined Mr. Adrian Blake of Basingstoke as guest judges at the festival this year, and it was Mr. Liddle who gave the goby 84 points—much to Mr. and Mrs. Stevenson's delight!

It was the first time that F.B.A.S. judges had participated at the show and many people welcomed the move as it must surely help to draw the two federations closer together.

One result of the invitation to the F.B.A.S. was that Mr. Roy Johnson of the F.N.A.S. was a guest judge at the Alexandra Palace show in October.

The idea certainly aroused more interest in the judging side of the show than is perhaps usual and there was quite a bit of speculation about possible differences in judging. In the end it all turned out to be something of an anti-climax in that respect with no marked differences in pointing.

In fact when you consider that judges from Scotland also took part, the standard of pointing was pretty uniform throughout—which must prove something!

Once again every exhibit was pointed, but perhaps

Marine tank which took first prize for St. Helens.

Pocklington's Fish House which won second prize.


St. Helens 'Telefishion' centre which gained third place.

fishkeepers in the north west are not yet used to this system which is adopted in other parts of the country, because only three clubs came to find out the points scored by all their exhibits. However it does seem likely that the system will be retained in the forseeable future and perhaps it may engender more interest if the pointing charts were displayed instead of being retained inside the F.N.A.S. stand.

Entries in the Champion of Champions contest, which is sponsored by 'The Aquarist and Pondkeeper', were well up on last year with entries from as far away as Grimsby, Basingstoke and Port Talbot.

In the end the winner was Mr. M. A. Hollingworth of Sherwood A.S. with a lovely example of *Haplochromis ovatus*. Mr. A. Underwood of Darwen went one better than his 1979 showing to take second place with his climbing perch, and third was Mr. R. Iddon of Sandgrounders with his *Aequidens metae*.

Standards in that class, and in nearly all the others, appeared to be at least comparable to those of previous years and in some instances were a definite improvement. There were quite a few top quality fish appearing on the stands with several attaining over 80 points.

One aspect of the show that was a little disapointing

Veiltail Goldfish which picked up a trophy for Mr B. Ogden of the Northern Goldfish and Pondkeepers Society.

Members of the Sandgrounders Aquarist Society of Southport gather proudly round the tableau that won first place at the British Aquarist Festival. Holding the trophy is show secretary Bernie Baldwin.

Mr and Mrs Neville Stevenson of Oldham A.S. pose with their daughters to show off the Best in Show trophy and Best Tropical Fish trophy which they won at the B.A.F.

were the society tableau. The adventurous and exotic designs that brightened up the exhibition hall in Belle Vue in previous years now seem to be a thing of the past and only a handful let their imagination run riot to come up with something really different.

The winners were Sandgrounders of Southport. Their log cabin was well-made and well-finished and it was attention to detail which gave it the edge over the runners-up. Pocklington's 'Fish House'—a model house in the shape of a fish—came a worthy second, and the 'Tele-fishion' shop built by St. Helens A.S. was third.

The barrel of whisky supporting a scotsman picked up fourth prize for Dumfries and a model of Coronation Street's 'Rovers Return' built by the Oldham club won them fifth prize.

Many of the other societies contented themselves with minor variations on a straightforward box, and while some of this may be due to the present economic climate, there also appears to be something of a move to concentrating more on the actual fish than the tableau they are displayed in.

The trade stands at the show displayed plenty of equipment to please everyone, including some new imports from America and Germany.

There also appeared too much more variety in the fish offered for sale with something to suit all tastes whether you were a specialist in catfish, cichlids, livebearers, or were just looking for something to grace the community tank in the living room. I must say though that I was very pleasantly surprised at the many different species of the somewhat rarer livebearers offered for sale.

The show was not without its problems however and the inclement weather plus lack of heating facilities on the Saturday, did cause considerable controversy. Heating was made available on the Sunday when over 5,000 people visited the event and ironically there were then some

Mr M. A. Hollingworth of Sherwood A.S. collects his special gold pin, plaque and cheque for £40 from Mr John Young of *The Aquarist and Pondkeeper* after his cichlid had won first place in the Champion of Champions contest.

complaints that it was too warm! The Federation management committee have stated that every effort will be made to avoid any similar situation arising in the future.

It is also understood that a 'misunderstanding' arose between the Organizer, Mr. Cliff Walker and five of the firms who signed a letter of protest about lack of heating and other associated difficulties. The committee would like to assure all aquatic firms and traders that every application for space at the 1981 British Aquarist Festival will be treated with equal merit.

# CHAMPION OF CHAMPIONS

## Competition Results

| 1st | 2nd | 3rd |
|---|---|---|
| M. A. Hollingworth | A. Underwood | R. Iddon |
| *Haplochromis ovatus* | *Spotted Climbing Perch* | *Aequidens metae* |
| Sherwood A.S. | Darwen A.S. | Sandgrounders A.S. |

## RESULTS OF OTHER FESTIVAL COMPETITIONS

Highest Pointed Tableaux (Harry Penhall Memorial Trophy): 1, Sandgrounders; 2, Pocklington; 3, St. Helens; 4, Dumfries; 5, Oldham. Society Furnished (Cussons Silver Chall): Halifax. Independent Furnished: D. Shields (Halifax). Best Fish: Mr. and Mrs. Stevenson (Oldham). Best Pair (Bill Kelly Mem. Trophy): E. and B. Calow (Bridgewater). Best Aquascape: H. Haslam (Belle Vue). Best Novelty: H. Haslam (Belle Vue). Best Breeders: K. Buckley (Bridgewater). Best Tropical (Withy Grove Press Trophy): Mr. and Mrs. Stevenson (Oldham). Best Coldwater (Belle Vue Chall Trophy): Mr. and Mrs. Blades (Fishkeepers).

Exhibitor with most Awards (John East Memorial Trophy): P. Moye (Basingstoke). Show League: 1, Sandgrounders; 2, Merseyside; 3, Bridgewater; 4, Darwen; 5, Leigh. Tropical Furnished Aquarium (Society): 1, Halifax; 2, Bridgewater; 3, Sandgrounders. Coldwater Furnished Aquarium (Society): 1, Halifax; 2, NGPS. Tropical Furnished Aquarium (Indi.) (Walter Smith Coronation Shield): 1, Mr. Mrs. Hopwood (Darwen); 2, D. Shields; 3, A. Vaissiere (L/Pool Ext.). Coldwater Furnished Aquarium (Indi.) (The Hammond Trophy): 1, D. Shields; 2, M. Collier (Stretford); 3, R. Jackson (Aireborough). Marine Furnished Aquarium (Indi.) (The Bob Tomlinson Trophy): 1, D. Ireland (St. Helens); 2, D. Baty (Dumfries); 3, K. Swale (Merseyside). Aquascape Furnished (Indi.) (Aquascape Silver Cup): 1, H. Haslam; 2, Mr. and Mrs. Stevenson; 3, Miss A. Wood (Aireborough). Novelty Aquascape (The James Kelly Trophy): 1, H. Haslam; 2, A. Beasley (Bury); 3, Mr. and Mrs. Stevenson. Plants (The Tony Beasley Trophy): 1 and 2, A. Beasley (Bury); 3, D. Shields. Common Goldfish and Comets (S) (East Lancs. Soc. Trustees Trophy): 1, L. Pountain (Runcorn); 2, P. Hewitt (NGPS); 3, L. Baxter (NGPS). Shubunkins, Bristol or London (S) (GSGB Silver Cup): 1, B. Ogden (NGPS); 2 and 3, B. Howarth (NGPS). Moors (S) (Nottingham Challenge Shield): 1, 2 and 3, Miss Andrews (NGPS). Veiltails (S) (Walter Smith Challenge Trophy): 1 and 2, B. Ogden. Fancy Goldfish Fantails, Oranda's any new V. (S) (The Chester Shield): 1, Mr. and Mrs. Blades; 2, P. Hewitt; 3, B. Howarth. Coldwater Fish AOV (S) (The Derby Shield): 1, Miss Andrews; 2 and 3, B. Ogden. Coldwater Breeders (The Edgar Chapman Memorial Trophy): (Single Tail): 1, L. Baxter; 2 and 3, P. Hewitt. Twin Tail: 1, Mr. and Mrs. Hodginson (NGPS). Livebearers (The Harrogate Trophy): (Guppy): 1, B. Newport (Runcorn); 2, J. McCartney (St. Helens); 3, Mr. and Mrs. J. Lister (Ashby). Molly: 1, Mr and Mrs. Iddon (Sandgrounders); 2, Mr. and Mrs. Blades; 3, Mr. and Mrs. Johnson (Sherwood). Platy: 1, Mr. and Mrs. P. Lloyd (Fishkeepers); 2, T. Wheelwright (Halifax); 3, E. and B. Callow (Bridgewater). Swordtail: 1, M. Strange (Basingstoke); 2, H. Woods (St. Helens); 3, J. Hall (Aireborough). AOV: 1, P. Martyn (Basingstoke); 2, M. Strange; 3, Mr. and Mrs. Iddon. Livebearers (Pairs) Guppy: 1, A. and E. Berry (Bridgewater); 2, J. Hall. Molly: 1, Mr. and Mrs. Iddon; 2, Mr. and Mrs. Blades; 3, R. Barrow (Stretford). Platty: 1, Mr. and Mrs. O'Rourke (Oldham); 2, P. Moye. Swordtail: 1, H. Woods; 2, Mr. and Mrs. Wainwright (Fishkeepers); 3, R. Blackburn (Liverpool Ex.). AOV: 1, J. Corbett (Merseyside); 2, Mr. and Mrs. Wheelwright (Halifax); 3, A. Vaissiere. Rift Valley Cichlids (FNAS. Trophy): 1, Mr. and Mrs. Wainwright; 2, Mr. and Mrs. Bollon (Pocklington); 3, Mr. and Mrs. Cooper (Bury). Rift Valley Cichlids (Pairs) (Whitwell Sym.-Kala Cup): 1, Mr. and Mrs. Norton (Sandgrounders); 2, B. Wilson (Skelmersdale); 3, Mr. and Mrs. Iddon (Sandgrounders).

