

FISHKEEPERS AND WATER GARDENERS

BULLETIN

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FROM THE EDITOR

Firstly I must apologise for the exclusion of our two feature articles from this edition of your Bulletin, these being "Looking through the Key Hole" and "Where are they Now" this being due to extra coverage for the **Festival of Fishkeeping and Water Gardening Weekend** being held at Bracklesham Bay. However I promise you they will be back. What do I hear you say? "Is our magazine being taken over by the show at Bracklesham Bay?"

Of course not! Even if it is the best show for fishkeepers in the UK. In fact the best way we could turn the tide is for you to send me lots of articles! Now there is a **challenge**.

For the first time since I have been editor the feature article "Know your Fish" is now produced from material supplied by the Federations J & S and I would like to thank all those involved.

For the first time we have one of our outstanding hobbyists with one of their own bred fish on the front cover. I thank John Snow from Malta A.S. and the co-operation of Corby A.S. with this article.

Well lastly you will know where I will be on the 17th - 19th October, [see you there](#).

Malcolm

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Front cover: Tutweiler Siamese Fighter by John Snow

JOHN SNOW

of

MALTA A.S.

Whilst John had an article in hand to send to the Corby and District Aquarist Society about a very rare colour morph in *Betta splendens* the photographs of fry came out so well that I had to rewrite the article.

As most of you know I only breed and keep *Betta splendens* sp. I have bred all but one colour morph, of these most are known anyway, and most variations are variations in finnage. These being 'double tail, crown tail, cut tail etc.' However my main aim in recent years is to produce the "Tutweiler Butterfly".

I am now going to quote Walt Maurus, from his book "Bettas - a complete introduction", page 102.

Quote: Many hobbyists are often not aware of, or appreciate the history that has contributed to their enjoyment of the hobby. Nor do authors often give credits where they are due and should be recorded. In "Beautiful Betters" by W. L. Whitem, credit is given to Mr Tutweiler of Florida for a truly spectacular butterfly betta. It was Cambodian with fins divided between white and red, but in this

case as the colour of white was closest to the body, it was a Cambodia being of white - red. This is a reverse of butterfly bettas seen today. No record is given of this fish ever having passed on these characteristics. We can assume that we have lost this aberration, as nothing exists today to equal it. End of quote.

Well as you have read, it would seem this fish would be worth a fortune today even if you could find one.

After seven years or more trying, I have finally bred this colour strain. I have three males and possibly two females, the males are spectacular, as seen on the front cover.

Since I have bred the two best males to their sister. I first mated the second best male and have a good amount of fry. I have refrained from mating the best male, as this is needed to produce these perfect photos for you to see. The first pairing spawned on the 4th June 2003 and the fry was free swimming within the bubble nest two days later. I have now mated the best male with a sister and are spawning as I write this article, being 16th June 2003.

The hard part for me now is to have to wait a few months to see if they are like the parents. However as their parents are very young I will be able to breed back to Mother/Father. This should give



John Snow's own "Tutweiler Butterfly"

me a better chance of "A" fixing the colour morph, "B" getting quantity and "C" improving colour separation. The one difference I can see in the three males at present, is that their body has not coloured up as in the original Cambodian males. It has stayed white, as being normal in female Cambodians.

Most *Betta splendens* breeders consider this to be the ultimate colour morph. Would it be worth a lot of money today?

Lastly would it make a good show fish if it was being judged to FBAS show rules.

Editor: Within the FBAS show guide book 1 on cultivated fish the Cambodia fish was described as a

fish with "cream body colour and blood red fins" thus being free of any other colour or multiples of colour.

Whilst guest judging the Swordtail class at Hounslow AS and committing on the colour patterns, I was kindly brought up to date that the judges and standards committee seeing very little support for truly bred colour strains, now use under the heading for colour: "That colour in cultivated fish has to be pleasing to the eye".

Well John I am sure you would receive 20 out of 20 (Full marks) if it was me judging your fish MG.

First published Corby and District A.S. Vol. 51 2nd July 2003

**FESTIVAL OF
FISHKEEPING
&
WATER GARDENING
WEEKEND
2003**

This year's event at New Horizon Holidays' South Downs Holiday Village at Bracklesham Bay - held over the period 17th-19th October - promises to be another aquatic event not to be missed.

Traditionally, it is now expected that each season's Fishkeeping Weekend will be an improvement, or have innovations over past events, and this year will again not go against tradition.

Presented annually by the Federation of British Aquatic Societies, the most obvious feature this year will be three marquees erected over the lawns to house **Koi**, a **Coldwater Show** and **Water Features /Water Garden Displays**. Although the Weekend is held in October, fish and visitors will not feel the likely chill in the air as these areas will be fully boarded-out and heated.

The English-style - one vat per exhibitor - **Laguna 5 Section Koi Festival**, presented by no less than five Koi Sections (Middlesex & Surrey Borders, S.E. Section, South Hants, Worthing, Southern Koi Section) and judged to British Koi-Keepers Society's Rules, will run over both Saturday and

Sunday. The **Goldfish Open Show**, presented by the Goldfish Society of Great Britain, will be on Saturday.

The **Water Feature Display** promises to be quite something to see. The marquee will have a river running through it and also have ornamental marble and brass statuary displays.



Also on display in the coldwater marquees will be an **Exhibition of Fancy Varieties of Goldfish** and specialist Coldwater Societies such as the **Goldfish Society of Great Britain** and the **Jinchi Kai (Ranchu) Society** will have representatives on hand for advice and information.

