

JANUARY 1998

£2.25

INSIDE Another Great Tetra Competition

Two New Catfish

PLUS

The Better Fishkeeping Magazine

New Features for 1998





JANUARY 1998 VOL 62 NO 10

AQUARIST PONDKEEPER

ART EDITOR

ADVERTISEMENT MANAGER

John Young Tel: 0181 904 8886

SALES EXECUTIVE

len Hunter Tel: 01233 636349

PUBLISHED BY

M) Publications Limited, Cauton House, Wellesley Road, Ashford, Kent TN24 8ET

TELEPHONE: SUBSCRIPTIONS/ ADVERTISING AND PRODUCTION/ CLASSIFIEDS & BUYERS GUIDE/ACCOUNTS 1333 636349

FAX NUMBER 01233 631239

SUBSCRIPTIONS

Mj Publications Limital, Caxton House, Welesley Read, Ashford, Kent TN24 8ET

Ashford, Kent Scanning Ltd., Astrond, Kenn Printed by Headley Brothers Limited. Ashland Kent

Distributed to the Newstrade by: UPD Ltd., Taberrade Screet, London EC2A 4BN

SSN 5003-7273

Opmone expressed in any article memor those of the author and are not measurely entiresed by the Ethor nor by PS Followings Link

Companions requiring response or more of any material supplied must be supreparted by a stumped addressed enabling.

the hope
Minim every time in taken to occure
sourcey of content. Pf Minimonies
and will not be held responsible for any
months occur docurrent, copyright
minimonics or otherwise
source of source of copyright
manual of profession shows the
manual of profession shows the
manual of profession shows the
profession of the
minimonic of the
minimonic of the
minimonic of booking.

SHUBLICOS

FEATURES



Rooted Plants

Neil Frank looks at some favourites and their cultivation



A New Tank

Linda Lewis gets you off to the best possible start, and avoids the pitfalls



Brilliant Basslets

Nick Dakin says small is beautiful

18



I Did It Bi-Way!

Roger Crew presents the Loach of a 27 similar name



Beauty & the Beast

Linda Lewis comes up with some unfamiliar species

32



Fruit & Veg

Dave Garratt finds a veritable market stall of 'Sea Vegetables'



Back Up Power

Robert Goldstein says simply braving the elements isn't enough to save your_ aquarium collections 36



Two New Catfish

Steven Grant formally presents new Corydoras 4 1 species for science

A Touch of the Sun

Dick Mills comes up with something for the pond or coldwater aquarium 48

Tarquin's Other Guide

Another viewpoint from the Big Pink Kisser

Turf 'n Surf

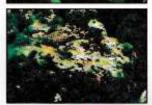
Daniel Conway discovers some surprising facts about marine plants 56

Neolamprologus cygnus

Peter Lewis comes across the Ugly Duckling story 66 in reverse









COMMEN

W hat better New Year present could we bring to aquarists What pester New Year present could we bring to aquarists than two new species? No, this inn't a new electronic cyberpet from the world of ministratised computer technology but the actual real thing. Neither are these two species long-finised or colour-morph variables of an existing species but genuine new discoveries.

One has to tread very carefully when introducing new species suspecially from the taxonomic standpoint as so much of their future depends and falls on the veracity of the information. We

future depends and falls on the verocity of the information. We make no opologies for the rather sterile presentation of the apparently stark statistics but, according to the very best authorities — no less than the British Museum (Natural History) — this is the way it has to be done.

Apart from being a bit of a scoop, perhaps even a first for a long time in a hobby megazina, we are honoured that the author should offer A&P the chance to play its small part in publishing this original material. It's all a question of 'availability', or access to the information which seels the information's credentials; just any aquatic injurnal (part no a steeling) are expected. journal (such as a specialist newsfetter) wouldn't do, it has to be a widely recognised and regularly produced publication. Scientific importance aside, once the species becomes known about

(and sought after) there is the story of their discovery along with 'keeping them in captivity' information to be told and we will be bringing you this

them in coptivity' information to be told and we will be bringing you this in a future issue to complete the whole exciting couldd.

Welcome to 1998 and a whole new 12 months of A&P. We kick off this New year with some new features. In response to popular request we are bringing in a regular Questions and Answers page, 'Ask A&P', where you can find answers to your problems (or 'enjoy' reading about other people's misfortunes, if you haven't the courage to write in about your own!). Thare's also 'Famous Faces in Fishkeeping' where you can meet the names you've heard about and find out exactivy.

EDITOR

heard about and find out exactly what makes them tick and what they get out of fishkeeping.

EDITOR E-MAIL ADDRESS: 101372,3451@CompuServe.com

REGULARS

TOUR QUERILS ANSWERED Koi Calendar DAVID TWIGG REPORTS ON THE KOI SCENE Frags & Friends BOB & VAI DAVIES WITH HERPTILE NEWS 50 Years Ago DOWN AMPS MEMORY LANE	22
DAVID TWIGG REPORTS ON THE KOI SCENE Frogs & Friends ROB & VAI DAVIES WITH HERPTILE NEWS 50 Years Ago DOWN AUP'S MEMORY LANE	
Frogs & Friends ROB & VAL DAVIES WITH HERPTILE NEWS 50 Years Ago DOWN ARP'S MEMORY LANE	24
BOB & VAL DAVIES WITH HERPTILE NEWS 50 Years Ago DOWN ARP'S MEMORY LANE	24
50 Years Ago DOWN ALP'S MEMORY LANE	
DOWN AILP'S MEMORY LANE	
	26
F. T. H.	
Fry Talk	46
YOUNG AQUARIST'S PAGE	
Caught in the Net	50
KATEST JINKINGS HALRS IN ANOTHER BATCH OF CYBERFISH	
A to Z of Plants	51
L FOR LUDWIGIA	
Famous Faces in Fishkeeping	54
MEET THE PERSONALITIES IN THE FISHREEPING WORLD	
News Desk	55
UPDATED INFORMATION FROM THE AQUATIC SCENE	
Meet the Societies	70
SOCIETIES HANG THEIR OWN DRUMS OF REDW THEIR OWN TRUMPETS H	ERE
Share Watch	72
ANDY HORTON'S NATIVE MARINE PAGES	
Society World	81

* PLUS: Tetra Competition — 75; Hints on Catching Fish — 75; OUT & ABOUT, New Orleans Aquarium — 62; Supreme Festival of Fishkeeping - 76

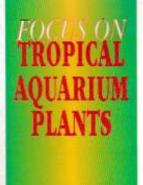


such an extent when adult flust as some monte fither do, that it has been dubbed rather paraduskally 'organs'. Read more about it needs

COVER

INSET PHOTOGRAPH Not every fishkeeper can guarantee getting through a window without power cuts. The regular use of a particles generator is often recessary to some fith in come countries.

INSET PHOTO: KOBERT J. GOLDSTEIN



Rooted Plants and their

Neil Frank begins a two part series

PHOTOGRAPHS BY M.-P. & C. PIEDNOIR

Wavy-edged leaves of Approageton stand out above a carpet of lower-growing Cryptocoryne.



Introduction

Rooted plants are a general grouping of aquatic plants that grow from a rootstock, rhizome, bulb or tuber. They often have leaves emerging from a central point and form a rosette of leaves. They are both easy plants for the beginner and the most challenging for the advanced aquarist

The rooted plants come

in all sizes, shapes and colours and are clearly the most versatile plants for the underwater gardener. They include the broad-leaved Amazon Sword plants: narrow leaf Vallisneria. Sagittaria and Crinum and varied leaf forms of Anubias. The delicate Nymphaea Lotus and Lilies come in greens, goldenbrowns and reds. Small and medium-sized Cryptocoryne have many

leaf shapes and vary from pale-green to red, often within the same species.

The gently undulating Aponogeton provide an alternative look among the taller plants and offer many unusual textured leaves such as translucent ulvaceous or the open matrix Madagascar Lace Plant. This provides a nice contrast to the more fleshyleaved plants. Aquatic ferns like Java Fern

Sagittaria and Echinodorus for laying eggs.

Growth Patterns

Most rooted plants are amphibious in their native environments. Commercially, they are mostly grown and sold in their emerse form. They quickly acclimatise to submerged conditions, eventually losing their emergent leaves in the conversion. In the process, the older leaves may be attacked by algae so care must be taken to initially limit nutrients in the water column by using faster growing stem or floating plants.

The latter plants may be a temporary adjunct to the arsenal of algae-caters also needed for a newly-established aquaria. Another precaution is to trim some emerse leaves as the newly submerged growth appears. When nooted plants have a thick tuber, rhizome or bulb, they can withstand the loss of some, or all, of their older leaves.