Dwarf Cichlids AV (FNAS Trophy): 1, P. Moye; 2, P. Smith (Sherwood); 3, J. Wood (Bury). Dwarf Cichlids AV (Pairs) (Lancaster Challenge Trophy): 1, Mr. and Mrs. Blades; 2, H. Cooper (Bury); 3, B. Walsh (Darwen). Large Cichlids AV (FNAS Trophy): 1, Mr. and Mrs. Dawn (Sherwood); 2, Mr. and Mrs. Wainwright; 3, S. Brooks (Oldham). Large Cichlids AV (Pairs) (National Aquarist Society Cup): 1, P. Yates (Darwen); 2, Mr. and Mrs. Blades. Siamese Fighters AV (FNAS Trophy): 1, P. Moye; 2, K. Corbett (Merseyside); 3, D. Conway (Darwen). Gouramies, Paradise AV (FNAS Trophy): 1, B. Clark (Hyde); 2, A. and E. Berry (Bridgewater); 3, P. Yates. Gouramies Paradise, AV (Pairs) (FNAS Silver Challenge Trophy): 1, Mr. and Mrs. Dawn; 2, N. Snell (Halifax); 3, L. Collier (Stretford). Barbs AV (FNAS Trophy): 1, P. Moye; 2, A. Vaissiere; 3, P. Martyn (Basingstoke). Barbs AV (Pairs) (A and P Silver Cup): 1, B. Carter (St. Helens); 2, Mr. and Mrs. Stevenson; 3, A. Rimmer (Skelmersdale). Characins AV (FNAS Trophy): 1, Mr. and Mrs. O'Rourke; 2, K. Buckley; 3, B. Walsh (Darwen). Characins AV (Pairs) (East Lancs. Society Silver Cup): 1, P. Martyn; 2, A. Buckley (Bury); 3, K. Buckley. Carps and Minnows AV (FNAS Trophy): 1, K. Thompson (Liverpool Ex.); 2, B. Steadman (Runcorn); 3, I. Brown (Stretford). Carps and Minnows AV (Pairs) (The Warwick Shield): 1, J. B. Rowley (Bury); 2, K. Thompson; 3, P. Moye. Catfish, AV (FNAS Trophy): 1, P. Moye; 2, D. Parkinson (Skelmersdale); 3, A. Underwood. Catfish, AV (Pairs) (The York Shield): 1, E. and B. Calow; 2, P. Yates; 3, R. Jones (St. Helens). Egglaying Toothcarps AV (FNAS Trophy): 1 and 2, S. Ainscough (Bridgewater); 3, Mr. Mrs. Blades. Egglaying Toothcarps AV (Pairs) (FNAS Silver Challenge Trophy): 1, K. Buckley; 2, R. Scaltock (Oldham); 3, Mr. and Mrs. Dawn (Sherwood). Loach, AV (FNAS Trophy): 1, Mr. and Mrs. Blades; 2, A. Underwood; 3, Mr. and Mrs. Campbell (Ashby). Loach AV (Pairs) (The Durham Silver Cup): 1, Mr. and Mrs. H. Cooper (Bury); 2, A. Underwood; 3, J. Walker (Merseyside). Tropical Marine AV (FNAS Trophy): 1, B. Layland (St. Helens). AOV Tropical (FNAS Trophy): 1, Mr. and Mrs. Stevenson; 2, B. Walsh; 3, P. Moye. AOV Tropical (Pairs) (Leeds and District AS Rose Bowl): 1, B. Walsh; 2, M. Strange (Basingstoke); 3, L. Pountain. Breeders (St. Martins Aquaria Silver Trophy) (Egglayers) A (20 pnts): 1, P. Moye; 2, A. Vaissiere. (Egglayers) B (15 pnts): 1, K. Buckley; 2, A. Carter (Stretford); 3, A. Vaissiere. (Egglayers) C (10 pnts): 1, Mr. and Mrs. Hulse (Oldham); 2, H. Woods (St. Helens); 3, A. Chadwick (Oldham). (Egglayers) D (5 pnts): 1, D. Wilson (Liverpool Ext.); 2, T. Wheelwright (Halifax); 3, R. Rowlands (Sandgrounders). Breeders (FNAS Silver Challenge Trophy) (Livebearers) A-B (15 and 20 pnts): 1 and 2, P. Martyn; 3, P. Johnson (Stretford). (Livebearers) C-D (5 and 10 pnts): 1, M. Strange; 2, P. Harris (St. Helens); 3, R. Payne (Merseyside). Reptiles (The Keith Barraclough Trophy): 1, I. Hopkins (Runcorn). Amphibians: 1, Mr. and Mrs. Blades; 2, I. Broddell (Ashby); 3, B. Layland.

*Continued from page 32*

two other aspects of the site of his tank before he set it up again.

The first was to make sure that the floor would actually take the weight of the tank. Bob's new tank was a bit bigger than the old one and so would weigh more. Were the stand legs positioned on, or as close as possible to, joists?

Bob didn't know, but said he would check.

The joists would make sure that the tank was well supported and prevent it from going through the floor.

In fact, when we moved into our new house not too long ago, I rang the site architect to ask his advice as I was installing a two tier stand of four foot aquariums which, when full of water and everything else, would weigh close to half a ton.

When he had finished groaning, and his calculator had finished flashing up the answer, he said that he thought everything would be all right provided the tanks were positioned as close to the wall as possible—but to be on the safe side it might be as well to pop a couple of bricks wrapped in polythene under each joist if I could. (The polythene wrapping on the bricks was apparently to prevent moisture getting into the joists.)

Placing the tank too close to a wall does present its own problems, however, as another friend of mine found out.

Here it was not pressure that was the culprit, but temperature.

He had managed to get his six foot tank flush up to the wall. Everything was fine until the heater warmed the water up. The glass was cool where it touched the wall and warm on the inside of the tank—it couldn't cope with the temperature change over its thickness, so it cracked and not only soaked the carpets, but the electrics as well.

Believe me it is not easy to mop up sixty gallons of water in the dark!

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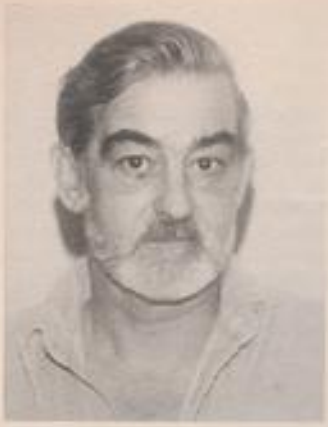
## READER'S LETTER

### *Botia sidthimunki*

I am writing to you as a last resort. I went to Matlock Garden Centre with Barton and District Aquarist Society; where I purchased, a *Botia sidthimunki*, commanly known as the Dwarf Loach or Dwarf Botia. I brought it home then read that they should be bought in a group of four or five. Here was I, a fool, buying just one of these delightful little fish which like to be in groups; so as a Loyal reader for almost a year I turn to you. Could you print this letter for me? I will exchange for some *B. sidthimunki*, Java Moss, Brine Shrimp Hatcher and outside filter. I will split with more than one reader. I have a 30 in. tank.

DAVID J. KIRKBY,
45 Providence Crescent,
Barton on Humber,
South Humberside DN18 5LU.



# Coldwater Jottings

*by Frank W. Orme*

AN OLD FRIEND, Mr. H.C.B. Thomas—known to his many friends as 'Tommy'—sent me a marked programme and report of the Open Show staged by the Bristol Aquarist's Society. Tommy is a long-standing, elder statesman of the society and I should like to thank him for providing me with information which, due to my unavoidable absence, I was unable to obtain at first-hand.

The show was held on Saturday, the 13th of last September, at St. Ambrose Church Hall, in Whitehall, Bristol. In common with the other specialist coldwater shows, this society provides clean show tanks already prepared for exhibitors to place their fish in; a further hundred plastic show tanks had been purchased prior to the event, they were therefore well able to cope with the large number of entries—some of which arrived from areas as far away as Lancashire and the Home-Counties.

A programme of 34 classes was provided, which included two classes for koi, and all were well supported. Thus the public were able to view a good variety of different coldwater fishes, both adult and current season's young. However, there was one surprising exception in that no young moors were entered, for they are usually very strongly represented. I also noticed from the programme that the number of adult and young lionheads was considerably down on the 1979 entries. Against that, as one might expect, the Bristol shubunkin was 'out in force.'

Due to advance publicity provided by the local press and radio station—plus 2,000 handbills, which members distributed—the public attendance proved excellent. After the many hours of hard work which is necessary to present a show such as this, it is very gratifying to see a continuous stream of visitors paying their admission fees and, no doubt, many will envy the publicity which the local medias so willingly give to the Bristol Society.

Mr. Joe Linale, who is a well-known member of the Goldfish Society of Great Britain, accepted an invitation to present the awards to the successful exhibitors, and travelled from London in order to do so.

Messrs W. Gregory and D. Lord repeated their Bolton show success when their bubble-eye goldfish again took the Best in Show award. These two aquarists have been comparatively unknown as major award winners until recently and must be well pleased with this double achievement. Their success should also provide encouragement to other would-be exhibitors who, perhaps, have previously been a little timid about entering their fishes in one of the larger specialist shows.

As Mr. Thomas remarked in his letter, I would regret that I "had the misfortune to miss a really first rate show."

**Home-prepared Fish-foods**

Those who feel so inclined may spend some time during this month preparing their own fish-food, in readiness for the coming season. There are a number of recipes which have proved useful, and some breeders have formulated their own—which they tend to keep to themselves. It is certainly easy enough to make one's own fish-foods, and works out a lot less expensive than buying the commercial types. Used in conjunction with the commercial prepacked foods the home-made food will form a useful change of diet—especially if supplemented with live-foods. Possibly the known recipes are as follows: 'Gordon's Formula' is a food that was devised by the late Dr. Myron Gordon, who was the New York Zoological Society Fish Genetisist for many years, it is made of beef liver and other ingredients. Remove the blood vessels, connective tissue

*Continued on page 53*

# Commentary

by
ROY PINKS

AFTER THE PLEASANT excesses of Christmas I usually have a few days' holiday, using them to browse around places for which I just cannot find the time during the busier time of the year. Bookshops are particularly rewarding at any time, so far as I am concerned, but they have a special appeal in the New Year, since they still have items for sale on their shelves, by contrast with most other establishments whose offerings always seem to have been swept away by December's extravagance and January's sales.

Although there is a staggering list of books on aquarium keeping, few are classics, and a search for those worthy of a permanent place on the bookshelf can be an absorbing occupation. Unfortunately, as the cult is really of this century, there are no valuable rarities to be had, so far as I am aware, but nevertheless there are some uncommonly satisfying volumes which can sometimes be acquired at ridiculously low prices if you can recognize a good thing when you see it. If you range through the shabby though respectable books in the natural history or pastimes sections of secondhand bookshops you will certainly form an impression of a watershed between books written in the first half of the century, and those of more recent parentage.

**Beautiful binding**

The former, produced in a more spacious age, were beautifully bound and printed, usually with copious line drawings and coloured illustrations. The texts were full of first hand information, some of it no doubt of questionable validity in the light of present day scientific knowledge, but they were very, very, thorough and the authors certainly earned their keep. The subject was always treated with respect and a disarming simplicity which showed that there was all the time in the world to observe and to report. Nothing was so unimportant that it could safely be omitted, and everything was as wondrous as anything else, and one can understand that it was then considered to be as interesting to keep *daphnia* in a tank as a newt or a minnow. There are many aquarists today, I am sure, who feel at one with this approach, and they carry out their observations and experiments undeterred by some of the screaming publications which set out to rush them from one expensive project to another, mainly for purely commercial reasons.