If tropical fish are more your thing then you will be spoilt for choice; over the weekend, there are three major Shows for you to enjoy. The **British Open Championship Show** will be held on the Saturday and this will feature not only the 'Best in Shows' from around the country's many Societies' Open Shows but also FBAS Class winners from the newly-introduced Mini-Shows held at each of the Federation's quarterly Assembly Meetings. Additionally, there will be

a **Catfish Show** presented by the Southern Catfish Rescue Society and renowned Catfish expert and author Ian Fuller will be on hand with plenty of advice.

The major competitive highlight of the Weekend is, of course, the Sunday's **'Hagen Masters' Open Show** where a huge range of diverse entries may be viewed.



Alongside this event is the tension-building climax to the Tetra-sponsored **FBAS Supreme Championship** where all the 2003 Trophy Class winners from FBAS-supported Open Shows will be battling it out for the coveted title of **FBAS Supreme Champion 2003**.

Incidentally, for those exhibitors who can only manage one day at the Festival, they won't go home empty-handed if they win a trophy; each of the single-day's competitive Shows will have its own prizegiving 'on the day'.

With all this aquatic livestock on view, no effort has been spared to ensure the safety of exhibits. Water quality will be supervised by Ann Telford, of All Clear; Peter Burgess, Aquarian Consultant, will

be responsible for the health of fish on display. In addition, the various exhibitions will be stewarded at all time over the Weekend to ensure complete 'peace of mind' for exhibitors and visitors alike.

OK, so you're not showing fish so what else will there be for you to enjoy? Let's imagine you're one of the lucky residents who has booked in for the whole Weekend (and tickets are running out fast!); you can look forward to a great time right from your arrival on the Friday evening.

You'll want to relax after your journey and the first evening provides just what you need. Starting with a Fancy Dress Competition - separate events for Children and Adults - you can then really let yourself go and enjoy the comedy of Len Lewis and a supporting vocalist star, whose name has not yet been finalised at the time of going to Press. Of course, you can take a 'preview' at the exhibits before Saturday comes - but please don't get in the way of those exhibitors still putting the 'final touches' to their displays!

Saturday brings on the whole range of entertainment. There's a whole line of Guest Speakers waiting to bring you all the best advice and information about fish-related subjects. All experts in their respective areas, **Brian Walsh**, Chairman of the FNAS, **Rupert Bridges of Tetra**, **Peter Burgess** from Aquarian will be presenting illustrated talks - there'll also be a

presentation on Koi but the speaker has yet to be finalised.

Our overseas Guest Speaker is **Juan Miguel**, from San Luis Potosi, Mexico. He has kept fish home aquariums for over 25 years. His main interest are Central American Cichlids and Mexican fishes. He has written several articles on Mexican and Central American Freshwater fish, mainly on cichlids, for several club and aquarium publications. He has also been honoured as lecturer in fish oriented conventions in several countries, including Mexico, United States, Norway, France, Italy and Germany. Juan Miguel is part of the American Cichlid Association - Marineland speakers program. Juan Miguel enjoys travelling to the natural habitats of the fish he enjoys, where he obtains underwater pictures of them. He likes to observe them, trying to understand their natural history and relationships. He has managed to obtain a great knowledge on the biology and geographical distribution of the fishes in Mexico. This gives to his conferences an originality and special interest. He will be presenting two lectures at the Weekend, most probably one on Goodeids and another on Cichlids.



Beautifully furnished aquariums are usually quoted as the most probable cause of attracting newcomers to the hobby. John Smith, of the Mid-Sussex Society, will be organising both **Society Information and Furnished Aquariums Displays**. To make sure of a space for your Society's display, please contact John on 01273 602407.

In addition, several Societies will be offering informative displays along with specialist tropical Societies such as **Viviparous**, the Livebearer Group, who hope to have their popular Auction on the Sunday. As a complete contrast to fishy things, there's even a **Fancy Rabbit Display**, returning by popular request.

Information from all directions, and on all manner of aquatic subjects can be obtained from the many Display Stands to be found in the main building. Out many friends in the aquatic trade will be on hand and, to date, the list of participants is already impressive - All Clear, Anglo-Aquarium Plant Co., Aquarian, Rolf C. Hagen (Shop in main building, Laguna Koi Display in marquee), Koi Carp Magazine, M. A. Direct (Marble), Tetra, TFH Books, Today's Fishkeeper magazine. For those intending to beautify their patios, Trevor Butler will again be there with his collection of Earthenware pots and planters.

Just how much knowledge fishkeepers can absorb is put to the

test in Aquarian's **AquaChamp Competition** which will be held on the Sunday. After 'sounding off' to all and sundry in the Show Halls, it will be interesting to see how these 'experts' face up to the challenging questions - who will be the 'Fish Brain of Britain 2003'?

Obviously all of the above attractions will be enjoyed by those staying for the whole weekend but day-visitors can also share much of the excitement too. In addition to the events scheduled for their particular day there are all the standard attractions that the Holiday Village has to offer as well including Boules, Table tennis, Darts, Miniature Golf, Tennis etc. If you're coming for the day (tickets available at the door) you can also get Bar facilities and meals (at extra cost) right up to late afternoon.

Sadly, day visitors won't be able to enjoy all the fun of each evening's entertainment and the socialising that makes Bracklesham Bay such a great weekend. Saturday evening brings vocalist Jayne Sullivan and comedian Billy Nutt whilst for those residents 'going the whole three nights' will have Debbie and the Show Team plus Stan Abbott to entertain them on the Sunday evening.

After all that excitement, the only thing residents have to look forward to is opening up the

traditional 'Goodie Bag' filled with magazines, aquatic products and so forth, courtesy of donations from our friends in the Aquatic Trade and, again following traditions, these are bound to be even more generous than last year!