Some rooted plants reproduce by sending out runners or creep by horizontally-extended shoots and will quickly cover the aquarium bottom. The shorter varieties can form a turf and are a great foreground plant. These include

the Chain Swords, some Sagittaria sp. and Glossostigma elatnoides.

Many rooted plants including the Cryptocoryne, Nympbaea, Microsorion and some Ecbinodorus will retain a predicable medium height and are perfect for the middle areas of the aquarium or to accent the larger species. The popular Java Fern comes in many varieties. Some of these are forms which are not commonly found in nature (the small lacy Microsorum pteropus var. Windelov' and the larger-lobed var. 'Tropica'), but are now plentiful commercially and offer even more choices for leaf shape and size. Bolbitis also comes in large and small variants, but this distinction is not usually evident from the dealer's name tags.

Some aquascapes utilise a single rooted 'show plant', such as an Amazon Sword for the centrepiece. Under favourable growing conditions this dramatic effect can be problematic in a small aquarium. Individual plants of certain larger broad-leaved species will put out a multitude of very long leaves that can fill an entire aquarium and unchecked will only permit certain smaller plants to grow in their shadow To some aquatic gardeners, this is not a 'problem' and instead a dream to which they aspire!

▼ Echinodorus tenellus, a typical Dwarf Chain Sword.

Care

(Microsorum) and African Fern (Bolbitis) have leaves growing from rhizomes, but these are not planted under the gravel or sand and instead, they enjoy having their roots attached to driftwood or rocks.

Finally, there are many small creeping rooted plants including the newly popularised Glossostigma elatnoides.

As a group, the rooted plants are generally slower growing than their stem or floating plant counterparts. Some prefer to be planted individually, while others do better or look better in groups.

A planted aquarium can be composed entirely of rooted plants or can consist of a mixture of rooted plants together with stem plants and floating varieties.

Some of the most popular rooted plants are Sword Plants (Echinodorus), Vallis (Vallisneria), Sag (Sagittaria), Anubias, Crypts (Cryptocoryne) and Aponogeton. The less common varieties include the Onion Plant (Crinum), various Lilies (Nymphaea), the Banana Plant (Nymphoides), and many more. Like all live plants, the rooted plants provide comfort to the fishes and offer important breeding structures for some fishes like Angels who like to use the broad leaves of



Rooted Piants and their Care

Selection of Rooted Plants

When selecting plants it is good to have a plan for the eventual appearance of the aquarium. Some research will be needed by reading articles in this magazine or from one of many books on aquatic plants. It is best to obtain the plants from an aquarium dealer with a good stock of amostic plants, but there are also mail order suppliers that can provide a good selection of quality plants. Getting plants from other aquarists is also extremely desirable. Ideally, the new plants should be fresh and healthy specimens. without leaves covered with aleae. If bare-rooted, they should generally display nice white roots

One exception are the Ferns, whose roots are thin and dark. Plants with fleshy root structures should not feel soft or smell rotten. Nowadays, many rooted plants are sold in small pots filled with rock wool. These plants were grown emerse and the roots may not be

visible unless they have grown beyond the confines of their small container. These small packages are a great way to obtain the desired plant species in perfect condition

The selection of rooted plants, as with all aquatic plants should be based on the desired tank appearance and general placement in the overall aquascape. It is also important to know the mature size of the full grown plant relative to the tank size. Another major, consideration is the tank conditions in terms of lighting and nutrients based on fish load, added fertilisers and carbon

With many of the rooted plants, however. the aquarist can either match the tank to the large variety of potential plants or match the plants to the particular tank conditions. The group of rooted plants is so broad that there are a diversity of plants for almost any set of conditions. In particular, there are many rooted plants that are relatively undemanding and will do

well in an aquarium without sophisticated lighting or CO2 injection systems. Many of these plants will do well with a single fluorescent tube, without supplemental CO₂ or exotic fertilisers other than that provided by fish food, accumulated mulm and the optional addition of small amounts of peat in the substrate.

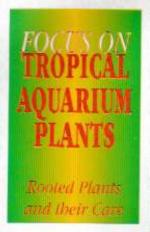
This is not to say that these plants thrive on less than optimal conditions. Essentially all plants will be more robust when provided with the proper amount of light together with a balanced fertiliser consisting of all the needed macro-nutrients, trace elements and sufficient CO2. In some cases, however, the shape and size of the leaves will change with more light or added CO2. Moreover. under more optimum conditions the plants will not only grow faster but also larger.

Some Echinodorus species, for example, can outgrow the confines of a small aquarium. Therefore, a simple set up may be preferred. A few of the plants that do well in a low light, low CO2 environment include the Chain Swords, Crypts, Ferns, Valitsmerta, Aponogeton and Anubias

There are also terrestrial rooted plants which are sometimes sold in aquarium shops for underwater use These plants include Acorus (Japanese Rush), Ophiopogon (Fountain Plant), Dracaena (Dragon Plant) and Spatiphyllum (Brzzilian Sword) and are principally intended for terrarium use. One should learn to recognise these varieties and avoid them because they are not intended for long term submergence and will not thrive under

 Glossastigma elutnoides makes a fine 'turf'.





Initial Planting

The initial planting requires appropriate position in the aquarium to create the desired aquascape and proper insertion into the substrate or gravel to facilitate good growth.

There are a few basic rules regarding placement and these follow good common sense and some minimal knowledge about the plant's mature size and growth pattern. First the obvious: the smaller plants should be placed in the foreground and the larger plants in the back or sides

Depending on the tank's depth, small to medium sized plants should be selected for large regions of the bottom to provide room for the fish to swim and be seen. Some plants prefer a crowded planting: others need their space to spread out and flourish. A smaller number of individual species usually looks better than a large variety and general groupings are more pleasing than a hodgepodge effect. Other than that the aquascape can be one of personal preference or modelled after the many designs found in the aquarium literature

Rooted plants arrive at the aquarium dealer as hare rooted specimens or in small pots filled with a rock wool substrate. Prior to planting the latter in the substrate, their roots should be carefully separated from their rockwool containers because this material may still be saturated with concentrated fertilisers used during their commercial cultivation (which can feed algae) and will also limit the plant's ability to establish in the aquarium. Except for the Java and African

Ferns care must be taken to not bury the crown or growing tip under the substrate. Light and oxygenated water must reach this region, or else the plant will not thrive or will wither and die:

Morcover, bulbs and tubers should be partially exposed and rhizomes (eg. of Anubias) or other fleshy structures (eg. Banana-like structures of Nymphoides) should not be buried. A good book should be consulted for more specific requirements of individual plants. Java Ferns (Microsorum sp.) and African Fern (Bolhitis beudelotti) should be tied to a piece of drift wood or a rock with thin fishing line or cotton thread. The roots will attach so tenaciously that it becomes difficult to remove the plant for pruning

These plants do not like to have their rhizomes buried in the substrate

Plants with roots originating from a central point should be planted by carefully spreading its roots into the substrate. New roots will soon grow, so do not dwell unnecessarily on this recommendation. The older roots are most important to get the new plant to stay submerged and in place. One technique is to wrap the roots between your thumb and forefingers, protecting the roots and the important growing tip as the plant is pushed or dragged into position and then released upon insertion.

While many older books suggest doing the initial planting in a tank with a few inches of water I prefer to work with more water. First, I find that plants will often float up after the tank is filled and the plants are

fully-submerged, I also find that the plants look different when entirely underwater with their leaves unfolded and upright. Sometimes new plants without large, established root systems will require some help with a few small stones set near their base to keep them down. The stones can be removed after a week or so when new anchoring roots have formed.

Many rooted plants depend on their roots for feeding and will usually do better if the substrate is enhanced with laterite, soil or peat. Otherwise, the plant will be living off its stored food reserve until the gravel is allowed to accumulate a layer of detritus and fish waste. The substrate can be a few centimetres up to 6-10cm deep.

Deep substrates are only needed for the large Sword Plants and to make it easier to keep nutritive additives from getting into the water column. The rooted plants can also be placed into individual plastic or clay pots which may be buried in the substrate or concealed with foreground plants or small stones. This provides the plants with a quick, rich source of nutrients

to large aquariums the pots seem to disappear when the plants become established and dominate the tank. The use of pots for rooted plants is particularly advantageous for those species that are heavy feeders or those that benefit from the addition of soil or other nutritive additives. Pors can also facilitate rearrangement of the plants and allow easy remove of certain plants when they have become too large.



Linda Lewis helps out in filling that Christmas present aquarium and making it successful

PHOTOGRAPHS BY THE AUTHOR

A New Tank



When buying look for a tank where look healthy.

Avoiding the Pitfalls

Too many beginners lose all their fish within a few weeks of starting out in the hobby and subsequently give up.