**Treasure**

So aquarists with an independent outlook may well find buried treasure in some of the literature now considered passé. It is impossible to do more than hint at likely purchases, as there are often surprises and sometimes miracles. Warnes did some wonderful books in the 30s, and this publisher's name is well worth looking for: the Observer's Books—pocket sized masterpieces—came rather later, and should always be snapped up even though they are still in print. "Aquariums and Fish Ponds" (A Laurence Wells), "Aquariums" and "Goldfish" (Anthony Evans), "Aquaria and Garden Ponds" (W Harold Cotton), early Innes, are some I have collected, but my miracle, for £1·50, only last year, was "Life in Ponds and Streams" by W Furneaux, FRGS, published in 1911 by Longmans, Green & Co. This has as frontispiece an aquarium framed in thick knobbly bamboo, containing at least two newts, an astonishing collection of fish, and a whole battery of crustaceans. Very strange and Victorian it all looks, but from then on it gets down to business, and you are staggered by the wealth of detail and information this book contains. The illustrations are marvellous, like the gnat life cycle on page 300 and the mussels, elsewhere, which should have put paid to all our doubts about *Unio pictorum*, of recent debate in this column, and to which I will return in due course.

**Describes and dissects**

The inter-relationship of species is treated seriously in this book and those like it. The author not only describes his subjects, but he also kills and dissects them—a possibly regrettable but necessary path to knowledge as opposed to conjecture. He talks as he writes, taking the reader along with him through some pretty difficult patches, but what a very readable and enjoyable work this is—even just looking at the drawings is a pleasant sedative.

The contrast with many modern books, on both artistic and intellectual levels, is a significant one, and it makes one reflect. I can recall using this as a text book at school, so I was glad, many years later, to meet up again with this old friend in a local bookseller's. But what struck me so forcibly was its pure authority and its comprehensiveness. It makes one wonder whether publishers now are aware of the difference, and whether they care what they publish. Perhaps there just are not the practising writers available to make such worthwhile contributions, but such as Frank Orme's recent work on Goldfish do give one fresh hope, and such will be sought after in the years to come.

**Older books**

My affections for many of these older books comes from, amongst other things, a growing aversion to the growing family of intensively illustrated and faintly informative offerings which jockey the reader into an instant this or that without mentioning the expense and the disappointments and the agonies and the unquenchable optimism

which make the real fishkeeper. Biology is what this business is all about, and we should keep this well in our sights. We are in the hobby to learn about the fish and the plants and the other creatures—not to dash from one bit of advertised technology to another on the say-so of some self appointed expert who omits none of the euphoria but somehow forgets what it all costs, plus VAT.

On the other side of the coin, some of these old books contain howlers of every description, and they are woeth reading for these alone. I would except Furneaux, of course, from this criticism, since his work is unique. Readers whose appetite may be stimulated may well obtain access to many of the books now out of print by reference to bibliographies in other publications, but nearly always their local librarian will be glad to suggest sources of information, and will make efforts to produce the books themselves on payment of a small reservation fee.

In the course of your searches for the sort of books I have suggested you will inevitably chance upon attractive specimens of others on subjects near to your heart. If you then experience that odd surge of excitement which comes when you have picked a winner, on no account put it back on the shelf for next time, for as surely as anything could be, by then it will have gone!

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# READERS' LETTERS

### Judging Standards

Having read with interest the letter from John Sanders, regarding the application of judging standards and techniques, I feel duty bound to reply to some of the points he raises.

First Mr Sanders stresses the importance of being totally fair to the exhibitor, and on this point I agree entirely. However, he then goes on to say that he feels it is a mistake to attempt to judge fish exhibited in containers with convex sides. The mini-jars, and taller sweet jars used by exhibitors, do often have slightly convex sides, but not to a degree which distorts the shape of the exhibit. I agree, however, that as such containers have rounded corners, then any exhibit wholly or partly viewed through the corner would have a distorted appearance.

The point is that if any fish exhibited in such a container, was incapable of fully deporting without its extremities being distorted by the rounded corners, such an exhibit would be open to disqualification on the grounds of being exhibited in too small a container.

The onus is obviously on the exhibitor to ensure that any fish he exhibits (whether in jar or tank) has sufficient space to deport fully and correctly, thus enabling it to be viewed clearly and correctly for judging purposes.

It would, of course, be easy to attempt to solve this problem by banning the use of all jars on the show bench. However, many thousands of exhibitors already make extensive use of such containers and the reason for this lies in one word—convenience. A mini-jar or sweet jar, is a ready-made show tank, and furthermore, it has a *screw-top*. Many fish of the smaller species are transported to shows already in their containers. In order to avoid spillage in transit, it is a simple matter for an exhibitor to screw the lids on, say a dozen jars. It is a much more arduous task to tape down the lids of a dozen small show tanks, and even then when benching the fish, the tape may have to be re-applied. Banning all jars from the show bench would, I agree, go a long way towards improving standardisation, but may also cause additional problems for the exhibitor whom we are trying to help.

Mr Sanders obviously believes that the only judges worthy of the name are MAAS judges. When commenting on the judging of the Killifish class by an FNAS judge, he states that exhibits placed 1st 2nd and 3rd were "by far not the best in the class". May I enquire as to his qualifications for making this assessment? Is it just his personal opinion, or is an MAAS judge automatically more qualified to judge Killifish than an FNAS judge?

Speaking of judges' qualifications, Mr Sanders states that he considers the MAAS to have "the only worthwhile judges' course." Again I must ask what grounds Mr Sanders has for making this sweeping statement. Has he personally undergone the training courses of all other organisations in order to make his assessment?

Having myself completed the YAAS judges' training course, I can assure Mr Sanders that I certainly consider it to be worthwhile. Trainee judges are carefully selected and their training is planned, co-ordinated and monitored by the Judges and Standards Committee to ensure comprehensive coverage of all classes. In depth training is given on all aspects of judging, both practical (on the show circuit) and theoretical (regular judges' training meetings). All trainees are subjected to continuous assessment of their progress to ensure that attention is given to areas of potential weakness, such problems being continually discussed and analysed with the persons concerned.

If, however, Mr Sanders is prepared to be specific, and state why he believes the MAAS training scheme to be superior to our own, I would be delighted for him to contact me. *Constructive* comments are always welcome.

In closing, I must emphasise that I agree with Mr Sander's call for standardisation on a national basis. This will, however, only be achieved by full co-operation between the various organisations concerned. By publicly criticising judges from other organisations, Mr Sanders is, in fact, reducing the likelihood of such co-operation and thereby destroying the basis for the standardisation for which he is supposedly campaigning.

BOB SINGLETON, YAAS 'A' Class Judge
13 Schofield Drive, Darfield,
Barnsley, S. Yorks.

# The Black Paradise Fish

*Written and illustrated by Rudolph Zukal*

THIS FISH IS VERY closely related to the well known species *Macropodus opercularis*. According to G. S. Myers it is an example of a sub-species, which is found further south, in Indo-China.

The Black Paradise Fish, as it is called here, was imported from its homeland for the first time in 1935. It belongs to the large family of Anabantids and attains a size of 8 cm. In contrast to *M. opercularis*, the Black Paradise Fish has no stripes on its flanks and during spawning, its colours darken almost into black, with the fins becoming red. At other times the fish is dark brown. Its fins are well developed.

Sexual differentiation amongst adult fish is rendered straightforward for the male is larger and his long, extended fins mark him clearly. The female, in contrast, has rounded fins. They are peaceable fish which, apart from spawning periods, share the tank with fellow members of the same species, even to the point of living together as a group. Only during spawning periods are the males rivals and then the breeder must be careful or the splendid fins are torn and often unpleasant wounds can result from biting. Many aquarists maintain that keeping and breeding these fish is the same as in the case of *M. opercularis*. I would disagree, for in my experience the Black Paradise Fish has a far greater need of warmth. Below 22°C the fish do not feel well. Furthermore, as already mentioned, they are much more peaceable. As far as diet is concerned they are not especially selective, live food being preferred.

Reproduction in these fish follows the pattern to be observed in the case of the majority of Labyrinth fishes. That is, the male builds a bubble nest under which spawning takes place. Since the fish do not spawn very readily, they are not kept widely by aquarists. This is also partly a result of the fact that many hobbyists do not have the opportunity of seeing these fish in their full suit of colours. If one happens to see them as young fish in a shop and does not know just what splendid fish they really are, they can fail to attract interest. So I wanted to awaken the interest of tropical fish hobbyists and draw attention to these Paradise fish.

I keep my Paradise fish in a community tank together with other species, including Neons and so far nothing has gone wrong, although they have grown quite big. For breeding I prepared a 20 litre tank, took the normal tap-water which I had let stand for two days, placed a few plants at the back of the tank, so that the female had available cover, placed a small clump of floating plants on the water surface and raised the water temperature to 26°C.

Two rival males

With her caudal fin folded, the female shows herself submissive and ready to spawn

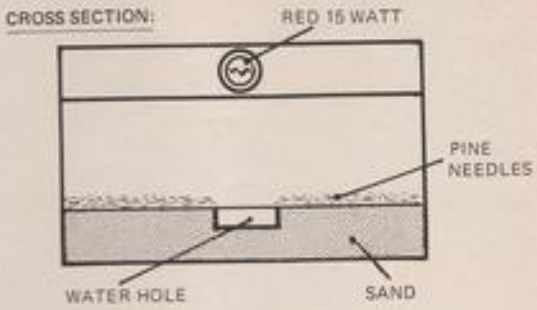
Although the male showed interest as soon as the female was introduced, shortly afterwards more interest was devoted to looking for food on the floor of the tank. On the following day I introduced a second male. The fish circled each other immediately. With wide-spread fins the rivals stalked each other without, however, inflicting any injury. The female observed this occurrence for a time, then showed an evident preference for the first partner by keeping herself constantly in proximity to him. Appreciating that rivalry might have disastrous consequences, I removed the other male and awaited further developments. I did not have long to wait. On the same day the nest was completely built, but certainly without the care which is demonstrated by *Colisa lalia*. As I wanted to observe the spawning behaviour, I removed the female in the evening and reintroduced her on the following day. After a few hours spawning took place. This proceeds in the same manner as with *Betta splendens* or *M. opercularis*, as the pictures show.

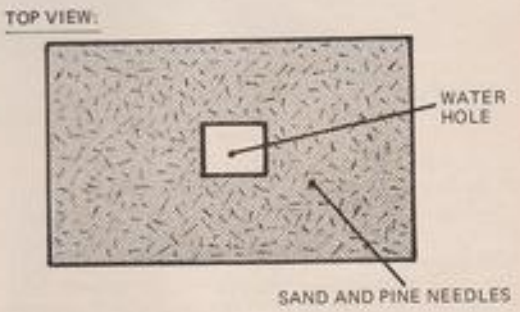
The female is turned on her back and spawning takes place

# Egglaying and rearing of the Marginated Tortoise

*By R. Walsh*

1st. Vivarium (12 in. × 8 in. × 8 in.)




I ENCOUNTERED THIS species in April 1977 when passing a local pet shop. I recognised her as a female *T. marginata* and purchased her and took her home to my other tortoises, two spur thighed (*Testudo graeca*).