OK now for some facts and figures:

Day Ticket Admission (18th and 19th October only) : £2.50 per adult (concessions £1.00); accompanied 2-16 year olds £1 with free admission for under 2s. Assuming there are still some residential tickets available (very doubtful at this stage), the prices inclusive of all meals and entertainments are:

Friday evening to Sunday afternoon (two nights stay) : £78.00 per adult
Friday evening to Monday morning (three nights stay) : £93.00 per adult

Least minute information about availability of residential reservations, or any other aspect of the Festival, can be obtained by contacting:

Grace Netherell,
8 Acacia Avenue,
Brentford,
Middlesex TW8 8NR
tel/fax: 020 8847 3586.

FESTIVAL OF FISHKEEPING & WATER GARDENING WEEKEND

17th - 19th October 2003



"Hagen Masters" Open Show
(On Sunday - Sponsored by Rolf C Hagen)
The Laguna Southern 5 Section Koi Festival
Sponsored by "Laguna"

Goldfish Society of Great Britain Fish Show
(On Saturday - Sponsored by Rolf C Hagen)
The FBAS "Supreme Championship" Final
(On Sunday Sponsored by He-Tetra)

Catfish Show - Sponsored by Rolf C Hagen
(Sponsored by Catfish Association, Bunter Society and Bunter)
"Jinchu Kai" UK Ranchu Specialist Gold Fish
Show Rabbit and Exotic Bird Display
Aquachamp Final (sponsored by Aquarist)
Society Furnished Aquaria and Tableaux's
Organised by Mid Sussex A.S.

A Multitude of Speakers from both the
Aquatic and Water Gardening World
(Sponsored by Today's Fishkeeper and The Water Gardener Magazine)
Furnished Aquarium, Pond Displays, Aquatics
Water Gardens, Water Features & Trade Displays

Bracklesham Bay Weekend
New Horizon Holidays South Downs Holiday Village
Bracklesham Bay Near Chichester Sussex



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& Acacia Avenue Brentford, Middlesex, TW8 8NR
Tel/Fax form direct to: 020 8847 3586

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Full Board

From
£78.00

Times Night Weekend £96.00

Cabaret Entertainment & Dancing on all three nights



DIARY DATES 2003

FBAS Rules unless stated otherwise

FBAS	General Meeting and Show (Championship Classes Ag, Ak, N(b-m), N(o-t), UA, Ub & Uc, Ud, Va - Vf & Vh, Vg & Vj to Vi, W, X(b-m), X(o-t), Xua, Xuc & Xub, Xud, XVa - XVf & XVh, XVg & XVj to XVI)	6 th Sept
Alden A.S. (FNAS)	Open Show	7 th
Mid-Sussex A.S.	Open Show	7 th
South London A.S. (A of A)	Open Show	7 th
Hounslow A.S.	Open Show	13 th
SPASS (NGS)	Coldwater Open Show	13 th
*note that these two events will be held at the same venue		
Otey A.S. (YAAS)	Open Show	14 th
Malta (Malta Rules)	Open Show	20 th
Port Talbot A.S.	Open Show	20 th
Catfish Study Society (CAGB)	Open Show and Auction	21 st
NGPS (Goldfish) (GS)	Open Show and Auction	27 th
Basingstoke A.S. (A of A)	Open Show	28 th
Fair City A.S. (USA)	Open Show	28 th
Goldfish Society G.B.	Open Show and Auction	4 th Oct
Grangemouth A.S. (FSAS)	Open Show and Auction	5 th
Halifax A.S. (FNAS)	Open Show and Auction	5 th
Washington A.S.	Open Show and Auction	5 th
Reigate & Redhill A.S.	Auction	6 th
Doncaster A.S. (YAAS)	Open Show and Auction	12 th
Festival of Fishkeeping	British Open (Saturday) Goldfish Show (Saturday) Catfish Show (Saturday) Koi Show (Saturday/Sunday) Hagen Masters (Sunday) Supreme Championship (Sunday) Society Furnished Aquaria	16 th /19 th
Bradford A.S. (YAAS)	Open Show & Auction	9 th Nov
FBAS	AGM and General Meeting	6 th Dec

**IF YOUR SHOW OR EVENT ISN'T LISTED,
TELL US AND WE'LL ADVERTISE IT HERE!**

All change for the Champion of Champions!

In May 1967 the Aquarist and Pondkeeper magazine (now called Today's Fishkeeper magazine) announced the launch of the Champion of Champions contest, as "For the first time in the history of Fishkeeping in this country, a competition is to be held to decide the Champion fish of the Shows. The entries will come from winners of the 'Best Fish in the Show' awards, which are included in the Open Shows now being held, and will be automatically eligible to enter for the 'Champion of Champions' contest." This contest still continues today and is now open to the First, Second and Third 'Best in Show' at each Show.

After 36 years of being run in conjunction with the British Aquarist Festival it has been decided after much soul-searching on the part of Today's Fishkeeper magazine and discussion with the BAF organiser, that this competition will no longer be held in conjunction with the British Aquarist Festival.

Whilst this means the end of an era, it also means the start of a bright new future for the U.K.'s Premier show award. After consultation with various Federations a panel of judges will be drawn from all parts of the U.K. to judge the event. Whilst details have yet to be finalised it has been decided to hold this years contest in the midlands area during November 2003. Further details will be announced later so keep a lookout in Today's Fishkeeper magazine for future announcements.