A Harlequin

with flat fires.

blood at vent

and a sunken

DON'T BUY

A New Tank — Avoiding the Pitfalls

this tank is your first venture into the world of fishkeeping, then wel-come (if this is your 16th tank,

then I'm envious and this article is definitely not for you).

Hopefully, you weren't given the aquarium and equipment and fish at the same time! Sadly, this still happens, and it is best to avoid shops that want to sell everything on the first visit. My aim is not to tell you how to set up a tank, but instead to offer some advice on shopping for fish.

Too many beginners lose all their fish within a few weeks of starting out in the hobby and subsequently give up. The sad thing is that this is often not their fault; they may just have bought poor quality fish.

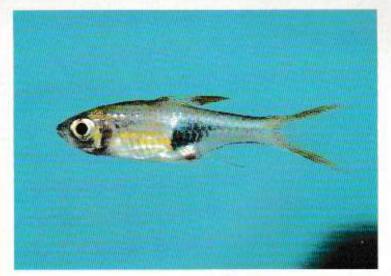
Many people start off with easy fish like Guppies and Danios but it is possible to be a little more adventurous. Try letting the price of a fish be your guide. Take Cardinal and Neon Tetras for example. One of my local shops sells Neons at 80p each, and Cardinals for £2.20. The reason for this difference is simple. Neons are easier to breed, and hardier than Cardinals. Such price differentials occur across all the many kinds of fish, for example, an ordinary Goldfish can be had for less than £1. A Fancy variety like an Oranda will be much more expensive.

START WITH THE CHEAPER KINDS

If you start with the cheaper kinds not only will you be much more likely to succeed in fishkeeping, but should you run into problems, your failures will cost less. This may sound harsh, but everyone loses fish when they start out. Fishkeeping is a learning process which, if the bug really gets you, can last a lifetime.

Fish are sold from a variety of outlets - garden centres, all-purpose small pet shops, and large specialist outlets. Each has advantages

and disadvantages. A small garden centre may only keep a limited range of species, but as a beginner that may actually be a boon. At the local pet shop, it is possible to get to know the staff well and develop a good relationship. Sometimes they can order particular kinds of fish for you. Large outlets can be confusing at first, as they carry such a huge selection, but here the cost of any fish remains a valuable guide. Many retailers label each tank, giving useful details about the fish contained inside. What you need to know is how big the fish grows, whether it is suitable for a community tank, and how many can be kept together.



A fine Harleguin . good shape and fins held body.



ASK QUESTIONS

The most important thing is to always ask questions if you're unsure about anything. Every good fishkeeper enjoys giving advice to people new to the hobby and will not mind at all, however basic the question is.

Of course, the best place to get all the answers is your local fishkeeping Society. To find out where yours is ask in the reference department of your local library or contact the FBAS. Don't worry, they won't make you join straight away. All clubs will be happy for you to attend a few meetings

before you decide whether or not to join. This is the place to meet people who really know, and care about fish.

Many Societies hold auctions where fish bred by the members are sold. This is an excellent way of buying good quality, disease free fish. Also you can be sure that whatever fish you are thinking of keeping, someone at the club will have kept them before and he able to steer you clear of any pitfalls. If there is no club nearby, don't despair, ask for help at your local pet shop. If they can't help you, they are sure to know of someone who

WHICH ONES TO BUY?

Perhaps now you have an idea what you're looking for. You know that you can only add a small number of fish at a time, to give the filtration system time to mature. You set off to buy five Tetras, or a few Guppies. How do you choose which ones to buy?

Given a choice between small Neons and large ones, many beginners will opt for the bigger ones, but think about it for a moment. Some tropical fish only live for two or three years so if you buy those that are almost full grown they are likely to be getting on a bit! They will make more impact in your aquarium but they may die soon after. For bet-

A New Tank - Avoiding the Pitfalls

ter value, aim to buy fish that are about half full size at the most.

How do you tell a good retailer from a not so good one? This is a difficult question and is really only answered over time as you get to know them. At first I was impressed by shops with beautifully clean tanks, but then I found a place where the glass was often grubby and a good layer of mulm covered each tank floor - yet the fish were wonderful! There is OK dirt and not so OK dirt. If there is evidence of rotting unnaten food, or remains of dead fish, then this is a tank to avoid, even if the fish look good now, they may already be weakened by poor water

The best guide to the quality of the fish on offer is the fish themselves. First of all you want a fish that is behaving normally. In other words, if you are after active fish like Zebra Danios, then good quality fish will be on the move, not skulking on the bottom. An unhealthy fish often swims with its fins folded. Check that the fish are moving easily, and can maintain their position in the water without bobbing up, or sinking down. Check the eyes are not cloudy, or protruding. How about the fins. Healthy fish normally hold their fins away from their body, whilst ailing fish often clamp their fins, holding them close to their side.

Check the fins. These may not be perfect for in the close confines of a shop tank the occasional nipped fin is hard to avoid. What you don't want to see is

any indication of fungus, or ragged edges to the fins so that they seem to be rotting away. Look for any signs of blood, either at the base of fins or at the vent. You will soon develop an 'eye' for healthy fish as they look better than unhealthy

CHECK OUT ALL THE FISH

It is important to check out all the fish in the tank. If some are sick, then the rest may soon follow. You want to find a tank in which all the fish look good. Some obvious signs of illness are tufts of cotton woollike growths (fungus), lots of small white spots (Icthyophthirius, 'Ich' ar White Spot), fish seen flicking themselves against the substrate (in an effort to rid themselves of parasites), or gasping at the surface, any evi-dence of blood at the vent, or base of fins. Check the fish's general appearance. Are there any signs of deformity such as a bent spine? Does the fish look thin with a hollow stomach?

Ideally, to reduce the risk of introducing disease into your tank, new fish should be quarantined. Many good retailers do this as a matter of course, but not all have the

Rod Talled Physicia Montenus. often bought at 2in, but ends up at



room. If you cannot quarantine the fish yourself then an alternative is to discover when the shop has deliveries. If they take in fish every two weeks, you can effectively buy quarantined stock if you only buy the day before new fish arrive. All the stock in that tank will have been there for ten days or more, providing you with a safety valve.

Fish for sale seldom look as good as the photos you see in magazines. This is simply because until they are settled into a permanent home their colours are muted. Lemon Tetras are lovely fish once they are given a good home but in a shop can seem pale, even colourless. Try not to let this put you off. Given good care, any fish will soon show its true

CHECK WITH THE RETAILER

Before you buy fish check with the retailer whether they require any special water conditions. It is no good buying mollies that have been kept in brackish water, and then transferring them to salt-free water for they are sure to become stressed and ill. Some fish need the pH of their water to fall inside particular range. If they must have a pH of 6-6.5 they will not cope with hard, alkaline water. Often it is possible to gradually acclimatise fish by gradually changing the pH over time but as a beginner, why go to this trouble. Stick with fish that like the kind of

water you already have. There will be time to experiment later, when you've gained more confidence.

If you are buying from a local shop the water conditions are likely to be very close to those you have at home, but it does not hurt to check. If you don't have a test kit yet, most shops will be happy to test a sample of your tank water for a small charge.

Beware of buying unidentified fish. If the retailer doesn't know the full scientific name, resist buying until you can identify the fish for certain. There are many fish that at first sight look similar, but turn out to be very different indeed. The Upside-down Catfish, Synodontis nigriventris, is delightful, and only grows to about 100mm — ideal for most community tanks, but there is another fish that is also often called Upside-down catfish - Synodnotis nigrita. This one grows to 200mm and is by no means as peaceful.

Common names can also be misleading. Take the Giant Danio for example. A monster of Im or more! It's actually a peaceful shoaling fish that grows to just 100mm! A 'Barb' can be small and well behaved like the Cherry Barb (Barbus titteya) or a giant like the Tinfoil (B. schwonenfeldi). I had no idea just how big Tinfoils could get until I saw them at London Zoo. Enormous fish over 350mm in length, and almost as deep swam in vast tanks. Part of the problem is that ALL egg-laying fish start small, but this does not mean they will stay that way.

KEEP STRESS TO A MINIMUM

You have found a tank full of healthy active fish. The retailer now has to catch them. This obviously stresses the fish and is unavoidable. What you can do though is to ensure that stress is kept to a minimum. How long are the fish going to be in the bag before you get home? If it's is going to be hours rather than minutes, make sure that there is plenty of air in the bag - more air than water, in fact. Then place the plastic bag inside another opaque wrapper (a carrier or brown paper bag will do). Once home float the fish in their plastic bag in the water for about 15 minutes until the temperatures equalise. If you know that water conditions are roughly the same, then the fish can be allowed to swim out of the bag. If you're not sure that conditions are close, transfer a little of the water from the tank into the bag, wait ten minutes, then add a little more. Repeat twice more. This may seem like a great deal of trouble to go to, but anything that helps fish to settle in has to be worth it. If possible, add the fish while the aquarium lights are out and try to resist feeding them straight away in order for their digestive systems to recover from the stress of being caught and transported.