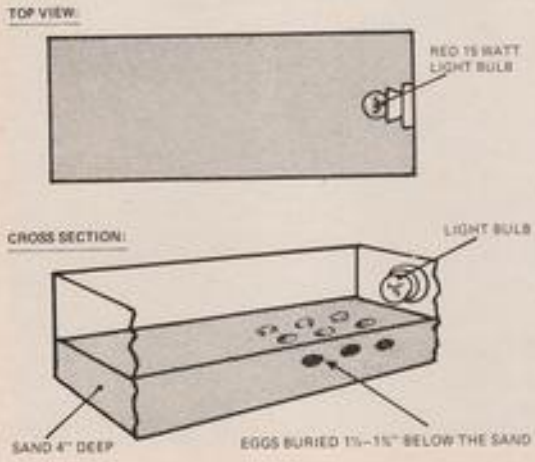
A month later (17th May) she lay six eggs of which none hatched. Then another month passed and she lay five eggs, none of which hatched.

Two months later (8th August) she lay seven eggs of which three eggs hatched on the 27th, 28th and 30th October 1977.

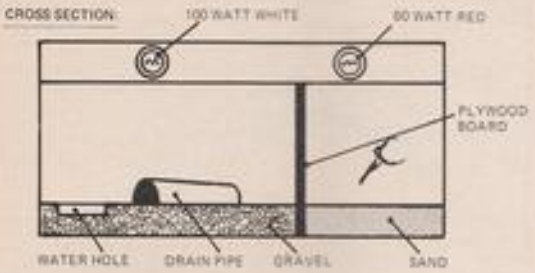
Laying of each clutch was carried out in the following fashion: She dug a hole by her night quarters using her back legs only. She struggled using one leg at a time, lifting the soil and making a large pile of soil behind her. After half an hour she had made a hole which, at either side underneath the opening, was a small cavern, which was used to accommodate the eggs.

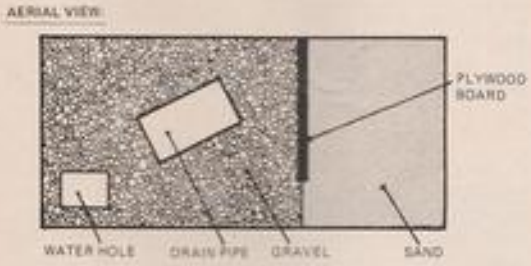
Slowly, a small white spot expanded from her tailpiece and then it dropped into the hole. The second egg dropped on top of the first egg, but when the third egg landed on the second the pile collapsed and the three eggs rolled into their allotted spaces. The fourth, fifth and sixth eggs fell easily but the seventh had nowhere to go. She kicked and pushed the egg with both legs alternately until it was squeezed into a small space.

The Incubator



2nd. Vivarium (24 in. × 12 in. × 12 in.)




When the eggs were laid she filled the hole up with the soil she had piled up behind her. As she did this she trampled the soil down around the eggs.

I immediately dug the eggs up and to incubate them I used a plastic drawer filled with four inches of sand, heated by a 15 watt. red bulb, maintaining a temperature of 80 degrees F, with the eggs buried 1½ in. to 1¾ in. below the surface of the sand.

They lay there in incubation for three months. After which they hatched, by struggling out of their egg shells and then they lay under the light at the surface. At this time they were approximately 1½ in. to 2 in. long and I fed them chopped up lettuce, water and crushed apple.

After two weeks I moved the baby tortoises to a 12 in. × 8 in. × 8 in. vivarium, with flooring material of sand and pine needles and light powered by a red 15 watt. bulb, so as not to damage their eyes when they were young.

When they had grown out of this vivarium I made a 24 in. × 12 in. × 12 in. vivarium. This was divided in two parts by a plywood board.

On one side was a sand floor and straw for the night time, with a 40 watt. red light bulb and the other side was a gravel floor with a 100 watt. white bulb. This provided the essential difference between night and day.

Here they were fed chopped lettuce, tomato and grapes sprinkled with cuttlefish bone to help harden their shells.

They lived in this vivarium for one year.

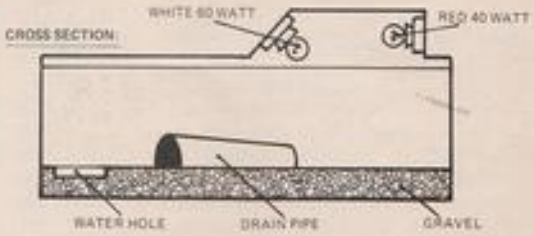
I moved the tortoises to a 3 ft. × 4 ft. vivarium. This consisted of a complete gravel floor (large stones so they could not eat it) with an area of shade provided by a drain pipe cut in half and the sharp edge removed by sandpaper.

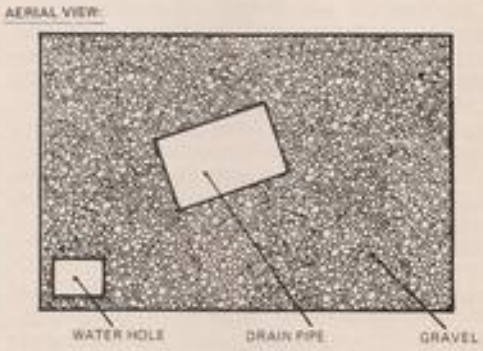
Again there were dual lights for night and day, 60 watt. for the day time and 40 watt. for the night time.

At the moment they weigh 8½ ounces, 9 ounces and 10 ounces. They live in the above vivarium, thriving on their diet of lettuce, tomatoes, clover, dandelions, cabbage (the hard centre to strengthen their jaw muscles) and apple. All sprinkled with cuttlefish bone to strengthen their bones.

On warm summer days I take the tortoises outside into a vegetable cold frame where they receive the valuable ultra violet rays of the sun and also the nutritious clover and grass.

I also let them free in the garden to exercise their legs and they happily follow and nip the adult tortoises in the garden.



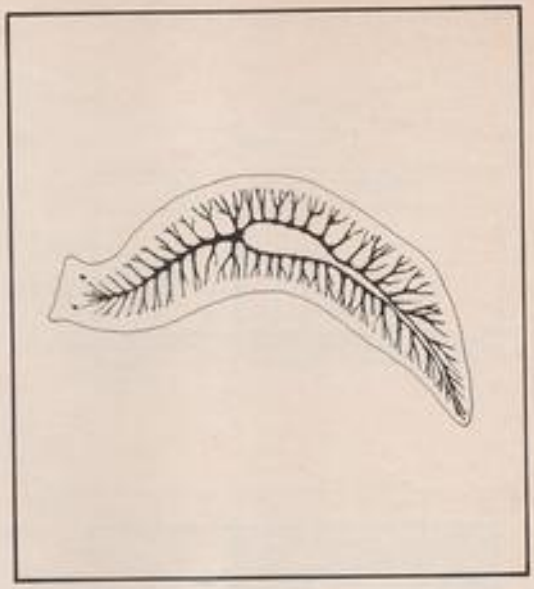




3rd. Vivarium (3 ft. × 4 ft.)

# The Triclads

by

Chris Mattison



THE TRICLADS are a group of small free-living aquatic invertebrates, forming part of the phylum Playhelminthes (literally 'flat worms'), the other two classes in this phylum being the flukes and tapeworms, which are of course parasitic. The triclads are often referred to as 'Planarians', but strictly speaking this term only applies to a certain family grouping. Although there are only eleven species occurring in Britain, they are nevertheless fairly common inhabitants of our streams, rivers, ponds, and lakes, and may easily be introduced into aquaria along with food, plants, and gravel if these are collected locally. They are recognisable as being shaped something like an elongated leaf, between six and twenty-five millimetres long, very flattened, and by gliding gracefully over the substrate or sides of the aquarium. As they are nocturnal, one or two in an aquarium can easily be overlooked, but in ideal conditions they may multiply and become more conspicuous—this is more likely to occur in coldwater aquaria as British triclads dislike temperatures above 15°C, although species from the tropics may be introduced with plants or fish, in which case they are more likely to thrive. At least one American species, *Dugesia tigrina*, has become established in this country through its accidental introduction, probably with goldfish.

All triclads are carnivorous, feeding in the main on small water creatures such as *Daphnia*, *Cyclops*, small snails and so on, especially damaged individuals, or those trapped in shallow water. Although none of these animals is parasitic, they may increase to such proportions that they become unsightly in an aquarium, and there is also a possibility that they may be harmful to eggs and fry. On the other hand they form an interesting part of our freshwater fauna and it may be desired to keep a small colony alive for observation and study, so a few notes on both their elimination, and propagation may be in order. The best way of reducing their numbers is to bait a small perforated container (for instance, an empty fish food container pierced in several places with a hot knitting needle), with a piece of fresh meat or a section of earthworm. If this is submerged for an hour or so, many triclads will have entered the container after the bait, and can easily be removed and disposed of. If this is done daily until no more are caught, the population will have been eliminated or reduced to a very low level, although it is possible that the process will have to be repeated several months later.

In order to keep a small colony going, it is necessary to pay particular attention to the water. There are numerous recipes for making artificial pond water, but most people will find it easier to collect a gallon or so of the water in which they were found, or to use some water from an established aquarium. Suitable containers are pie-dishes, sweet-jars or small aquaria, and these should be kept where they are not subjected to extremes of temperature. Food may be small items of 'live food' as fed to fish, such as *Daphnia*, Brine shrimp nauplii, or freshly collected pond water containing a good 'soup' of small invertebrates may be added to the culture regularly. They may be fed occasionally on small pieces of meat, earthworm or egg-yolk (in which case the pale coloured species become

bright yellow for a while), but animals fed on these items exclusively do not thrive.

There are two methods of reproduction—some species merely divide in two, both halves regenerating into a complete animal in a day or two, whilst in other species small hard-shelled cocoons are produced, from which young animals, smaller and paler in colour, emerge. A few species are capable of both types of reproduction. Some species die after breeding and are therefore annuals, but others do not, and under ideal conditions may live for many years.

Probably the most familiar British species is *Dendrocoelum lacteum*, well known to zoology students because due to its almost unpigmented body its internal structure can clearly be seen. This coupled with its large size (12-25 mm) therefore makes an ideal subject for teaching. The most common species, however, is probably *Polycelis niger*, a small black or dark brown species, which together with its two congeners, *P. tenuis* and *P. felina* is remarkable in having a large number of eyes, situated in a line around the front end of the animal. These three species are by far the most likely to become uninvited guests in the aquarium.

Two native species of *Dugesia*, *D. polychroa* and *D. lugubris*, are somewhat larger than *Polycelis* sp and have only two eyes. Like them, however, they are usually some shade of brown. *Crenobia alpina*, as its name suggests, is an inhabitant of streams at fairly high altitudes, where it may be the most common species. It is recognisable by having two prominent tentacles (where its ears should be!), and two eyes. *Phagocata vitta* is almost colourless, but may be distinguished from *Dendrocoelum* by its smaller size and slender shape. It is the species most frequently found in underground streams, although it occurs above ground too.

*Planaria torva* is medium sized, brown and has two eyes placed very close to each other. It is uncommon in Britain, as is the final species, a real giant at 30-35 mm, *Bdellocephala punctata*. This species is found only in a few widely separated bodies of water, including several lakes in the Lake District, and the Norfolk Broads. It has a very distinct 'neck' region, and is brown with darker mottling.