At the time of going to press a number of manufacturers have pledged support for the Champion of Champions contest so the line-up of prizes for those that do take part in this years contest is going to be impressive. Anyone who has won a 1st, 2nd or 3rd 'Best in Show' and wishes to enter their fish for this years contest should contact:

Derek Lambert,
Champion of Champion Organiser,
'Northside'
Spridlington Road,
Faldingworth,
Market Rasen,
Lincolnshire LN8 2SQ

Tel. 01673 885 352 Daytime or 07776 215 978 Evenings

Naturally...



www.aquarian.com

Habitat within the Aquarium

by
Frank F. Schmidt

Part 2

Selection of suitable plants is even more simple than fish. Plants are generally not critical as far as temperature is concerned. There may however be a problem with regard to hardness and acidity of the water. Since plants need mineral salts, especially calcium, to build their bodies, they cannot grow in too soft water. Under 3 dGH plant growth is impossible, most plants also do not like very hard water and in water over 20 dGH growth of most plants will come to a standstill. A thing we must consider in the selection of plants is the usefulness of the plant.

Let us first look at the situation in nature! Many plants we use in the aquarium continuously submerge, that is "underwater", in nature grow emerse, that is "outside the water". These plants grow on benches or other rather moist places and sometimes, in rain season when the water level is extremely high, it happens that they get temporarily under water.

It has turned out, that many of these, so called "moor plants" can be kept permanently under water, without harm for the plant. Only in most cases the looks of the plant in emerse and submerge form is completely different. So different that you don't recognize it. Of course

we use also plants in the aquarium that are real waterplants; that means plants that in nature too are always submerge.

Most real waterplants have in their leaves special organs, called hydroptotes, that means "water-drinkers", which enable the plant to take in its food directly from the surrounding water. The roots are mostly only a means to settle in the bottom and have very little or nothing to do with the feeding of the plant.

As you will understand emerse growing moor plants cannot take food from the surrounding air and therefore moor plants have no hydroptotes and are unable to take food through the leaves in the submerge situation. They have to depend fully on the roots as the feeding organ.

That leads us to the conclusion, that genuine waterplants in the aquarium are far more useful than the moor plants. The waterplant acts as a natural filter and helps us to keep the aquarium water pure. So it is rather important that a fair part of the aquarium plants are real waterplants.

In this respect in aquaristic circles the expression "biological balance" is often used. I dare say that in an aquarium a biological balance is absolutely impossible. Apart from the fact that in comparison to nature every aquarium is over populated, a number of other factors make a balance impossible.



A biological balance exists if the organic debris, like faeces of fish, dead fish, dead plants or parts of plants, is completely reduced by bacteria into inorganic salts, like nitrates, phosphates and sulphates, which in their turn are completely consumed by plants - that is also botanic plankton, say algae which serve as food for the animals in the habitat. More abstractly said: Producers, reducers and consumers should balance.

One of the aids in nature to maintain a perfect balance is water-flow. In nearly every habitat is a continuous inflow of clean water from wells, rain etc and a continuous outflow of more

or less polluted water in the direction of the sea.

In the aquarium the situation is completely different. To keep our over population alive we have to feed our fish and that means that daily an extra dose of organic waste is entered into the aquarium water. Even if the bacteria in the aquarium and filter system succeed in reducing the overdose, it is absolutely impossible that the aquarium plants consume all inorganic salts, since we do not want to allow any development of algae in the aquarium.

A good help in keeping the water as pure as possible under the circumstances is a regular change of

part (25 - 30%) of the aquarium water by tapwater. In doing so we change the aquarium water, polluted by plant nutrients by relatively poor tapwater. Another help can be an adequate chemical filter system. Adequate means that pump capacity and quantity of the filter mass must be adapted to the aquarium involved. Chemical filter system means, that the used filter material should have the ability to absorb nutrients. In aquarium filters mostly activated coal is used for this purpose.

The best and most natural help however is the waterplant with its ability to take nutrients directly from the water. It will be clear that the faster a plant grows, the more nutrients are absorbed. So it is rather important, to stimulate plant growth and that can only be done with light. Do not forget that the fluorescent tubes over the aquarium replace the tropical sunshine in the original habitat of the plant. In fact that even in the shadow in the tropics the amount of light is higher than we can ever imitate. So the more light you use, the better it is for the plant.

Often the story is heard, that algae in the aquarium are caused by light. This is only partly true. Algae are certainly not caused by light, but by water pollution. Every hydrobiologist can tell what is wrong with the water if he looks at the algae by means of a microscope. It is true however, that development of algae is stimulated when the duration of lighting is too long. In the tropics the day lasts from six in the morning till six in the

evening. That is the light-rhythm the tropical aquarium plant is adjusted to. That is the time it assimilates and grows. In our region the situation is different. In the summer we have very long daylight times, from about 4 o'clock in the morning until 9 o'clock in the evening. In winter daylight is only about 6 hours. Non tropical plants have the ability to adjust to the summer daytime and continuously assimilate and grow, no matter how long the day lasts.

The algae in a tropical aquarium are for over 90% non-tropical, so if we have the lights on from early morning until bedtime, like many aquarists do, an algae problem will rise. Since the tropical plants cannot take in nutrients after about seven pm the algae take their chance and start growing during the evening.

What we should do is to give the aquarium as much light as possible to stimulate the growth of the tropical plants from about 7 am until 7 pm, that is, the so called "grow-light". In the evening from 7 o'clock the lights should be switched out, except for one tube, the front one, which allows you to observe plants and fish, but which is insufficient for any plant growth, including algae. This is the so called "looking-light".

The colour of the light is not so very important. We know, that the blue and red part of the spectrum are important for plant growth. Any fluorescent tube that produces enough red and blue will do. The "warm-white de luxe" tube for instance, is a good choice. Never use

the "Gro-lux" type tubes. These produce only red and blue and the visual effect on the plants and fish is very unnatural.

Now let us turn to the aesthetic aspects of the furnished aquarium. Of course it is impossible to give a complete recipe: everyone has his own taste, but some general rules can be given. If you can see the wallpaper on the wall at the back of the aquarium, you accentuate that the aquarium is a very small and shallow (front to back) unit. Cover the sides and the back with something dark. Black or dark brown polyurethane foam is a good material. It is poison-free and offers an opportunity for some plants, like Jarva Fern or Java Moss to grow on. A very simple solution is to paint the outside of the aquarium black. Of course there are many more possibilities: Cork, stones, and so on.