Finally, if you remember nothing else from this article, please remember to keep asking questions.



Neons (left), cheaper than Cardinals (right) and easier to





■ Lianfish (se Marine Q&A) PHOTO: A&P LIBRARY



Koi Isee Koi Q&Al PHOTO: ASP UBBARY

Marine

Two months ago I started a fish-only marine tank. The tank ty is 80 gallons (after displacement) and is filtered by undergravel filtration powered by powerheads that achieve a turnover of four times the tank volume per hour. I used Seamature to mature the tank and saw the nitrite peak and return to zero in three weeks. I then added the following Investock: 4in Lionfish, 3in Yellow Teng, 4in Chequered Wrasse and a 5th Porcupine Puffer.

Over the next few days one bu one the fish began to show signs of distress and developed ragged fins and red blotches on their bodies. I tried various treatments but lost all of them During this time the nitrite level hovered around 5 ppm despite having originally matured the tank correctly and having more than adequate turnover through

You may have mutured the tank correctly but you added too much livestock far too guickly. Once a marine tank or more

correctly, its filter bed, has initially matured it undergoes a further and much longer period of maturation before it becomes fully established, and thus capable of supporting its maximum stocking capacity. The bacteria of the filter bed. at the point of initial maturation, do not suddenly become capable of handling very large bio loads from fish waste products. Instead they multiply to reach their maximum potential over a long period of time. During this long period of establishment the Investock must be built up slowly. Many authors suggest a biological filter bed is not fully matured until it is at least six months old, others even suggest 12 months as the time period. To accurately suggest stocking levels would require the weighing of the livestock to enable a figure of 'X' kilograms of fish per square foot of filter bed area. This is not particularly practical and rough and ready rules of thumb using fish inches per gallon of water are usually used. These rules may sound unscientific and archaic but they have been proven to work time and time again

Basically they are: (1) For the first six months: One inch of fish for every four gallons of water; (2) Build up to a maximum level of 1in of fish for two gallons of water by month 12; (3) Bear in mind the nature of fish you intend to keep. A large, messy, gross Jeeder like a 4in Puffer is going to produce much more waste than two 2in Damsels: (4) Build up the stock slowly over the full period of maturation; (5) Allow for growth of the fish. From your stocking plan you had the tank almost at its six month stocking level within two weeks. Not surprisingly the bacteria of the filter bed could not cope with the bio-load from the fish waste, resulting in the nitrite concentration (and almost certainly ammonial rising to fatal levels. Two of your fish, the Lianfish and Puffer. through their eating habits and sheer bulk would also have increased the load on the filter bed. Fish not directly killed by the nitrite toxictly would have been weakened and overwhelmed by bacterial disease as seen by the ulcers and fin rot The final message for anyone stocking a marine tank can be

summarised in one word -PATIENCE.

Koi

I have to admit to being puzzked (in fact for some time) but just not got round to putting my problem into writing. My thoughts may be somewhat controversial but hopefully some of your readers may be able to help clarify things for

Firstly, almost every time I read any publication on fishkeeping [find it contains some reference to the dreaded 'stress' and its effects on the health of fish. I have no problem with this as it is obviously very important and I would trust that all fishkeepers must be grateful for any advice on the subject of fish health. From what I have 'gleaned' on the subject of stress to fish it appears that the main causes are: (a) Poor water quality; (b) Netting fish; and (c) Transportation of fish. An article I recently read which was written by an expert in the field of Kor (whom I will not name) stated. "Moving fish is probably the greatest of all





ia modest (see Tropical Q&A) PHOTO: LINDA LEWIS



causes of stress and it is very true that many Koi die from being uprooted from their origins.

I now come to the area that I find very puzzling, Invariably, after reading a very good article on fish health with all its associated advice on what not to do, I turn the page to find an article on the subject of 'showing' fish (Koi) where it would appear that all the rules on the subject of 'stress' are being broken on a very regular basis! I cannot believe that the loving owners of these valuable creatures would subject their pets to the risk of every level of stress in the book just to boost their own egos and win a prize. I cannot think that there can be any benefits to the fish in this very popular practice either but I must ask the question: "Is the stress factor being overstated?" What magic formula do Koi awners have, who insist on transporting their fish all over the place on a fairly regular basis, to protect their fish from all the risks of stress we are so aften reminded of? P.S.: I do keep Kot and I would NEVER consider showing them.

It's not so much a magic formula but common sense and

care. All responsible Koi keepers ensure that whatever Show they intend supporting is well-organised, especially in its management of water quality throughout the Show period. Also, they ensure that their own fish are fit to travel - this means not feeding them for three to five days prior to showing so that the fish don't foul their containers with waste products. Good transportation techniques also mean lessstressed fish and here doublebagging with added axygen is usually the norm together with being transported in shaded cardboard or polystyrene boxes placed in the car 'in line with the axle' to prevent pitching backwards and forwards ublist in motion. Add to these precautions the fact that serious Koi 'exhibitors' may anly show a certain fish once a year (maximum two to three times albeit at well-spaced intervals) and provide it with plenty of inter-Show recovery time and you will see that we take great pains to see that other people see our fish as we want them to be seen - in

the very best of health. With

such responsible attitudes to

exhibiting, both on the Show organisers' and exhibitors parts there really is little room for stress to creep In.

Tropical

I recently bought an Orange-finned Loach (Botto modesta) and am ad that it might be sick. It worri keeps resting on its side on the gravel. I can't see anything wrong with the fish otherwise. and it is eating normally. Can you tell me what's wrong?

Relax. In most species of fish such odd A behausour could indeed indicate a problem. Just to be different, however, some kinds of Catfish and Loaches. including B. modests, after rest in this strange position This is perfectly normal behaviour.

Plants

I have seen several quite framatic looking plants for sale (spear-shaped

dark green leaves with pale margins) but I can't find anything like them in my iquarium plant books. Any

It seems as if you have come across a species of Dracagna which an enterprising for perhaps unknowledgeable) dealer has put on display in an aquarium There is no doubt that this plant looks good and makes an excellent contrast to the more commonly-encountered aquatic plants; in theory, egg depositing cichlids such as the Angelfish ought to be thrilled to use it.

The truth is that it is a terrestrial plant which is not naturally suited to underwater life at all and you may find it just sits there doing nothing or else it will die off over a period of time. In some of these instances of 'dry for wel plants it might be worth finding out more about them before you buy. One tip: in most cases, when removed from the water, true aquatics 'flop' over as their stems need no strenothening support (as found in terrestrial species) due to their weight being supported naturally by

the surrounding water

Nick Dakin heartily recommends these smaller versions of the Grouper

PHOTOGRAPHS BY THE AUTHOR

Brilliant

Royal Gramma Gramma

Two groups of fish meeting a wide range of desirable criteria are the Pygmy and Fairy Basslets.

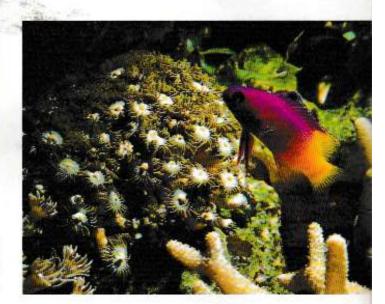
FAMILIES: PSEUDOCHROMIDAE & GRAMMIDAE

mall, highly colourful little fishes are often regarded as the 'backbone' of the marine fishkeeping hobby. Amenable fish that can adapt to a variety of aquarium situations, from full-blown reef to fish-only, are a vital ingredient to the hobby and one that provides much of the incentive for newcomers to join the growing ranks of other marinists.

Two such groups of fish meeting a wide range of desirable criteria are the Pygmy Basslets (Pseudo-chromidae) and the Fairy Basslets (Grammidae). Although extremely similar there is a marked geographical difference separating these two families of fish. The Fairy Basslets are confined to the tropical western Atlantic, mainly the Caribbean, whereas the Pygmy Basslets are to be found throughout the tropical Indo-Pacific and Red Sea regions.

regions.

Whilst the Pygmy Basslets are very numerous in species the Fairy Basslets have only three species included in their genus at the present time. These include the ever popular Royal Gramma, the Black-Cap Gramma and Gramma link! which is a scarce fish, a deep water species hardly ever seen in captivity.