All of these species may be looked for on the undersides of stones, amongst aquatic vegetation, or on submerged rotting leaves. Very few streams, ponds and lakes are without triclads, provided they are unpolluted, although the population numbers tend to fluctuate from season to season, according to species. In places they may be so numerous as to form an important aspect of freshwater ecology, both as predators, and as prey (newts, and some species of fish, among other things, will eat them), and are well worth the attention of the serious aquarist/naturalist.

*Continued from page 45*

and other fibrous material from 1lb (0·45kg) of beef liver, and chop into ½ inch (13mm) cubes. Taking small quantities of liver at a time, add equal amounts of cold water and blend them in a high-speed blender. The resulting liquid should be strained into a large bowl. Add 2 teaspoons of non-iodized salt. To this add 20 tablespoons of a pre-cooked baby cereal such as porridge oats, and stir thoroughly. Fill small glass containers, such as baby food jars, but do not seal them. Place them in a pan of water and bring the water to the boil. Allow the jars to remain in the water for half an hour after the heat has been turned off. When they have cooled, seal and keep refrigerated or frozen.

Another liver-based dried food, used by the Aquarium at the American Museum of Natural History, is composed of: 5lb (2·3kg) of beef liver; 14lb (6·4kg) of wheat germ; 6lb (2·7kg) of shrimp shell meal; 6lb (2·7kg) of shredded meat; 3lb (1·4kg) of lettuce; and 3lb (1·4kg) of spinach. The liver is cut into two-inch pieces, placed in a pan, covered with water, and boiled for 15 minutes. Then it is finely ground and put back into the pan with the remaining ingredients, and the entire combination is boiled for an additional 15 minutes. The resulting warm paste is then spread thinly to dry, finely broken and ground to size.

Finally, a much simpler food using two tumblers of powdered puppy biscuit, one tumbler of powered dry shrimp, and 3 pinches of salt. Mix together and moisten with water which has had an egg beaten into it. Add enough water and egg to make the mass into a stiff but workable consistency. Spread in pans to dry in quarter-inch (6mm) thick sheets. When dry break into pieces and grade into sizes.

If you have a deep-freeze you might like to try a food which I devised for my own fish, which, as visitors can confirm, produces big strong fish. The food is made as follows: 1 can of cat or dog food; 1 packet of wheat-germ food, such as Bemax; 2 tablespoons calcium carbonate; 2 teaspoons honey; 1 packet of pure gelatine crystals; cheese, roughly equal in bulk to the canned meat; ½ cup approx. of green soft vegetables, such as spinach; 2 eggs. Strain any liquid from the canned meat and, if possible, reduce it to a fine mush. Grind the cheese and simmer in water until the cheese has melted, then add the meat. Stir to prevent the mixture sticking or burning. Remove from heat and stir in two teaspoons of honey, two tablespoons of calcium carbonate and thoroughly blend together. Add the two eggs and continue to mix whilst slowly adding the wheat-germ until the mixture becomes very thick and doughy. Finally, melt the gelatine crystals into a half cup of hot water, stir until fully dissolved then beat into the dough thoroughly. The food can then be placed into suitable containers and set aside to cool and set into a rubbery texture. It can be stored indefinitely in a deep-freezer.

A word of caution, as with all man-made foods, avoid over-feeding and remove any food that remains uneaten after the fishes have lost their interest in it.

# COLDWATER Queries

*by Arthur Boarder*

**We wish to convert a small children's swimming pool into a fish pond and would like some information on how to set it up with plants etc. Can you give any advice please?**

As it appears that this will be your first adventure into fish keeping, I advise you to get my book, "Coldwater Fishkeeping," as this will give you all the information you need, not only for setting-up the pond but also for maintenance after. It is not feasible to try to condense all the knowledge you require in a letter.

**I have three Bitterling, and a female developed what I think was a depositor for eggs. I placed the fish on her own and eventually the tube dropped off. How can I breed from these fishes?**

It was useless to put the female by herself as any eggs have to be fertilised by a male fish as they are laid. You would also have to get some fresh water mussels in which the female could lay her eggs. Under good conditions the female fish will soon develop another egg-laying tube, but of course you must have a male present.

Female Bitterling showing ovipositor and with mussel

**READERS SERVICE**

Our experts are always pleased to receive your letters which should be addressed to:
**Readers Service, The Aquarist & Pondkeeper, The Butts, Brentford, Middlesex, TW8 8BN.**
All queries requiring a personal response **must** be accompanied by a stamped addressed envelope.

**I have a female shubunkin about seven inches long and about ten years old. I have been trying to get a male with similar markings as I would like to breed from the pair in my pond. It measures 8½ × 5½ feet and has goldfish in it. Where can I get a male shubunkin?**

I have enclosed an address from where you can get the fish you require. However, I must warn you that it is practically impossible to breed from the pair in your pond. The other goldfish will join in the chase when they are spawning and the chance of getting any true shubunkins is very remote. To be sure of getting true shubunkins the pair will have to be spawned by themselves. Also a fish of ten years old may not breed. This is not impossible but much younger fish have a better chance. When pairing shubunkins it must not be assumed that all the fry will be like the parents as very many different colourings are sure to appear among the fry.

**In the April issue of 1977, the Aquarist contained an answer to a query concerning the commercial method of breeding fishes and growing water plants. We would like to start a plant and fish farm and wonder if there is anything you could add on the information then given?**

The general principles now apply as were described in the answer stated. One important point, however, is the fact that pondkeeping appears to have increased in popularity and in consequence there are probably more firms supplying now than three years ago. If you have a plant nursery already there is no reason why you should not add the water gardening aspect as well. I suggest that you make a quiet start with a pond or two and build up a further number as the trade develops.

**I am thinking of setting up a tank, 30 × 12 × 15 inches for Red-cap orandas. How many fish will the tank hold and what kind of plants shall I use? Which is the best position for the tank in a room and what temperature is required?**

Your tank will hold 15 inches of length of fish, excluding the tail. Suitable water plants are:—*Vallisneria spiralis; Ceratophyllum demersum; Lagarosiphon major; Egeria densa* and *Hygrophila polysperma*. Do not place the tank in front of a window but against a wall at right angles to one. Room temperature is quite sufficient for Orandas, but when you obtain your fish, ask the supplier at which temperature they have been kept, as some are bred at a temperature about 70°F.

# TROPICAL Queries

*by Roy Pinks*

**I have a pair of cichlids called *Apistogramma pertense*. About a week ago they spawned. I would like to know how to raise the eggs and also what food to keep them with. How long does it take them to spawn again? I also have a cichlid called *Apistogramma borelli* could you tell me how to spawn these fish?**

The breeding habits of the dwarf cichlids are much of a muchness, and *Apistogramma pertense* and *borelli* require similar conditions. Temperature should be in the upper 70's, the water slightly acid and very clean—replace proportions of it at frequent intervals. The tank should contain lots of hiding places and clumps of plants, as these fish like to retire to apparent safety if danger threatens, and they need seclusion in the breeding periods, which may number up to 6 a year. The eggs are laid on a chosen stone or similar flat surface (perhaps a broken flower pot), and the female usually takes over their care. The male should be removed. The young emerge after about 3 days and become free swimming at 10 days, but it is up to you whether you leave mother to tend the shoal or whether you remove her at the outset and hatch the eggs artificially. All that happens here is that you place an airstone near the eggs and remove any which go white (not as easy as it sounds). You must feed newly hatched San Francisco brine shrimp or large infusoria as soon as the young take off, otherwise you will lose them. It is probably best to let the female keep her brood, but in this event make sure that there is a minimum of disturbance or she will probably eat the lot!

**Last week I purchased two Tiger Barbs. I put them in my community tank. The next day when I looked at them, they were chasing the two male guppies I had.**

**I could see by the state of the guppies that the Tiger Barbs had been continually chasing them and attacking them, the guppies were nearly dead.**

**I have since got rid of the Tiger Barbs.**

**Could you tell me the reason for them attacking the guppies?**

How I wish you had written to me before you bought those Tiger Barbs. I would have told you not to have included them in any tank containing peaceful species. Even with their own kind, individuals can be real killers, and they are not called Tigers for nothing. It is a pity that such attractive fish turn out, usually, to be such ruffians.

The reason for all this is that this is the way they were made, and there is nothing we can do to change their nature. Yet you do often see tanks containing Tigers and other fish, and very nice they look, too. I believe the only way to tackle this is to get them when they are quite small, and to let them grow up with larger species. Even this is not reliable because individuals can develop vicious streaks, and then the scrapping begins. Even if you take out the main bully another often takes his place and you finish as you did—by removing the species altogether. I should stick to guppies, as they are beautiful, interesting and have pleasant natures, which is about all one could ask.

**Please could you tell me the basic requirements for breeding the Orange Chromide (*Etroplus maculatus*) as I would like to keep and raise these interesting Asian cichlids.**

The Orange Chromide (*Etroplus maculatus*) is a medium sized cichlid, growing to about 3 ins., and said to be less aggressive and less prone to uproot plants than most. They like a pH between 6·8 and 7·2 and a temperature near to 80°F. They are not fussy about food, but I recommend a protein-rich diet. If you are interested in breeding them it is worth noting that, like many other cichlids, they are not always easy to pair. The female is difficult to distinguish from the male, but may often show white lines at the top and bottom of the tail fin, and these are absent in the case of the male. Even when you have two fish of different sexes they may not take to one another, so it is best to buy a number of Orange Chromides when quite young and let them pair off. They apparently pair for life, so make sure that once you have a true pair, you don't get them mixed up with others. Use a 2 foot tank for breeding and equip it with a flower pot or so, on their sides, and if all goes well the fish will lay about 200 eggs in one of them. You now have a choice of either leaving the fish to rear their young, or of doing it artificially. In the former case remove the female and let the male take over, but this sometimes ends in tragedy if he is disturbed. In the latter, place a few drops of methylene blue in the tank and aerate moderately, feeding fine brine shrimp nauplii to the young fish as soon as they begin to swim free—about the 7th day. Cease this after a further week, and go on to microworm, as a salt build-up in the fry can prove fatal if continued any longer. The young are scrappy amongst themselves, and should be given plenty of room: you will also need to weed out the weaker ones, otherwise these will be killed by the more forward specimens. But at all costs, once you have your pair, keep them to themselves and do not let them loose with other Chromides, or else there will be scrapping. Watch the colour of you fish, too. If they lose their golden colouring they are in poor condition, and you should look to your management techniques to get them right again.

These fish dislike sudden changes in water conditions, so introduce them carefully. A little sea salt in the water is also said to be beneficial.

# PLANT Queries

*by*

*Vivian De Thabrew*

**My query is about the compost I should use to grow my tropical plants in. On a T.V. programme a few months ago it was mentioned that small plants could be grown in used tea-bags, so I was wondering if I could use old tea-leaves for a planting medium. Is this a good idea, and would it harm my fish?**

Generally, small plants can be grown using used tea-leaves as a compost material. This acts like peat and provides a satisfactory organic material. However, its use in fish tanks is not very satisfactory as its tannin will discolour the water. It does not appear to be significantly harmful to fish for, in certain tropical countries, fish live and breed quite happily in drains and ditches containing a steady concentration of tea-leaf produced tannic acid. It would be far more satisfactory for you to use the peat base instead, thereby saving the extra work of filtering tannin dissolved in the water.