The bottom should not be too flat. Some differences in bottom level will improve the architecture of the aquarium. The so-called terraces can be made out of wood stone etc.

The character of the Dutch furnished aquarium is determined by the abundance of plants. From the aesthetical point of view we can give some general rules.

Tiny plants should be used in the front, big plants in the back of the aquarium. There should be variation in colour and form. Plants should be used in groups. An exception here is a so-called "specimen plant", that is, a big, attention-drawing plant, like an

Amazon Sword plant. In that case it should fulfill a real function in the aquarium architecture. In other words it should be used on a spot, where you want to draw attention to.



photo: courtesy Rolf C. Hagen

Red-coloured plants in fact should be used in the same way. They are quite popular nowadays: they are expensive and, as practice has turned out, rather difficult to keep. In nature red plants can only be found in sunny places and the red colour is an extra pigmentation as protection against the enormous overdose of sunlight.

No matter how much light we use over the aquarium compared to the tropical sunlight it will always be insufficient for red plants and the result is that most red coloured plants tend to green again after a relatively short period. Moreover, in the tropics like in our region, nature is green and a different coloured plant is rare. That is also the way to use them - an attention drawing group on the best lighted spot.

(to be continued)

Club Night Out to Remember

Despite the name, Wholesale Tropicals is strictly retail. This aquatic shop has been in business longer than I can remember. It is not based on the best side of town, being located in the Bethnal Green Road, Bethnal Green on the east side of London. However once you are inside the shop you are transformed to the exciting world of fishkeeping. You will be walking down rows of tanks housing many varieties of fish. In fact there are 330 tanks in all. This shop is a magnet for the aquarist looking for species of fish that one may not find in your local shop.

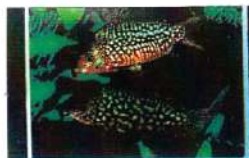
I joined Hounslow A.S. on their annual club outing to Wholesale Tropicals. Hounslow organised a coach that we boarded about 7.00 in the evening, nothing had changed and members still had to give the driver instructions on how



Apistogramma cf. agassizii ♂
Agassiz' dwarf cichlid



to find the shop over the last 100 yards. We arrived just before 8.00 and members were inside before you could say "fishshop" and polly boxes were unloaded. Now here is a tip, check out what you are intending to spend and stick to it. If you have your flexible friend with you one can easily get carried away by the variety of fish and by the quality of them. I moved down the rows of tanks getting some idea of what was on offer, soon you realise you are going to have to make a choice if you are going to keep to your budget. Wholesale Tropicals are known for their



at Wholesale Tropicals

with the Editor

many species of Catfish in general and that is without counting the many species of Corydoras. As well as Catfish there is a vast amount of Rift Valley Cichlids and South American. In fact you could open a page in any fish book and there is a good chance Wholesale Tropicals will have it. The fish that caught my eye, was some very rare Botias priced at £30.00 each. I often get tempted by Discus and there was many colour types and sizes to choose from.

In the end I chose some young Corydoras that are a chocolate brown in colour with a vivid gold line running along the length of their body. Those where marked, Corydoras species from Peru, price £8.00 I asked for six and an extra one slipped in the net, so I had to have it. Two tanks away and there was some larger fish, Corydoras gosseii well with a name like that I just had to have a couple. All bagged up and the time is just gone 9.00, time to go to the local Fish and Chip shop, it closes about 9.30 so I will have to hurry. Hold on just look at these fish, Apistogramma agassizii they look fantastic! £10.00 a pair that will take me over my budget, oh well must get some chips as I am

starving. Lets hope they are all sold by the time I get back.

Once back inside the shop enjoying my chips, I had to take one more look at the dwarf Cichlids. If I go home without them I will regret it for ever, well nearly ever, I just had to have them. This is the effect this shop has on you. All too soon it was 10.00 and our coach with its driver would be waiting. After arriving back in Hounslow at 11.00 and then making the extra trip to Amersham it was now midnight. I put the fish all in the same tank with other Corydoras and switched off the lights. Over a month has gone by and all the fish have settled in and look great.

If your club is planning a night out then why not give Wholesale Tropicals a phone call, they will be pleased to hear from you and say you read this article in the "Bulletin".

Wholesale Tropicals
220 Bethnal Green Road
Bethnal Green
London E2

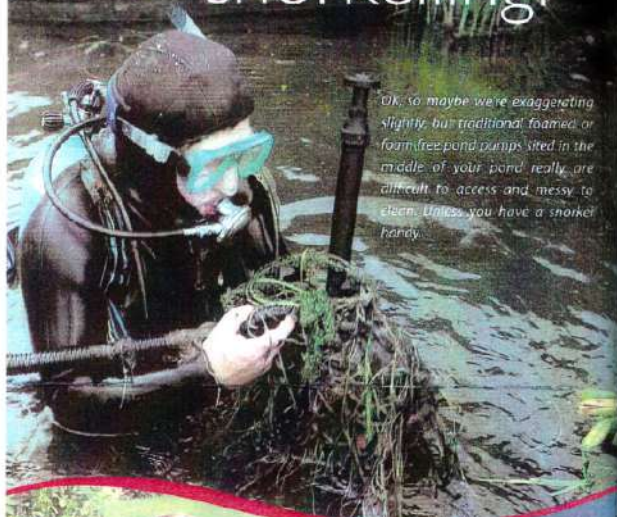
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The Royal Botanical Gardens at Kew is now "World Heritage Site"



WATER FEATURE: Gardener Ed Hepworth in the Princess of Wales glasshouse at Kew Gardens, which were awarded World Heritage Site status by the United Nations on the 4th July 2003. The gardens have one million visitors a year.

anyone for snorkelling?