Both Pseodochromids and Grammas share the same character traits, for these are both shy and secretive fish, making full use of the maze of rockwork crevices to travel from one location to another without ever having to cross open water. Their highly developed territorial nature means that they lead largely solitary lives, although a truce is usually called at breeding opportunities.

Nearly all Basslets are planktonic feeders. That is to say they take advantage of the small, nutritious animals that drift past in the current. Although not inclined to swim far from cover, a tasty morsel is unlikely to be ignored should it seem too irresistible. Many of these fish possess small but needle-sharp teeth which are used mainly in defence, rather than in the pursuit of prey. Nevertheless, some larger specimens can give a nasty nip to the unwary fishkeeper should a finger be mistaken for an intruder or piece of food!

BREEDING

The breeding habits of Basslets are still largely a mystery. However, the Royal Gramma has spawned in captivity. In this case, the male builds a nest of algae into which he invites passing females to lay eggs before he passes through to fertilise them. The female is then chased off and the nest is guarded solely by the male until the eggs hatch and the larvae drift off into the planktonic layers to develop. So far captive spawnings are proving more successful in rearing fish to adulthood. If this method of reproduction seems vaguely familiar, it would not be too surprising as the freshwater Stickleback adopts a very similar technique.



There is heartening news as far as



Black Cap Gramma, ma melacara.



tive than the preceding species and are increasingly susceptible to Whitespot if water conditions fall below the required high quality.

COMPATIBILITY

Basslets, as we have seen, are very territorial and will usually fight with their own, or similar, species if forced into close proximity. Royal Grammas can occasionally be kept in breeding pairs or trios but this takes an experienced hand and the longterm results cannot guaranteed. Therefore, a policy of one per tank is a good rule of thumb, unless the aquarium is very large (6-8ft+), in which case several different species may live peacefully. Generally speaking, Basslets usually get on well with most other species of fish. However, it would not be wise to mix them with large, predatory fish that might see them as a potential meal. Very occasionally a Basslet may nip the fins of slow, sensitive tankmates if it feels that its territory has been encroached upon.

GROWTH

Unlike their cousins, the Groupers, the largest Basslets rarely exceed 4in in the aquarium. Most other species remain at a manageable 21/zin in length.

WATER CONDITIONS

Three feet should be regarded as the smallest aquarium capable of housing any of the Basslets. Zero ammonia and nitrite is essential at all times. A stable Specific Gravity of between 1.021-1.024. Nitrates need to be as low as possible, preferably never exceeding 15ppm. Tempera-ture 77-79°F, pH 8.1-8.3. Good quality water changes of 15 to 20 per cent every two weeks plus activated carbon filtration and efficient protein skimming as standard.

Basslets will thrive in a tank with plenty of rockwork to hide amongst. Try to build a stable rockwork structure with Tufa or lava rock so that a maze of crevices and caves are formed. Some marinists might be worried that with so much rockwork to hide amongst they will rarely be seen. However, as these delightful little fish get used to their surroundings they will be seen more and more often. Some species, such as the Royal Gramma, will be on show most of the time, whereas other specimens may only be seen from time to time, which makes a pleasant, and colourful surprise for the aquarist or casual observer.

FEEDING

Most Basslets will take live and frozen Brine Shrimp and Mysis quite readily if it is kept suspended in the current - they will rarely scoop up food from the substrate. Even flake foods are acceptable to some species. On the other hand, many of the rarer specimens require some patience as they are nervous and reluctant to feed properly for the first few weeks. Tempt these fish with live foods but not exclusively as it may be difficult to get them to accept more convenient frozen foods at a later date.

STOCKING STRATEGIES

Owing to their highly territorial

the captive breeding of Grammas and Dottybacks (another common name for Pseudochromids) is concerned. C-Quest in the United States have succeeded in rearing at least ten species for commercial sale purposes. By all accounts, the stock of the highest quality and enough individuals can be produced to regularly supply the industry with some very popular specimens.

FISH FOR **NEWCOMERS**

There are several that are comand well suited to the careful beginner, Try the Flash-Back Gramma (Pseudochromis distinut), the False Gramma (P. poccognellee) or the Strawberry Gramms (P. prophyreus). Many aquarats are attracted to the Royal Gramma (Gramma loreto) as a first But they are slightly more sensi-

nature it would be wise to avoid introducing Basslets at the start of a new aguarium; somewhere towards the middle or end of the stocking programme would be ideal in any case, all Basslets tend to do better in a more established aquarium of six months or more.

DISEASES

Basslets are reasonably resistant to disease, but many, particularly the Royal Gramma, suffer from Whitespot if conditions are not right. Basslets do best in an aquarium that is not overstocked nor overfed and offering excellent water quality.

Brilliant Basslets

faces. If possible, it should be seen feeding.

If at all suspicious about a purchase quarantining for several weeks is the best solution.

LOOKING FOR A HEALTHY SPECIMEN

When purchasing always try to choose a fish that is highly coloured and not 'washed out' in appearance. First should be intact and there should be no tendency to scratch

SPECIES COMMONLY AVAILABLE

against rocks or other sur-

Strawberry Gramma (Pseudochromis porphyreus); False Gramma (P. poccog-nolloe); Flash-Back Gramma (P. diodemo); Neon-Back Gramma (P. dutoití); Sunrise Dottyback (P. flovivertex); **Orchid Dottyback** (P. fridmoni); Royal Gramma (Gramma loreto); Black-Cap Gramma (G. melacaro)

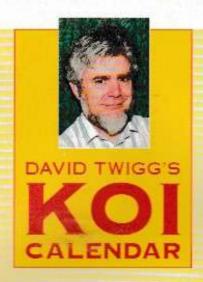




A Happy New Year to you all. I hope that your Koi year will be troublefree and you will be able to enjoy you Koi to their full during the coming summer months. But first, we have a couple of normally very cold months, January and February, to get through.

It is generally assumed these days that a cover will be in place at this time of year to protect the water from the chilling winds and very cold nights. This helps maintain water temperature but, perhaps more importantly, will help to maintain a stable water temperature for your Koi to live in. This is fine, but covers can also mean our pets are kept out of sight for a couple of months or more and in many of these columns I have suggested that some form of 'window' or easily liftable 'partition would be useful in any cover design to allow for viewing of Koi, feeding if appropriate and pond maintenance when required.

All pond covers are unique: they are built to suit the shape of the pond, the ability to treat and maintain the Kol and finally to suit the pocket of the owner. Some designs are extremely sophisticated and cost a lot of money. others (equally effective and probably on a



smaller scale) are built to a budget. Really the only thing to consider here is the well-being of the Koi in the pond and I hope that readers will take the opportunity during these colder months to visit as manu Koi keepers as possible, to observe their covers and pick up as many tips as possible that can be designed into any new cover that may be built.

Most treatment carried out at temperatures below around 12°C (55°F) will have little effect in terms of helping a wound to repair and regular visual checks through the windows' mentioned above are necessary to, ensure that deterioration of the wound does not set in. This is where the medication/quarantine set-up can belo enormously, provided that a 'live' filter is maintained in such a

system and it has some means of maintaining water around, or preferably a bit above, the 20°C (70°F) mark then healing should occur at a fairly rapid pace. One of the problems that the koi keeper faces when the treatment is over and the Koi is well again is the inability to return the fish to the external pond where the temperature is so much lower.

It is probably wisest to keep the medication system running until outside temperatures catch up. Please ensure that the treatment facility is of sufficient size to accommodate the poorly fish because if the 'water' is too small then the Koi will surely be stressed and that may well hinder the healing effects of any treatment given, and possible negate it entirely.

SHOW CALENDAR

6/7 Worthing & District Koi Society BKKS Show. Rugby Ground, Angmering Sussex. Details from Cathy Robertson on 01903 522738.

JULY.

4/5 East Pennines Section BKKS Open Show.

Japanese Style. Heritage Centre, Elsecar, near Barnsley (indoors). Details from Sheila Sanderson, 92 West Street, Houland, Barnsley S74 9DJ.

AUGUST

2 Yorkshire Koi Society. Annual Open Show, Harewood House, Harewood, near Leeds Contact J.R.Glasspoole, YKS Show Manager, 01845 526164

SEPTEMBER

- 6 Leicestershire Section BKKS Show. Farm World, Gartree Road, Leicester Contact Ray Dunkley, 0116 2771600
- 6 Nottingham & District Section BKKS Closed Show. Contact Shirley Hind on 0115 981 0923.