**I am in the process of refurbishing 2 tanks—30 in. × 15 in. × 12 in. and 30 in. × 12 in. × 12 in.—and I am as interested in growing particularly decorative aquatic plants as in keeping tropical fish. My problem lies in the type of lighting to use. I took my starting point in lighting to be 2 × 24 in. (20 w) (one warm white and one Grolux) for each aquarium. There would be no natural daylight. I bought 2 Thorn mini-pack 21 in. fluorescent fittings with 13 w tubes on the advice of my dealer. However, I would be grateful for your advice.**

I believe that normally in the trade, the term "20 watt tube" describes the average small Grolux or warm white tube. However, I believe there is a 24 in. 20 watt power twist Tru-lite tube now. Since you have already purchased two 21 in. 13 watt fluorescent tubes, I suggest you fix these in the hood, placing one at the front and one at the back, rather than fixing both close together.

This lighting kept on over a period of 10 hours spread over the day with a break of 3 to 4 hours from midday should be sufficient for most aquarium plants. In such a lighting situation, you should be able to grow species like *Aponogetons crispus*, *undulatus*, most Cryptocorynes, except the fine, long-leaved ones, *Cabomba*, *Hygrophila*, *Alternanthera*, some *Echinodorus* species, *Vallisneria*, *Nymphaea stellata* and *Microsorium pteropus*. I have grown all these giving the above described lighting condition. Maintaining your water temperature at around 75°F is an important factor.

You can also successfully use clear type tungsten bulbs of up to 40 watts over the same period, provided the water-level of the tank is about 4 to 5 inches from the bulbs. However, with this sort of lighting, plants requiring brighter light, especially those with very fine, divided leaves, such as *Cabomba*, *Limnophila* and *Myriophyllum*, should be planted directly below the bulbs.

**A friend of mine returned from the States and brought a catalogue from a plant nursery. Among the many interesting water-plants was one called Lassia, which looked like a Sagittaria, but it has longer leaves and thorns on the stems and is tall. Is this another type of Sagittaria, and what information can you give me about this plant? Could you also tell me where I can purchase this?**

The plant which you have described is *Lasia spinosa*, a marsh plant indigenous to South-east Asia. It has no affinity with Sagittaria. It has a very long, trailing, cylindrical rootstock, usually grey-green or brownish green. The leaves are bright green, shiny, arrow-shaped and can grow up to 45 cms. (18 inches) long and 20 cms. (8 inches) wide, with a prominent midrib and 4 to 6 veins on either side of it. The leaf-stalk is covered with fine prickles. At various points on the rootstock where there are nodes, buds develop to produce new plants.

This is not an aquatic plant, but a true marsh plant, growing in mud in swampy conditions. In the tropics it is found growing in ditches and vast areas of swamps. It is also cultivated in low-lying areas, for it is also a vegetable. In Britain it can be grown as a marginal outdoors. It can be grown in containers and sunken into the pool at a depth of up to 18 inches. The distinctive leaves will grow out of water and remain until late autumn, when they die back. Then the rootstock should be removed and stored in a container of mud or very moist sand and peat and stored.

Early spring buds will develop, and in early May it can be returned to its place in the pool. Water should be soft and mildly acid.

To my knowledge the plant is not available from the normal aquatic dealers. However, I am sending you a specimen from my own plant collection for your experimentation.

**I have recently set up a tropical tank. For the first month everything went well, but recently the plants and gravel have turned brown. Please tell me how to rectify the trouble?**

The development of brown or reddish brown algae is of common occurence in tanks which receive a high concentration of filtered rays. In addition to this, the water temperature and the pH condition are significant factors in the rapid development of these types of algae. Therefore, as an initial step, check these three aspects and make the necessary adjustments. It would also be a good remedial step to add a teaspoon of salt per gallon of water. The above steps should help you reduce the development of the brown algae.

# MARINE Queries

*by Graham Cox*

**I am thinking of changing over from tropical freshwater fishes to marines but like most I am a bit of a coward when it comes to taking the plunge. It all seems so complicated—especially the feeding! My questions are:**

**(1) I have not got a coverglass for my tank (36 in. × 21 in. × 15 in.)—could I keep marines without one?**

**(2) How many small marines, e.g. Saffron Blue Damsels, will my tank hold if I decide not to bother with invertebrates?**

**(3) If there is ever another series of power cuts, how do you keep a marine tank in operation?**

(1) *Coverglasses.* Strictly speaking coverglasses are not *absolutely essential* for any type of aquarium BUT they are *particularly advisable* for a seawater aquarium. Firstly, they reduce the likelihood of serious electric shock caused by the highly conductive seawater splashing onto electrics and then nastily earthing itself through the hobbyist. Secondly,

**"A coverglass on a marine aquarium prevents highly conductive seawater splash from nastily earthing the aquarium through the hobbyist."**

a coverglass prevents corrosion of the hood and fittings and finally a well fitted coverglass will reduce the level of evaporation to the bare minimum.

(2) *Stocking levels.* Once you have secured the primary maturation of your cockleshell/oolitic coralsand filterbed to the extent where no nitrite toxins are present, you should buy no more than two damselfishes and be content with studying marine fish husbandry and seawater management using just these two hardy fishes for the next 4-8 weeks. After that period, the secondary maturation of your filterbed will be completed and you could add more fishes.

A forty Imperial gallons (180 litres) gross capacity tank such as yours, will actually hold about 35 gallons of seawater after allowance for displacement. I would not advise you to exceed a total of 1 in. of fish per each 3 gallons of seawater which would give you room for a total twelve 1 in. long damselfishes.

Incidentally most marine aquarists I know get more pleasure, interest and amusement from invertebrates than they do from fishes and this will probably also apply to you in 6 to 12 months time. When that day dawns, please remember that the 12 in. of fish stocking potential is in no way diminished by adding a moderate number of invertebrates.

(3) *Power cuts.* Provided these do not last for more than three hours at a time, our experiences during the dark days of the '73-74' winter would indicate that a *reasonably stocked* marine aquarium would easily survive "powerless" during these periods. However, should power cuts ever be of more extensive duration than 3 hours at a time, I suggest the following two emergency plans:

(1) *Thermal protection.* Have some ¼ in. thick styrofoam panels ready cut to size to be an exact fit for the two ends, back and front of the aquarium, and sellotape these into position as soon as industrial problems begin. It might be useful to cut a 6 in. square out of the centre of the front styrofoam panel so that the sheets could be left permanently fixed for the duration of the troubles. It would then be possible to check periodically on the well-being of the creatures, temperature and so on just by removing this panel.

**"The 12 in. fish stocking potential of your aquarium is in no way diminished by adding a moderate number of invertebrates."**

(2) *Maintaining the aeration/filtration.* Remove the spare wheel from a car and using a footpump, pump the tyre up to an indicated 60psi. Now, using a valve key slightly open the schroeder valve to allow a slow release of the air, i.e. deliberately create a slow leak on the valve. Connect a length of air-tube from the tyre valve to your airlifts only, and regulate the airflow to give a small water turnover rate, i.e. just enough to keep the filter-bed's nitrifying bacteria alive. You will find that this device will run your airlifts without needing further pumping for 2-6 hours depending on the number of airlifts and the exact amount of air which you decide to bleed off.

In Brighton I once found myself teaching for the most tyrannical tightfisted headmaster I had ever come across. Despite frequent requests ranging from pleading to begging to eventually demanding, he still steadfastly refused to allow me to requisition a fifty shillings airpump which I needed to power a small native marine aquarium which I'd set up (at my own expense!) as a teaching aid for some 'O' level Biology pupils. After some weeks it became obvious that we were never going to be able to

**"A motor-car/lorry spare wheel suitably over-inflated will provide hours of emergency aeration and filtration."**

stock the tank with creatures if I had to rely on "Old Skinflint" as he was affectionately known in the Staffroom, so I began to think of the idea outlined above. Armed with thirty shillings "stolen" from the family "Holiday Tin" I went to a local vehicle breaker's yard and for 22/6d bought a complete lorry spare wheel, tyre and innertube in very good condition. When the Headmaster found out that my teaching tank was complete and working he stormed down to my laboratory and began to scream in his best Hitlerian fashion that, although I might have paid for the airpump out of my own pocket, who the devil did I imagine was going to pay for the electricity which it was burning? I'll leave the readers to imagine his face when, following the plastic airline, I quietly led him from the laboratory into my nearby chemicals storeroom and showed him my lorry tyre and footpump!

Using that simple equipment, and bearing in mind that I was only keeping extremely hardy, native littoral zone marines and therefore used aeration only, I kept a well-stocked 24 in. × 12 in. × 12 in. marine tank in good health for an entire term. The main problems were the half-term holiday (I took the entire tank home) and weekends when I had to go into school twice each day morning and evening to reinflate the tyre.

# Book Review

*Reef Fish*—**Behaviour and Ecology on the Reef and in the Aquarium.** *By Ronald E. Thresher.* John Bartholomew & Son Ltd. Edinburgh. £9.95.

Dr. Thresher, late of the Scripps Institute of Oceanography and presently holding a post-doctoral Fellowship at the University of Sydney, Australia, is an experienced diver and authority on the fish fauna extensively found on and around the Western Atlantic reefs. There are, says Dr. Thresher, some 700 recognised species of reef fish. Not all these species are restricted to the Caribbean area. Many of them occur, in scattered bands or groups, along the south-eastern coast of the United States, the Floridan peninsula and thence around the Gulf to Mexico, Central America and Brazil. But be all this as it may, about a third of the 700 species known to science are covered, with the marine aquarist and the fish watcher (as the author calls the enthusiastic skin or scuba diver) in mind, in this immensely readable and highly informative book of 171 pages. A quick glance at the Introduction informs us that, 'the book is divided into 22 chapters, each of which deals with a group of systematically or ecologically allied species. In most cases the species covered are either members of the same genus or belong to the same family. A few chapters on miscellaneous fish deal with ecological groups such as predators or herbivores.'

Sensibly enough, Dr. Thresher excludes or notices only briefly the deep-dwellers, the cryptic species and the larger frequenters of the reef such as groupers, rays, snappers and sharks. Most surprisingly (to your reviewer, at least) the juvenile form of the bottom-haunting nurse shark (*Ginglymostoma cirratum*) adapts quite well to life in the home marine aquarium. It is not a very active fish and is seemingly content to lurk about in a length of tube or a fissure in a built-up rock face. A 50 to 70 gallon tank makes a large enough home for this fish. Unfortunately we are not told how long such accommodation will suffice for this interesting fish. 'Food should be offered,' advises Dr. Thresher, 'on the end of a piece of wire, or with forceps (*never* by hand) close to the shark, so that it can smell and so locate it.' Pieces of fish and shrimp are mentioned as a suitable diet.