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but of those plants needed today, to advance medicines for the good of us all.

Kew is helping to save the plant *Ramosmania rodriguesiana* found only in Mauritius, which has only one specimen plant growing in the wild. Unfortunately although the plant is surrounded by four fences it is sterile. Scientists are now trying to "clone" it to save this species.

Some 300,000 of our planet's plants have been described, but there may be over 550,000 plants world wide. Like with our fish there is a real danger of plants being made extinct even before they are described by science.

In recent times the Princess of Wales glasshouse was built, it contrasts with its Victorian examples, having clean cut shapes with its modern symmetrical lines. The late Ron Forder of Uxbridge A.S. had been involved with his contributions of tropical water lilies and advice. In fact Ron was invited by Kew to attend the opening of the glasshouse by Princess Diana.

Today Kew is run by a non-governmental body of trustees, however it does receive financial support of up to 60 per cent from the Department for the Environment. Lord Whitty, the environmental minister, said the accolade put on Kew by the United Nations underlined Kew's global

reputation as a centre for the conservation of and the understanding of biodiversity.

What do I hear you say, what about the Eden Project? well Kew has been looking after plants for over a century, I am sure it will be recognised in times to come.

So the best way we can say thank you to the staff of Kew is by visiting this now "World Heritage Site" for your self, take in all it has to offer in the form of its magnificence, not only in its buildings but their contents.



Editor: This article was created from facts within a report printed by The Daily Telegraph 5 July 2003 reporter Neil Tweedie.

Picture: John Taylor.

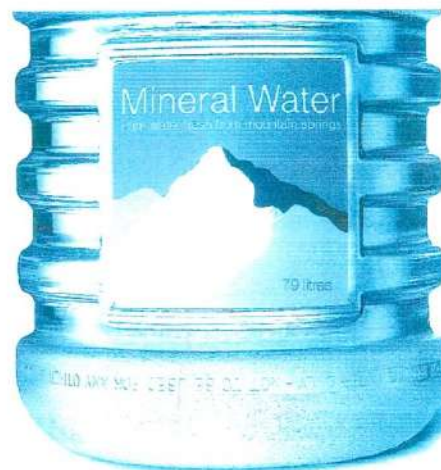
Our centre picture features, gardener Ed Hepworth pointing to the size of one of the largest of water-lily *Victoria amazonica*. This lily can be seen in the Princess of Wales glasshouse.

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it to relatively harmless urea which can be stored for excretion later on. Air breathing organs (ABOs) are varied in their structure and position. Wherever they are, they usually consist of a highly vascularised 'respiratory epithelium', which is specially developed for the absorption of oxygen from air.

The Australian Lungfish (*Neoceratodus forsteri*) is not so reliant on air-breathing, having only one lung and being a facultative air-breather.

Bichirs: Representatives of the African Bichirs are kept in captivity, and make fascinating pets when cared for properly.

The most primitive forms of ABO include the lungs of Lungfish and Bichirs, and modified gas bladders, as seen in Garfish and Butterfly Fish. Other species have modified areas of the stomach, intestine, buccal and pharyngeal cavities, or even specific organs such as the 'labyrinth' in Gouramis, and the 'arborescent' organ in Walking Catfish.



They, like the Lungfish, use lungs to breathe air, and are the only known air breathing fish to practice 'recoil aspiration'. This involves the use of the muscles surrounding the lung to contract it, forcing used air out. As the muscles relax, new air is drawn in through the spiracles to the lungs. Many scientists believe that recoil aspiration formed the basis for the evolution of breathing in humans.

Popular Air Breathers

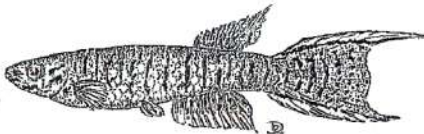
There are a number of popular and well known ornamental species that breathe air, including the following:

Lungfish: Although not commonly kept, Lungfish are very well known in the aquarium hobby. They are probably the best known air-breathing fish, having lungs specially evolved for the purpose. Of the Lungfishes, the African (*Protopterus* spp) and South American (*Lepidosiren paradoxa*) species are the most reliant on air-breathing, and must do so to survive. Their ability to breathe air is so well developed that they can survive in cocoons during the dry season for years at a time (in a state called 'aestivation').

Notopteridae: This family of fish includes the popular African Knife Fish, *Xenomystus nigri*, and the Clown Knife Fish, *Notopterus chitala*. They are both continuous air-breathers, and use their gas bladders as an ABO. Scientific studies have shown their ability to withstand anoxic water (no oxygen) for long periods. Under normal conditions, Clown Knife Fish will take air every 6 to 8 minutes.

KNOW YOUR FISH

Aphyosemion bualanum (Ah)



Popular name:	African Swamp Killifish.
Habitat:	Central Africa and Eastern Cameroons.
Characteristics:	Basic body colour blue-green with pink overtones shading green towards the dorsal contour, white on the belly, twelve to fourteen dark tan to red irregular vertical bars extending from the operculum to the caudal peduncle then onto the caudal fin, there are also oblique red streaks displayed on the operculum. Dorsal green with red spots, outer border blue inner margins red, anal blue with red spots, pelvics and pectorals orange.
Remarks:	The specimen described is that which we feel is best known to Aquarists. At the same time it must be appreciated that there are many populations of <i>Aphyosemion bualanum</i> , in which the colour and finnage vary to that depicted.
Show Class:	F

With Summer Just Around the Corner

R. Williams writes to Plymouth Club Members

What we need to know about Barley Straw

Barley straw - nature's algacide. Aquatic weeds Research Unit UK, have suggested that barley straw can be highly effective in the control of algae in ponds. It is refreshing to see even though not new to Water Gardeners an alternative to chemical use in the battle against algae. It takes six to eight weeks for the barley straw to become active after being placed into moving water. After this time span, the barley straw will remain an active algacide for up to six months.