KOI MEETINGS IN JANUARY

- 7 Leicestershire Section BKKS. Speaking at Kirby Muxloe Sports Club is Denis Wordsworth of Infiltration Contact Ray Dunkley, 0116 2771600
- 13 Nottingham & District Section BKKS. Open Forum' at the Western Club-Hillside, Nottingham. Contact Shirley Hind on 0115 981 0923.
- 18 Northern Koi Club. Speaking on 'Pond Construction' at George Carnall Leisure Centre Urmston, Manchester is Derek York of Klassic Koi. Contact Tony McCann on 0161 794 1958.

All Roll konguers are welcomed to the events mentioned in this Calondar (an ontry lee may be payable) and further details can be from the contact telephone number quoted alongside the diary entry. My thanks go to all Kui Club Sceretaries or PROs' and others who me their latest calendar for inclusion in this column. If your club is not mentioned and you would like it to be, please write to me via Editor at MJ Publications Ltd, Caston House, Wallesley Road, Ashford, Kent, TN24 BET. Although I do my best to ensure all events e mentioned it may be that some information, which arrives a little late, misses my deadline. To minimise the chance of this occurring a may find it more convenient to fax me direct on 01926 403500. This request also applies to dealers with special events, auctions, etc ok forward to hearing from you.



By BOB and VAL DAVIES

COLLARED LIZARDS

The Mohave ollared Lizard neularie bicinctores s an attractive specie hich frequently appears in the trade along with its more rard (Crotophytin Provided they are in good condition when purchased they are not difficult Lizards to



Mohave Collared Uzard is an ideal subject for a desert vivarium and are usually imported from Spring onwards PHOTO: BOB & VAL DAVIES

youngsters the crossbanding is more

CAPTIVITY

Vivarium size: (90x30x38cm) for a pair or tric

Furnishing: Dry nori-dusto, coarse send) for substrate Backwork or logs for

basking. Several hides in different parts of the vivorium. Avoid living plants since they will increase the humidity. Artificial (strict or plastic) plents can be used. Other natural mems include pine cones, dry moss etc. (See Progs and Friends, A&P, December 1997).

Day temperature: 86°F (30°C) at the cooler and away from the

Night temperature; 66-68°F (19-20°C).

Food: Insects dusted with multivitamin/calclain supplements. In the tid they will eat smaller lizards.

Small pieces of cuttlefish hone should be offered in a dish. Small water bowl or a light spray on rocks in the morning will be lapped.

It is important to note that these diurnal lizards will need provision of full-spectrum UVB fluorescent light to addition to a basking lamp. This has proved to be one of the key factors in their excressful rare in

loop. High daytime temperatures are assential and due to their high metabolic rate plenty of food must be available. They are quickmoving, active lizards which love hasking and usually become coustomed to their keeper and will accept food items from furgeou avoid intermele squabbles they are better kept as pairs or trio

Culland Lizards belong to the Family Iguanidae
Distribution of the Mohase Collared Lizard includes California.
Onetjon, Idaho, Nevada and Artesna. They inhabit and areas with

Colleteds, are skinder Lizards with a large boast and a longish whippy, tall — may attain 33cm (13m) in length. Both sexes sport as double black collar bands. Colouration is clive brown with pale crossbands specified with light spots. Mature males can be identified by the bluish grey throat which has a black centre and dark blotches in he spoin. Gravid females show red-orange spots on the sides. In

BODILY **FUNCTIONS**

On a more humorous note. we recently had the experience of seeing a flatulent tadpole! Some Madagascan Reed Frogs (Hetricalus madagascariensis) had produced eggs for the first time and it was noticed a few days after hatching that one of the tadpoles was full of tiny hubbles. Having placed it in a Petri-dish for examination under a microscope a tiny stream of bubbles was observed to pass from its near end. Prior to this it seemed to be having some slight difficulty in swimming but this was much improved after the

This brought to mind a conversation some years ago; an acquaintance asked if we knew anything about constipation in Arrow poison frogs. He swore that it was a common cause of death having spent lengthy periods timing defecation in his frogs. Apparently in most specimens, the act was performed within a few seconds hut some took up to 15 minutes. As these latter specimens died within a few weeks his 'scientific

turigement' was that constinution was responsible!

SILENT SPRING

Many readers may remember Rachel Carson's book 'Silent Spring' published in the 1960's warning of the dangers of the unlimited use of pesticides, among them DDT. Once the dangers of this chemical were realised its use was discontinued in Western countries. In the USA, where it has not been used since 1972, it has been found that Western Toads (Bufo boreas) in the USA are STILL

passing toxic derivatives of DDT to their eggs. This particular species has declined substantially in recent years. In spite of its known toxicity DDT is still being used in parts of Africa. Since amphibian populations are dwindling in many areas worldwide the effects of such chemical contaminants are one field of investigation by scientists although other factors may be involved. Increased exposure to ultraviolet at high altitudes is another possibility. Other factors which may be implicated include acidification, parasites and global warming.

COLOUR MUTATIONS

Reading through an American dealer's price list it was mind-boggling to see the number of colour mutations available over there. Corn. stakes (Elopho guttaia guttaia) lead the field, apart from the normal form some 21 colour los pottern) mutations were listed including 'Green blotched Sno Com Scake', 'Ghost Com Snake and Blazzard Com-Snake. These are now to us. Second to Corn Snakes was the Californian Kingsnake Lumpropeitis californiae Apart from the two normal

PHOTO: 508 & VAL DAVIES forms, ic., the black and white Banded and the black-and-white Striped. norms se, an uniforms were on other, including a melanistic form —
presumably all black — which makes it difficult to understand its appeal
as the normal black and white forms are arrestise. Should unyone
word a black stelle then such are available to other species which are

Several other species were listed in two or three colour/pattern forms, mainly albinos. As we have mentioned before these is fin incentive to produce new mutations — they usually tetch higher prices



Labyrinth Albina Burmese Python — a recent mutation but not to everyone's taste.

Albino Burmese Pythons Wython molurus bivittatu commanded hage prices when first developed to the USA They have been in the UK for a lew years and due to prolific breeding the price has dropped substantially. We know of several dealers who have turned down clutches or been willing to buy them at very low prices. Demand has also reduced as keepers have become aware of their eventual large size which necessitates specieus querters.

As the market for Albino-Bunnese has shrunk new forms are being developed, one of the latest would seem to be the Albino Labyrinth Bunnese Hatchlings are a pale yellow,

orange and white with red eyes. Lehyrinith refers to the intricate pattern. This new pattern costs around \$300 whereas the albino form is down to \$100 with normal Burmese Pythons costing around \$50

Producing mutations involves inbreeding which can cause various genetic weaknesses and leads to discarding many unsatisfactory progenty. From a purely personal point of view we do not keep anything but normal forms of any species but since there is a demand there will be a supply. Love 'em or hate 'em, mutations will no doubt

SALAMANDERS - NOT THE MOST POPULAR OF HERPS

normally black.

From observations it seems that amphibians, especially Salamanders, are the least popular species in the hobbu Society advertisements. dealers' lists and stalls at Shows seem to point to snakes being the most. popular, possibly because of the relative case of keeping. Manimal-eating snakes do not need feeding every day and storing a supply of frozen foods to be theseed as

necessary is simple and convenient. However, we have several acquaintances who are form Salamander and Newt fairs (in some cases to the exclusion of all other species) who constantly bemoan the lack of

There may be several reasons for the shurtage, importers responding to low demand since they are a minority interest; restrictions on trade in various species - European species are not imported. Even so there are people breeding species such as European Martilet News. Alpine Newts, Fire Salamanders and Ribbed Newts all of which are regularly advertised. Unfortunately, these, and other species have a kids stuff image, in many older books they are recommended for beginners. Amphibians do not travel well end possible high morality rates may deter importers.

However, it may simply be that Salamanders with their secretice. nocturnal crepuscular habits have lost their appeal vis a vis snakes and the more active Lizards. Attother disadvantage often cited is that Salamanders need more frequent feeding than snakes. Earthworms are s feegurite food and many keepers have not the time, inclination or facilities to search out wild foods which might also these days be familiated with pesticides

Unless Salamanders are fed from forceps the keeper cennot be sure



Three-lined Salamander is an Amurican species which is occasion PHOTO: BOB & VAL DAVIES

not merely disappeared into the substrate. In actual fact. Crickets: soft-bodied Slugs, with the same caseat concerning pesticides, are also taken. Another problem which deters people is the flame to streuoma evoleges liveloods needed if breeding is successful. Aquatic larvae (mainly Newts) need large amounts of Daphnia. Bloodworm, etc

Terrestrial babtes require autable may prey. For the enthusiast these problems are not insurmocetable

On the other hand

Salamanders have much to recommend them. For the majority of species no additional heat or light is needed; normal daulight provides the necessary photo period — temperatures above 77.F (25°C) should be avoided. For some the breeding is not well documented, thereby presenting keepers with a challenge

Unities some hobbuists who tend to specialise in a particular type we have always been interested in various types and always maintained a

mixed collection; one of latest additions being some American Three-lined Salamanders (Eurycea longscouda gutfolinegrus). At the moment these are in hibernation with view (hopefully) to breeding later this year. They are not the easiest creatures to sex, with many Salamanders sexing often depends on observing the swollen cloaca in males which are coming into breeding



THE REPTILE MASTERS LTD.