The kinds of fishes well-suited to captivity or watching in their natural environment are described clearly in each chapter. There is, for example, at the beginning of each chapter, a general run down of the fish or fishes under discussion. This is called *Species Account*. *Species Account* embraces, among other things, colour clues, morphological differences, scale counts and number of fin rays to help (where necessary) in identification. This information is backed up with sections on the behaviour and ecology of the fish of the reef. Then follows sections on food and feeding, habitat preferences, reproductive biology and so on. Finally, all the things the marine aquarist should know about the requirements and maintenance of reef fish in the saltwater aquarium. The chapters on the popular damselfish, butterfly fish, angel fish, trigger fish and neon gobies make compulsive reading for the comparative beginner in tropical saltwater fish-keeping. There is a 7-page index and *Relevant Literature* is an invaluable tailpiece to each chapter. Plenty of colour photographs show living fish in their natural haunts and there are no specially posed photographs in home or public aquaria. Ronald Thresher's book is, indeed, an invaluable work of reference and a true delight.

JACK HEMS

# News from Aquarists' Societies

Monthly reports from Secretaries of aquarists societies for inclusion on this page should reach the Editor by 3rd of the month preceding the month of publication.

## SOUTH WEST

STUART HOWELLS, speaking on Bubble-eyes, Celestials and Pompons to **Bristol A.S.**, traced their history and the date of introduction to this country. He advocated keeping fish of these types together to ensure a fair distribution of food, and also described his method of cultivating white worms, a form of food readily taken by the above named varieties.

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AN inaugural meeting was held in Northam on 3rd November to examine the possibility of establishing an aquarist society in the district, and it would appear that there is such a demand. The general feeling was that the Society should be known as **the North Devon A.S.** but there is a possibility that such a society already exists in Barnstaple. Should this be the case then an alternative name might be the **Torridgeside A.S.** Advice on this question would be appreciated.

Convenor: Wm. Jackson, 59 Richmond Park Northam, Bideford. (Tel: Bideford 4217).

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RESULTS of **Newbury and District A.S.** open show: Best Fish in Show, Simon Norris (Bracknell); (G); Best All-rounder, Pete Moye (Houghton Regis); Best Junior, Simon Norris (Bracknell); Best Newbury member, Ivor Sellwood; Best Newbury Junior, Russell Barrett, Highest Pointed Visiting Society, Basingstoke; F.B.A.S. Championship Class, Mr. and Mrs. Curtis (Swindon) (Ea).

Class Ag: 1 and 3, M. Bird (Tongham); 2, Peter Rogers (Hounslow); B: 1, A. Chaplin (Basingstoke); 2, Dave Goss (Reading); 3, C. Tonna (Reading). Be: 1, S. Dyer (Newbury); 2, P. Rushbrooke (Reading); 3, M. F. Monger (Basingstoke). Ca: 1, B. Mackay (Kingston); 2, M. Lambert (Romford); 3, H. Johnson (Bexley Heath). Ch: A. Chaplin; 2, Tom Frasier (Basingstoke); 3, P. Rushbrooke. C: 1 and 2, M. West (Kingston); 3, F. May (Reading). Du: 1, S. Dyer; 2, M. Maxton (Basingstoke); 3, R. Cannings (Newbury). Db: 1 and 3, P. R. and M. Pitchett (Nailsea); 2, Mrs. Bebb (Bournemouth). Dv: 1, C. H. Amery (Doncaster); 2 and 3, W. A. Knight (Havant). D: 1 and 3, F. May (Reading); 2, P. Taylor (North Wilts). Ee: 1, Mr. and Mrs. Curtis (Swindon); 2, Paul Handley (Portsmouth); 3, R. Cannings. E: 1, P. Moye (Houghton Regis); 2, R. Collier (Swindon); 3, M. Foster (Bournemouth). F: 1, J. Jackson; 2, H. Johnson; 3, R. Prior (Newbury). G: 1, Simon Norris; 2, Paul Handley; 3, M. Lambert (Romford). H: 1, Simon Norris; 2, P. Moye; 3, H. Johnson. J: 1, M. Paxton (Basingstoke); 2, Mr. and Mrs. Chamberlain; 3, Dave Goss (Reading). K: 1, J. Jackson; 2, A. May (Reading); 3, H. Johnson. L: 1 and 3, Nev Jackson (Reading); 2, Mr. and Mrs. Chamberlain. Ma: 1, W. Knight (Havant); 2, G. Nidler (Newbury); 3, Larry Gale (Newbury). M: 1, Mrs. Bebb (Bournemouth); 2, P. Moye; 3, H. Johnson. N-be: 1, I. Sellwood (Newbury); 2, J. Jackson; 3, A. Brown. N-os: 1, P. Handley; 2, L. Gale (Newbury). N-t: 1, T. Frazer; 2, Dave Siedle (Reading); 3, Mr. and Mrs. Chamberlain. O: 1, Colin Clarke (Uxbridge); 2, M. Monger; 3, Colin Clarke (Uxbridge). P: 1, C. Tonna (Reading); 2, M. Lambert (Romford); 3, R. Collier. Q: 1, C. Tonna; 2, Chris Ralph (Basingstoke); 3, M. Lambert. R: 1 and 2, Colin Clarke; 3, H. Watts (Hounslow). S: 1, R. Duffield (North Wilts); 2, Paul Handley; 3, Mrs. Bebb. T: 1, M. Strange (Basingstoke); 2, P. Moye; 3, P. Rogers (Hounslow). U-ad: 1, R. Adams; 2, W. Knight (Havant); 3, B. Mackay (Kingston). U-bc: 1, 2 and 3, R. Thackway (Gloucester). V: 1, E. Binstead (Portsmouth); 2, J. Pollard; 3, P. Taylor (North Wilts). W: 1, R. Canning (Newbury); 2 and 3, B. Mackay. X-bn: 1, G. Perrett (Reading); 2, E. Piper (Bracknell); 3, P. Rogers (Hounslow). X-os: 1, A. Chaplin; 2 and 3, Helen Brown (Havant). X-t: 1, M. Strange (Basingstoke); 2, P. Rogers (Hounslow); 3, Tom Frasier. X-o-a-w: 1, R. Stallwood (Newbury); 2, R. Hart (Hounslow); 3, R. F. Adams (Salisbury). Y: 1, Sue Abbott (Bracknell); 2, M. Bird (Tongham). Z: 1, Mrs. Stallwood (Newbury); 2, J. Jackson; 3, D. Pearce (Portsmouth).

## SOUTH EAST

CLASS winners of the **Walthamstow and District A.S.** open show. Best Fish in Show: B. Hastings (SELAS). F.B.A.S. Trophy (AG): S. Furseodom (WDAS). Highest Pointed Society: E. Dulwich.

Class AG: S. Furseodom (WDAS). AK: D. Watts (WDAS). B: A. I. Feast (Tonbridge). CA: C. Richards (Sudbury). C: A. I. Feast. DB: Dave Winder (E. Dulwich). D: B. Hastings (SELAS). EA: C. Richards. E: B. Hastings. F: A. I. Feast. G: J. Edwards (Thanet). H: J. Adams (Romford). J: Miss. S. King (SELAS). K: D. Swale (E. Dulwich). L: C. Richards. M: A. I. Feast. NBM: D. Swale. NOT: D. Chetwright (Southend). O: F. J. Holding (WDAS). P: D. Foley (Newham). Q: F. Scarr (Thanet). R: B. Hastings. S: H. Johnson (Bexley). T: F. J. Holding (WDAS). U: P. Whiddett (Tonbridge). V: S. Furseodom. W: S. J. Stubbings (BGAS). XBM: Mrs. P. Edwards (Thanet). XOT: Doris Winder (E. Dulwich). XUW: R. T. Stallwood (Reading). ZA: A. Chandler (WDAS). ZBC: Mrs. E. A. Stallwood (Reading).

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**The East London Aquarist and Pondkeepers Association** apologise for any inconvenience caused by the late cancellation of their show. This was due to unforeseen circumstances which were beyond the society's control.

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AT THE NOVEMBER meeting of the **Mid-Sussex A.S.**, held at Ockley Lodge, Keymer, the Chairman, Mr. Bill Slade, welcomed members of the various clubs participating in the annual inter-club evening. Entertainment for the evening was a film entitled "Best of a Different Drummer." The table show was judged by Jack Stillwell and Keith Beadle. Results: Q-T. Livebearers: 1, B. Sayers (Brighton); 2, C. Raggio (Brighton); 3, T. Deeprose (Hastings); 4, C. Roffe (Littlehampton); M. A.O.V. Egglayers: 1 and 2, A. Feast (Tonbridge); 3, E. and T. Tester (Mid-Sussex); 4, Mr. and Mrs. Pannell (Hastings). L. Loaches: 1, L. Pinney (Mid-Sussex); 2, C. Roffe; 3, A. Feast; 4, D. Cook (Tonbridge). H. Corydoras: 1 and 3, Mr. and Mrs. Hills (Brighton); 2, P. Levine (Mid-Sussex); 4, J. Jackman (Tonbridge). B. Labyrinths: 1, P. Parsons (Littlehampton); 2, E. and T. Tester; 3, Bev Holman (Brighton); 4, E. Jackman (Tonbridge). B. Barbs: 1, B. Sayers; 2, E and T. Tester; 3, A. Feast; 4, D. Cook.

Best Fish for the evening was a *Corydoras leopardus*, the exhibitor Mr. and Mrs. Hills, of Brighton & S.A.S. The highest pointed society was Brighton with 19 points, followed closely by Tonbridge and Mid-Sussex, both with 15 points. The 50 club draw for the month of November was won by: J. Birch, J. Smith and J. Burtles.

Anyone interested is welcome to come along to the meetings which are held on the second Thursday of each month, from 8 p.m., at Ockley Lodge, Ockley Lane, Keymer. Further details from the Secretary, Mr. John Birch, 16 Redwood Drive, Haywards Heath (Tel: H. Heath 50585).

## MIDLANDS AND WALES

**Trethomas & District A.S.** are holding their second Open Show on Saturday, 22 August 1981 in the St. John Ambulance Hall, Pendy Road, Bedwas (near Caerphilly). Benching will be from 9 a.m. until 12-30 p.m. with trophies for all classes. Schedules and postal entries from secretary A. Phillips, 26 Llanfabon Drive, Trethomas, Newport, Gwent. Tel: 0222-884391.

## EAST

AT the a.g.m. of the **Newark and District A.S.** the following committee was elected: chairman, Mr. K. Worth; vice-chairman, Mr. D. Atkin; secretary, Mrs. M. Griffin, 3, Welbeck Avenue, Newark, (Newark 71402); treasurer, Mr. R. Ellison; show secretary, Mr. A. Foreman, 74 Riverside Road, Newmark. Other committee members, Master Paul Bryan, Mrs. G. Foreman, Mr. T. Stubbs. As they have quite a few Junior members in the Society, Master Paul Bryan is going to represent them on the Committee.