One may well ask how does it work? Microbial growth, oxygen and warm temperatures, activate the decomposition of the straw. With the correct water flow through the straw, lignins are oxidised forming humic acids and with oxygen, plus sunlight, destroy the algae. There are no deleterious effects on higher plant and other aquatic life forms.

Is the bigger the bunch of straw the better? Barley straw is most effective in shallow water, less than one meter, with sunlight and good circulation. Stagnant water

will go anaerobic inside the straw bundles and kill the essential microbes, that will render it ineffective. Clear water needs straw, but turbid muddy water with less sunlight requires more straw. In still water ponds the minimum quantity of straw required to control algae = 2.5 grams of straw per square meter of water surface. These bundles of straw can be purchased through most aquatic centres, or even through a local farmer if you live in the country.

Humic shale can act as an alga inhibitor and is used as a fertiliser for higher plants. Alfalfa straw has also been tried as an algacide to some effect.



Editor: I would like to thank the Plymouth Aquarists for letting us use this article from their magazine FISHY NEWS No. 101.

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- Q. I have kept a marine aquarium for some time, but I would like to fill it with fresh water tropicals. I know the wet/dry filter will work in fresh water, but will the protein skimmer do any good.
- A. Protein skimmers will not work in fresh water without all the dissolved elements of salt water it is not dense enough to foam. The fact is that fresh water usually only foams when it is polluted by something. There is some disagreement on this point, as some fresh water hobbyists have found that the skimmer actually does remove some organic matter.
- Q. I purchased a Characin called a Clown Characin. It had six vertical stripes, red body and bright red fins. Now it has grown to 160mm and the colour of my fish has faded. In the meantime it has eaten all my beautiful plants. I have now replaced the plants with plastic ones, however was it by eating the real plants that gave it its colour.
- A. *Distichodus sexfasciatus* is its correct name, and these fish look really lovely when they are young. This fish was a sensation

when it was first imported during the 1950's. The excitement began to die when it was discovered that these fish got so big, lost their coloration and ate all your plants. These fish do like vegetation in their diet very much. You can supply this in the form of frozen and dried foods, you can even give your adult fish a bit of romaine lettuce. However none of the special treatment will restore the coloration your fish once had.

Q. I have a very obvious pair of Bloodfins and would like to try to breed them. Are there any particular points to remember.

A. It is advisable to use a 24" tank when breeding Bloodfins *Aphyocharax anistisi* as the spawning is an active one and the fish require plenty of space. The depth of 6" to 8" of water is sufficient and a temperature of 78f. The breeding tank must contain plenty of leafy plants such as wisteria or Indian fern, plus a surface covering plant like Riccia. This surface plant will hold back the fish from leaping out of the water in the fishes excitement within the spawning chase. The eggs will sink to the bottom of the tank or lie hidden in the plants. The parent fish must be removed immediately after the spawning is finished as they will eat all the eggs they can find. The fry are very small and must be supplied with plenty of Infusoria in the early stages of growing up.

Duckweed
friend or foe?

Duckweed is a floating plant that when left just grows and grows, or should I say just spreads and spreads. This growth is so rampant that with the onset of spring and into summer its growth rate holds no boundaries. When it completely covers your pond, it looks in appearance like the cloth on a snooker table. At this stage you cannot see into the water of your pond to either see the fish, plants or in fact any thing else. But its not all bad for we must remember it is a plant and plants what ever form they grow do not grow in badly polluted water. If you skim the top of the water with a net and remove an area of the duckweed you will be pleasantly surprised how clear and healthy the water looks, but this does not mean that it is most desirable.

By far the most common duck weed is *Lemna minor*, the origin of its common name is not clear. Ducks do nuzzle in and around it searching for small creatures hiding in it and the same goes for our fish.

The leaves of *Lemna minor* are minute, almost translucent, deciduous fronds when looked at very closely have various shapes, but mostly oval. Each individual frond usually producing a single dangling root. Duckweed's does

flower in mid-summer *Lemna minor* having tiny grey to white flowers that are insignificant.

Other duckweed's include, *Lemna trisulca*, the ivy-leaf duckweed. This plant is somewhat less invasive than *Lemna minor*, it produces star shaped leaves that float just beneath the waters surface. In complete contrast *Lemna gibba*, referred to as the "thick duckweed" because it is so invasive, has rounded, swollen leaves, and floats on the waters surface. If the above species are not enough to be coping with, lastly I have to add to these "the great duckweed" *Lemna polyrrhiza* it has larger, rounded leaves compared with the more common species and when checking the underside if its leaves it has a tuft of roots attached and it grows so fast, so be warned.

Azolla filiculoides, common name "fairy moss" can be mistaken for duckweed, it grows across your ponds surface in much the same manner. However it is neither a moss or a flowering plant, in fact it



Azolla filiculoides

is a fern. Although it is not a native plant, it survives our winters quite successfully. The plant has a charm of its own, simple short slender roots absorb nourishment from the water and in summer is light green in colour. Left to its own devices will congregate into dense masses that will eventually cover the entire pond surface. A feature of *Azolla filiculoides* is that its leaves change their colour from light green of summer days to a brick red in the winter. This colour varies in its depth according to how much shade the plant gets through winter.