Lettle Warley Hall Lane West Horndon, Near Brentwood Eisser CM13 3EN, England 01277 911922 Tel: 01277 811822

EN 7 DAYS A WEEK 10AM TO SPM 1 and visit the largest reptile boose in the All of our slock is besuffully displayed. the public. We sets, iguarias, I plus all the no

tolcome — Friendly Service a vice — Mail Order/Access/Vi Mastercard walcome



est in all things aquatic was rapid. Looking through past issues of AdP makes interesting reading not only for the diversity of subjects raised but for the apparent enthusiasm by all contributors whether they be authors, reporters from Societies or letters from readers, January 1948 threw up this selection of topics ..

Editors are not notorious for getting out of their prams' but n the Editorial for January 1948 A&P Editor, Alex Fraser-Brunner, came pretty

Having been stirred by a magician's trick fon TV, no less)) in producing a myriad of goldfish bowls with fish included, he went on to ponder upon where the actual bowls came from, in the manufactoring sense, as steps were already being taken to gradicate their use even then.

To quote.

"It seems unbelievable that they can be manufactured in this country, for they can hardly be classed as a necessary product. Glass is a priority material, and glassworkers are required in essential industry. No, it. cannot be. Yet here they are. Surely our enlightened Board of Trade is not permitting good money to be spent on their importation from abroad? That would be criminal from every point of view, and we cannot believe that either. Yet here they are.

He continued: "We agree that in the long run education will stamp out these 'iniquities' and every aquarist can help by

publicising the scandal. We might enquire why money

labour and materials are being expended at this time on these berbaric things, and try to get them stopped at the source this would mean concerted action by our organisations, questions in Parliament widespread press publicity, and this could bring nothing but good to the hobby. We are sure that the more enlightened dealers would be with us, for fish globes make too matig disappointed customers to be good for trade in the long nm '

E. C. Day, of Leigh & District A.S., wrote to inform of the dangers of using clear plastic sheeting as a tankdivider. It was reported that a subsequent test of the material had altered both the pH (slightly downwards) and also increased the surface tension very considerably.

Societies were very supportive in their contributions to their own news pages and the Bradford & District Aquarists' Society, although only formed the previous November, last no time in getting this fact known In the January issue.

A member of Bristol A.S.

had been experimenting with rendering his tanks waterproof ... and appealed to his fellow members for advice. Was the 'Bostik' product he had used safe? Most thought so, as long as it was Bostik 'B'

Hertfordshire A.S. took exception to the resolution suggested by the FBAS that all show tanks should be painted mid-Brunswick Green. The Society put forward its own counter-resolution ('not in any way due to cussedness] but as a result of their experiences with cream-colorized tanks at their own Show which, they telt, set off the tarks and contents much better

The effect of having an

Leeds and District A.S. were glad to help when a representative of the Leeds City Museum asked for help in endeavouring to get the Museum's character away from nothing but preserved specimens by encouraging aquaria as living subjects. Plans were made for two tropical tanks to be set up, as stock for an originally-proposed coldwater exhibit may have been hard to come by during the winter months.

Members of Merseyside A.S. had a pleasant surprise when their delegate returned from Belle Vue, the headquarters of the FNAS. The Federation's Secretary, Mr Iles, had successfully bred some cichlids (a rare occurrence in those days) and had presented each affiliated Society with several of them.



THE PREMIER FISHFOOD IS AGAIN AVAILABLE FROM YOUR LOCAL PETS STORE

6º & 1/- TINS

OR DIRECT PRICE 81º 8 1/3º POST PAID

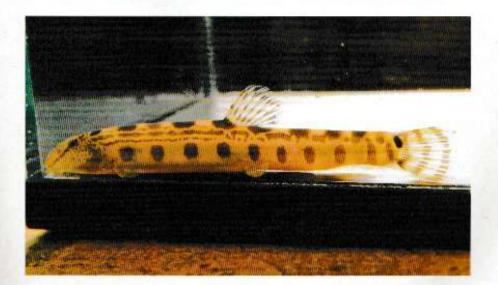
CHAS. PALMER & SONS (LONDON) LIMITED

Roger Crew apologises for the dreadful pun(s) in the title, but he couldn't resist it!

PHOTOGRAPHS BY THE AUTHOR



The 'Kinki' capers of Cobitis biwae



ONE MINUTE **GUIDE TO** NATIVE LOACHES

here are only two Loaches native to the British Isles; the Stone Loach (Neomacheilus barbatulus) and the Spined Loach (Cobitis

The Stone Loach and the Spined Loach are the only two Loaches native to the British Isles.

taenia) - whose common name is due to the two-pointed, retractable spine found in a pocket under each eye. While the Stone Loach is found throughout most of Britain (with the exception of the south-west of England and the north of Scotland) the Spined Loach is much rarer, being endemic to the East Midlands and East Anglia only (although it is found in the majority of European counCobitis biware

'I Did it Bi-Way'

Unlike the Stone Loach Cobitis toenia (also known as the Groundling owing to its habit of burying itself in sandy or muddy river beds) occurs in slow or still

water, has regular rows of blotches on a light brown body and grows to approximately 100mm

There are eight Cobits species in European waters, six of which exist in very restricted habitats, with only the Golden Loach (C. gurata) having a more widespread distribution than C. toenia. There are also at least two Far Eastern species, C. mocrostigmo (from the lakes of central China and Japan) and C. biwoe, the Lake Biwa Louch, named after Lake Biwa-ko, a large lake (about 30 miles long) just north of Kyoto in the Kinki District (honestly!) of Japan. It is this Loach — the cousin of our Cobitis biwar native Spined Loach, which this article describes

SELECTING THE ADULTS

Sometime early in 1996 these fish appeared in UK aquatic outlets believe possibly as the result of only one wholesale consignment — and have been seen at a succession of Fish Shows since. One day in late September I witnessed their captive spawning.

When Cobitis biwge first appeared in the UK I purchased four fish, selecting not just the largest, but what I really guessed (by virtue of general shape) as being two males and two females.

As it transpired my 'gut feelings' were correct as closer examination, and some exploration of the literature available, shows definite sexual dimorphism in the shape of the pectoral fins. People who know me know that at one time or another I have kept numerous Corydoras species. Now anybody who has attempted to sex Corydorus (or many other catfish) will be familiar with the differences exhibited between the sexes in respect of poctoral fin shape and they will, therefore, have little difficulty in distinguishing between male and female C. biwae.

When viewed from above the male has a thin spine-like pectoral, with little apparent 'pad' shape to the fin, whilst the female has a rounded tip and broader 'paddleshaped' pectoral fin. The female also tends to be somewhat more robust in appearance - particularly if wellconditioned. Mine were not, however, noticeably full of eggs prior to

MAINTAINING AND CONDITIONING THE ADULTS

SUMMER QUARTERS

As C biwee are what we loosely call 'coldwater fish' and require a fairly high oxygen level., I decided to keep mine outdoors in a wide and fairly shallow tank to give the maximum surface area to the water.

The tank selected was 12in high, 24in long and 15in wide with no cover glass. A layer of inert sand approximately 2in thick was installed as the substrate. The tank was half-filled with water and a liberal quantity of Azollo floated to half-cover the surface; I had also acquired at a local Fish Show a quantity of an aquatic plant which looked somewhat like an aquatic grass and which I was informed grew to cover the base of the owner's tank. I had separated this into several clumps to try in various locations and chose the C biwde tank as one of them.

It transpired that this clump of aquatic grass resisted most attempts to anchor it in the substrate and was usually to be found floating at the surface. The Loaches lived happily in this set-up for the summer months with regular (massive) water changes of up to 90 per cent and did not seem to mind the green water which inevitably resulted. A mixed diet of quality flake food combined with high protein pellet and lots of live food seemed to suit the occupants, and the Loaches thrived - as did the Azolla which densely covered the tank and shaded the contents so that the water always felt quite cold despite some very sunny days. A variety of natural insect life - in particular freshwater shrimps and snails colonised the tank, encouraged I presume by the plants, and virtually constant water temperature.

home for the dult biwaes



During the summer months the C. biwae were noted as being a very active species, spending a high proportion of the time swimming up and down the length and height of their summer quarters.