The Committee are very pleased in the way things have progressed over the first year. They are now involved in their first major venture, a buffet and dance and presentation of awards, to be held at The Bridge Community Centre, Lincoln Road, Newark on 5 December at 8 o'clock.

The Club continues to meet on the first and third

Tuesdays of each month at "The Vine Hotel", Barnsley-Gate at 8 o'clock. They have 58 members and any new members who would like to come along and join, would be sure of a great welcome. Members are very friendly and all eager to learn from each other's experiences.

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ON 28th November, **Corby and District A.S.** held their annual presentation dance at the Priors Hall Golf Club. Trophies won throughout the year by club members were announced by the Chairman, Jim Short. Best Eggsayer: P. Owens. Best Livebearer: R. Inglis. Best Coldwater: P. Stevens. Breeders Trophy: R. Elliott. Fish of the Year: E. Davies. Junior Fish of the Year: P. O'Brien. Aquarist of the Year: N. Campbell. Junior Aquarist of the Year: G. McConnelly. In November the Club also celebrated the 300th edition of the monthly magazine.

**NORTH**

**Whitby and District A.S.** held their fifth annual open show at the Spa Pavilion. It was well attended by both exhibitors and visitors. There were 375 entries, a substantial increase on last year. *The Aquarist* Gold Pin and the Top Tank competition for best fish in show was won by Mrs. A. Frame (Redcar).

Results: Class Bs: 1, A. and J. Bowman (Whitby); 2, Mr. and Mrs. Snowden (York); 3, J. Aithwaite (Half Moon); 4, Lorna Hall (Stanley). Bs: 1, A. Frame (Redcar); 2, J. and P. Duffill (Redcar); 3, R. Leighton (Ind.); 4, L. Gray (Billingham). Cs: 1, P. Lovright (Caer Urfa); 2, I. Wright (Stanley); 3, T. Sayers (Stanley); 4, D. Land (Redcar). Cb: 1 and 4, J. and P. Duffill; 2, C. Clark (Hartlepool); 3, W. Sowerby (Scarborough). Cr: 1, A. Frame; 2, Mr. Gray (Billingham); 3, Mr. Riley (Stockton); 4, W. Sowerby (Scarborough). Ds: 1, Mr. and Mrs. Willey (Ind.); 2, J. Aithwaite (Half Moon); 3, D. Horsley (Whitby); 4, A. and J. Bowman (Whitby). Db: 1, Mr. Hooson (Scarborough); 2, A. Frame; 3, D. Dixon (Stanley); 4, Mr. and Mrs. Willey. Dc: 1, A. Frame; 2, H. Ackroyd (Doncaster); 3, Mr. Fuller (MASG); 4, D. Clark (Hartlepool). Dz: 1, F. K. Askew (Basingstoke); 2, T. Wilson (Whitby); 3, J. Aithwaite; 4, Lorna Hall (Stanley). Es: 1, Mr. and Mrs. Gowland (Newton Aycliffe); 2, Mrs. Slavin (Scarborough); 3 and 4, Mr. Gray (Billingham). Ez: 1, C. Westwood (Whitby); 2, T. Sayers (Stanley); 3, J. King (Redcar); 4, J. McCall (Stanley). F: 1 and 3, Mr. Riley (Stockton); 2, P. Wright (Caer Urfa); 4, Mr. Hooson (Scarborough). G: 1, P. Wright; 2, Mr. and Mrs. K. Webb (Doncaster); 3, Hodgson and Jackson (Darfield); 4, J. Bunn (Middlesbrough). H: 1, J. Cross (Novos); 2 & 3, P. Fry (Caer Urfa); 4, Mr. and Mrs. Forbes (Whitby). J: 1, 2 and P. Duffill; 2, L. Gray; 3, J. Aithwaite; 4, L. Embleton (Novos). K: 1, Mr. and Mrs. Perrett (Doncaster); 2, P. Bell (Stanley); 3, Mr. Affleck (Caer Urfa); 4, A. Frame. L: 1, Carol Conlin (Ind.); 2, A. Frame; 3, J. Geldart (Ind.); 4, A. and J. Bowman (Whitby). M: 1, Watson (Hartlepool); 2, A. Stevens (Middlesbrough); 3, Hodgson and Jackson; 4, Mr. and Mrs. Perrett. Ma: 1, J. Aithwaite; 2, B. Ashley (Caer Urfa); 3, Mr. and Mrs. Darby (Ind.); 4, T. Wilson (Whitby). N (b to m): 1, Mr. and Mrs. K. Webb; 2, C. Westwood (Whitby); 3, Mr. and Mrs. Darby; 4, I. Robson (Middlesbrough). N (o to t): 1, J. Cross (Novos); 2, D. Horsley (Whitby); 3, J. Bunn (Middlesbrough); 4, W. and A. Wright (Darfield). O: 1 and 2, T. Sayers; 3, P. Fry (Scarborough); 4, H. Ackroyd (Doncaster). P: 1, P. Fry (Caer Urfa); 2, Mr. Riley (Stockton); 3, A. Stevens (Middlesbrough); 4, Mr. Fuller. Q: 1, 2 and 3, H. Ackroyd (Doncaster); 4, S. Cook (Lintherpe). R: 1, J. McCall (Stanley); 2, W. Smith (Redcar); 3, T. Wilson (Whitby); 4, Mr. Riley. S: 1 and 2, N. McQuade (Redcar); 3, Mr. and Mrs. Johnson (Stockton); 4, Hodgson and Jackson. T: 1, S. Burgess (Whitby); 2, Mr. and Mrs. Perrett; 3, P. Fry; 4, L. Gray. U: 1, A. and J. Bowman; 2, S. Burgess; 3, D. Horsley (Whitby); 4, F. Askhew (Basingstoke). V: 1, A. Frame (Redcar); 2, Mrs. Slavein (Scarborough); 3, D. Horsley; 4, H. Haker (Hartlepool).

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**Middlesbrough and District A.S.** have a change of Committee and venue as from the a.g.m. on 23rd October 1980. First, change of venue—it is now held in the "Wellington Hotel," Albert Road, Middlesbrough, Cleveland. Secondly, change of Committee: secretary, J. W. Bunn, 1 Hartoft Court, Hemlington, Middlesbrough, Cleveland TS8 9LL; chairman, D. Robson; treasurer, R. Paxton; two committee members, Mrs. J. Wilson and E. Scott.

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**Wyke Show Society** held their first open show in September and at their next meeting members held a "Comments" night, where they were asked in which areas they could improve the open show next year. Later they had a catfish quiz about water conditions and eating habits, etc. of different catfish. Results of the table show: Seniors: 1, M. Miles; 2, T. Gibbins; 3, Ron Laverick. Juniors: 1 and 2, N. Metcalf; 3, Ray Laverick. A.V. (Female): 1, S. Grosthaw; 2, Ray Laverick; 3, Ron Laverick. A.O.V. (Tropical): 1, N. Metcalf; 2, A. Dodding; 3, Mr. and Mrs. Ashton.

Meetings are held on the 2nd and 4th Thursday of each month at 7.30 p.m. in the "Rose" Public House, Beverley Road, Hull. Visitors and new members welcome.

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**Rochdale & District A.S.** is to hold meetings on Wednesday evenings fortnightly at the "Horse and Jockey," Wellith Lane, Rochdale, Lancs. For information please contact Mrs. L. D'Arcy, 5 Ralph Sherwin Court, Oakcliffe Road, Wardle, Rochdale, Lancs. Or telephone: Rochdale 57127. They also hold meetings for juniors.

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THE following officers were elected at the recent a.g.m. of **Darwen A.S.**, chairman, Mr. B. Walsh; secretary, Mr. D. Gow, 95 Greenway Street, Darwen (Darwen 76435); show secretary, Mr. P. Yates, 21 Rosegate, Darwen (Darwen 773812); lay members, W. Boyle and D. Leach.

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**OBITUARY**

**Castleford A.S.** have been saddened by the death on 16th November of Mr. Dennis Robinson. Most people will remember Dennis for his cheerful, smiling face at the Club tombola stall and at the open show. He will be sadly missed.

# Dates for the diary

**A monthly information column to keep you up to date on forthcoming events.**

## JANUARY

**7th January:** Corby and District A.S. fish and general knowledge quiz. 8 p.m. The Labour Club, Stuart Road, Corby, Northants.

**13th January:** Port Talbot & District A.S. **a.g.m.** Meetings to be held fortnightly after that date.

**17th January:** Goldfish Society of Great Britain general meeting at the Conway Hall, Red Lion Square, Holborn, London. An illustrated talk by Gary Lewis and Frank Hilton on their trip to America. Inquiries re membership to Hon. Secretary, A. C. Law, "Bracken," 4 Elgin Crescent, Caterham, Surrey CR3 6ND.

## FEBRUARY

**6th February:** Corby and District A.S. practical demonstration of setting up aquaria. 8 p.m. The Labour Club, Stuart Road, Corby, Northants.

## MARCH

**1st March:** Keighley A.S. open show at Victoria Hall, Keighley, Yorks.

## APRIL

**5th April:** Reading and District A.S. annual open show at St. Peter's School, Erleigh Road, Earley, Reading.

**12th April:** Kettering A.S. open show at the McKinley Theatre, St. Mary's Road, Kettering. Show schedules from Mr. R. Vickers, 141 St. John's Road, Kettering (Tel: Kettering 519284).

**12th April:** Taunton & District A.S. open show at Corfield Hall, Taunton.

**26th April:** Yeovil & District A.S. open show at Parish Hall, Martock. Details and show schedules (S.A.E. please) from T. C. Perry, 316 St. Michael's Avenue, Yeovil, Somerset BA21 4NP.

## MAY

**10th May:** The 3 Counties annual closed show will be held at Easthampstead Community Centre, Rectory Lane, Bracknell. Show secretary, Pete Abbott, 24 Halewood, Bracknell. (Tel: Bracknell 55289) for information.

**31st May:** North Avon A.S. open show.

**31st May:** Mid-Sussex A.S. first Open Show, at the Sidney West Sports Centre, Leylands Road, Burgess Hill, W. Sussex. Information from Mr. T. Tester, 19 Cyprus Road, Burgess Hill, W. Sussex RH15 8DX (phone: B. Hill 43202) or Mr. L. Pinney, 33 Burdocks Drive, Burgess Hill, W. Sussex (phone: B. Hill 47129).

## JUNE

**7th June:** Whitby & District A.S. open show at the Spa Pavilion, Whitby. Details from Mrs. A. Forbes (secretary), 12 Lockton Road, Whitby.

**20th June:** Nailsea and District A.S. eighth open show at Clevedon Community Centre. Show secretary: P. Fitchett, 2 Woodland Road, Nailsea, Bristol (Tel: Nailsea 853096).

## JULY

**19th July:** Mid-Sussex A.S. exhibition, at the Sidney West Sports Centre, Leylands Road, Burgess Hill, W. Sussex.

## AUGUST

**30th August:** Castleford A.S. open show at the Woodhouse Hill Working Men's Club, Normanton. Schedules from Miss B. Stansill, secretary, 4 Milnes Grove, Airedale, Castleford. (Tel: Castleford 559615).