Getting rid of duckweed is a real problem, and stopping it from entering your pond is the first line of defence. Even with the smallest amount, say no bigger than what could cover your small finger nail if left in your pond, will return by the next summer. Check out all your incoming plants, whether floating (water lily's), marginal or submerged, check the roots if not in plant containers and of course the containers themselves. Even check the bags that contain your new fish. With all this care duckweed can still enter large ponds on the feet of wading birds.

There are no quick fixes in the form of chemicals without endangering wildlife of even household pets. Two answers come to mind, the first, skim your pond with a long handled net, the first time will take quite an effort to remove most of the duckweed,

but don't expect to remove it all. After that include it as part of your maintenance schedule once every week. After a while you will find it quite therapeutic, really! The second is to flash your pond with water, not very environmentally friendly in those summer days of water shortage. However for small ponds this can be your answer, just enter a hose pipe into the pond and let the water flow at a gentle pace, as it overflows so will the duckweed float away with it. This can be fastened up by gentle movement of the Lily leaves and other marginal plants.



Pond surface covered with Duckweed

Duckweed does survive our coldest winters and remains as dormant buds at the bottom of your pond. Sorry!

KNOW YOUR PLANTS

Ludwigia palustris (Elliot)



Distribution: Europe, West Asia, North Africa and United States

Description: From the family *Cenothraceae* it is what is regarded as a "cutting type plant" as opposed to a rooted plant, such as an Amazon Sword Plant. These plants having small light green leaves maintaining there way up the stem that can grow to 750mm in length. The plant is most recognisable from the pink/purple undersides of its leaves. Whilst the plant requires a temperature of 70f to 76f in the winter months a lower temperature of 64f to 68f would be more desirable. This plant is lacking in flowers (Petals) it readily produces seed, these can be sown in damp sand and if covered by a sheet of glass will develop very quickly. They can be cultivated either emerse or submersed.

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SLIME & SCALE FEEDERS

Although many catfish have a broad trophic spectrum (i.e. they eat lots of different kinds of food) others have restricted ones. Two narrowly specialised types are detailed in the ichthyological journal *Copeia*.

The first is reported by K. Winemiller from the University of Texas and H.Y. Yan of the Maryland University and these show extreme examples of catfish specialist feeding.



Ochmacanthus alternus

Trichomycterid, that the Characin *Hoplias* and the Cichlid *Astronotus* common name Oscar, are its principal hosts. Both these fishes secrete large amounts of mucus, the young of this Cichlid are known to feed on the mucus given off by the parent fish. The researchers placed three Cichlids, *Aequidens pulcher* along with one of the Trichomycterid in a small aquarium for several weeks. They observed at night the *Ochmacanthus* would emerge from the substrate and attempted to attach its self to the Cichlids which showed marked avoidance behaviour.

The Trichomycterid has an unusually thin walled gut which



photo: courtesy of Rolf C. Hagen

It occurs in the Trichomycteridae, *Ochmacanthus alternus* from Venezuela which appears to feed almost exclusively on the mucus that cover other fishes bodies. Over 300 specimens were examined and found that mucus formed 95% of the fish's diet. Other materials ingested were silt, algae, scales and round worms. The worms are likely to have been taken accidentally, since these fish habitually burrows into the substrate. It seems, judging from the 88 fish collected with the

seems to be an adaptation to mucus feeding. Since mucus is already a broken down substance there is little reason to have strong gut walls to mash food as in other fish. It seems that *Ochmacanthus* hangs on to its host's body in leech-like fashion with its minute teeth and opercular spines. Mucus slime of fishes contains amino which provide a rich source of energy. Winemiller & Yan suggest that specialisation on readily available mucus confers a great advantage for fish living in lowland

habitats where supplies of invertebrate prey fluctuate seasonally.

The other example concerns scale feeding, this is not uncommon amongst fishes, particularly in Characins and Cichlids. This time three genera of Trichomycterids are believed to be scale feeders.

Galeichys foils the Sea-Cat has also been seen attacking the sides of living Mullet while juvenile Anids have been observed in aquaria removing scales from dead fish. It seems that scale feeding takes place at night, presumably when most of the host fishes are relatively inactive.



Arius seemanni (Günther 1854)

Photo: David Sands (Catfishes of the World)

W. Szeistowski from the University of Southern California reports on scale feeding in Anids *Arius seemanni* often kept as an aquarium fish. Small specimens collected in waters around Costa Rica had all ingested scales but only the specimens between 50/100mm feed exclusively on scales from other fish. On examining these catfish, the eaten scales appeared to belong to Centropomids and Sciaenids but also to flat-fish and Herrings.

Like mucus, scales have a high protein content and seems to provide a significant source of energy. High numbers of scales some, 500 of more in a fishes stomach along with the sheer abundance of young Anids in these tropical estuaries make scale feeding an important type of parasitism in these areas.

Gordon Howes: BM/NH 1990

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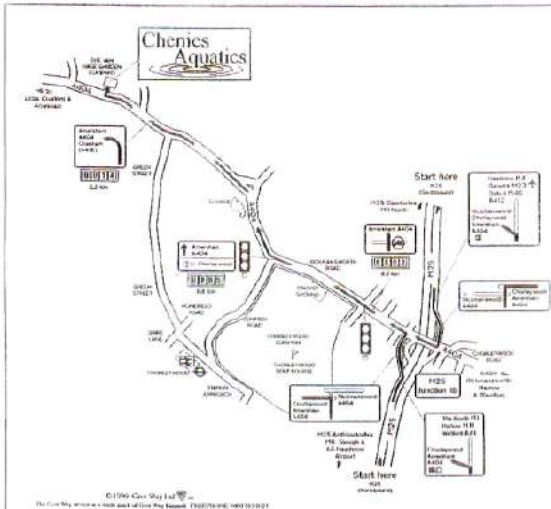
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