Sometimes we would note their absence, panic at their supposed loss, and subsequently find they were buried in the sand substrate. This was usually the case when they were due to be shown and had to be caught be tanked for transportation! On other occasions we noted them 'basking' in the sun on the substrate against the glass of the tank. As the site of this tank was just outside the back door to our home we spent many happy hours 'basking' in the sun ourselves on the doorstep, drinking tea whilst we observed their amusing antics, which resulted in a real 'relationship' developing between C. biwee and the rest of the family! I also noted that 'The Biwaes' (as they became affectionately known) browsed amongst the Azolla roots for a large proportion of their time, which, produced a personal hypothesis that they might be spawners in floating plants. During these halcyon days the females' bodies deepened and appeared to be 'conditioned' for spawning, but knowing that there was little evidence of captive spawning I made no

plans for such activities. WINTER QUARTERS

With the onset of autumn and the impending colder weather of winter, I eventually had to consider 'The Biwaes' lifestyle and made the decision that the tank should be emptied before the frosty days came - for my convenience rather than that of the fish!

Indoors, a 36x12x18in deep tank was cleaned and set up with a variety of plants, and the Loaches - in company with other small coldwater were brought in and placed in their winter quarters. The clump of grass-like plant accompanied the fish and true to form resisted all attempts to secure it in the substrate. It did not appear to come to harm through floating, so it was left to do so, driven to one end of the tank by the current from a powerhead. The tank was situated next to a floor-to-ceiling window, which had the benefit of the morning sun and provided a good light source throughout the day. The tank was also fitted with light, undergravel filtration and a substrate of small, round pea-gravel, coldwater plants and a Swan Mussel - hopefully, for the Bitterling which were co-habiting with 'The Biwaes'. It was actually the Bitterling that I had hoped to spawn and had partly selected the tank right next to our settee in the lounge so as to be able to observe this activity when (or if) it occurred!

THE SPAWNING

The indoor temperature (70°F) was noticeably higher than that which the Loaches had been used to. and remained fairly constant although the tank was unheated Within a week of being introduced to this tank the Loaches spawned.

During the evening my wife and I observed the Loaches following each other around the tank and being generally active. Then my wife Sue, realised that the

Loaches were chasing each other through the clump of floating aquatic grass, though it was not immediately apparent that in the process they were spawning in the leaves. Sue noticed the eggs themselves just as we were going to bed that night. I had previously bemoaned the fact that she was scaring 'The Biwaes' by peering into the tank at them! She noticed the eggs as being in a small clump adhered to several of the grass-like leaves of the plant. My first reaction when looking at the plant was to declare that the eggs were snalls eggs, but Sue was adamant that they were too small for snail eggs and the clump of eggs was brown in colour. She said she could clearly see the individual eggs even though they were very small — in fact she got decidedly 'sniffy' with me complaining about my eyesight and not being able to see the obvious differences. We did, however, agree that the behaviour of the fish was unique and distinctive enough for us to separate the clump of plant including the eggs into a 12in tank with an airstone running directly underneath the plant 'just in case'.

REARING THE FRY

Three days later, having moved the unheated tank to a well-lit spot. and with the aid of a magnifying glass the fry could be observed, along with a variety of sizes of Dophnia, Shrimp fry and small freshwater snails. The fish were similar in

Adults and uvuniles in Tim tack



appearance to my livebearer fry — about 3-4mm in length with a long body and oversized fins — but without the distinctive body pattern of the adult Bivaes. The distinctive line through the eye which is exhibited in the adult fish could be plainly seen in the fry.

Initially, the fry were provided with Egglayer Liquifry and after a few days fine powdered fry foods. The fry readily took the prepared foods, although I suspect that the abundance of natural insect life gave rise to a infusorial cocktail which may have assisted the first days of their life.

Regular water changes were made to the fry tank and after about three weeks they could be definitely identified as Loaches and the body pattern was emerging. There were a total of 18 fry which have all survived to date; the "baby" photos were taken some five months after birth.

Conjecture is that the introduction to warmer water, combined with a change in the photo-period was the trigger for the spawning, and the use of floating vegetation as the spawning medium may mimit the natural occurrence in the wild. Altogether, the lucky combination of circumstances may have given us some insight into the spawning of these Loaches. Note: I thought the plant to be Echinodorius tennellus (one of the Pigmy Chain Swords, possibly the variety parvulus), until I read of Lileopsis novo-zejandoe (Plants for the Coldwater Aquarium, A&P, March 1997) — now I'm confused again!

BIBLIOGRAPHY

Readers Digest Field Guide to the Waterlife of Britain ISBN 0-276-3600X-7 Baensch Aquariun Atlas (Vol. I) ISBN 38244-050-3

The Hamlyn Guide to Freshwater Fishes of Britzin and Europe ISBN 0 600 339 866

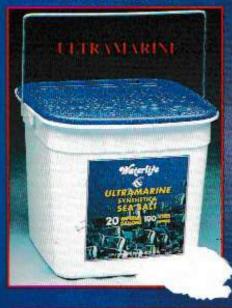
Keeping Loaches in the Home Aquarium. Dr Peter Lewis. RCM Publications, Sierra Madre, California

Freshwater Aquaria, Rev. G.C.Bateman 7th Edition

Axelrod's Atlas of Freshwater Aquarium Fishes, 7th edition Cobitis toenin the Spined Loach









Reportkoped

For ease of use and freshness

- Welling to the later

For improved clarity and solubility.

RETHUNK! ULTRAMARINE®

Demand it

Available in 5, 10, 20, 50, 100 & 300 gallon packs from all good aquatic outlets



Use your Seadrometer for fast, accurate salt level readings.

Includes safety case.

and float tube

Waterlife, Making fish keeping easier for you, more enjoyable for your fish

Waterlife Research Ltd, Bath Road, Longford, West Drayton, Middlesex UB7 0ED Telephone 01753 685696. Fax 01753 685437 for information pack

Beauty

Linda Lewis profiles a proper little devil

PHOTOGRAPHS BY THE AUTHOR

Crystalwort, Riccia fluitans, forms deep clumps which are ideal for fry.



To be honest with you I know very little about aquarium plants. Although my tanks all sport luxuriant foliage I would be hard pressed to identify any individual species. My method has always been to buy various plants, put them in a tank, and see how they get on. Some prove a great success, others die within days. Over the years I've ended up with a fine selection of plants which do well in my tanks. I have, for example, three very large Amazon Sword type plants which have survived several uprootings and replantings. are years old, and just go from strength to strength. I think they're wonderful but I couldn't give you a species name even if I wanted to.

There is, however, one plant whose name I do know - Lemna minor, known to its friends, as Duckweed. How such a

beast of a plant could have such a sweet sounding name I will never understand. Duckweed is that green carpet that you often see covering disused sections of canals, or neglected takes. I guess it got its name because its innocuous looking glossy green leaves repel water, so that it can maximise the amount of light it takes in In appearance it is simplicity itself. Four small oval leaves arranged in a star shape. Very fine roots complete the picture.

Duckweed can grow almost anywhere; its distribution is virtually worldwide. If you have never been able to keep a plant alive in an aquarium you will succeed with Duckweed. It has the uncanny ability to adapt. If conditions don't suit it it simply slows down its growth, reduces the size of its leaves, and waits for things to improve.

Eve no idea know how the plant first infected my fish tanks, but I certainly didn't buy it! Its usual method of entry is attached to some other, innocent plant, possibly one which has cost lots of money. The Duckweed will not have been noticed, concealed as it was amongst the carrier plant's foliage. You may even see it and think to yourself, I may as well leave it, after all, how quickly can one, tiny, little piece of Duckweed grow?

My first thoughts upon spotting the dreaded weed were benevolent. I knew that some of my fish liked to take cover in shaded areas and a little bit of Duckweed would do the job quite nicely.

Unfortunately, I was providing exactly the conditions the little monster likes best of all. The surface of the water was relatively still, the light source was close by and on

and the Beast



 Duckweed completely covering this small pond.

for ten hours every day, and, of course, the water temperature was comfortably warm. Not only this, but the fish were kindly producing ready made plant fertiliser. Within a few short weeks the entire surface was covered! I wasn't too concerned, I just scooped out four netfuls of the stuff, but within no time at all the Duckweed had once again spread to all corners. Now some shade in a tank is advantageous. but when all the surface is covered? Not only that, but the shelter provided by its spindly roots is useless for fry

A Thallophyte

At this time I was lucky enough to be introduced to Riccia fluitans, or Crystalwort, I. looked it up in one of my books to find it described as a thallophyte. After a quick dash to the dictionary I found that this simply means that the plant has no separately defined root, stem or leaves. In appearance it

reminds me of one of those models scientists make of complex molecules - lots of links branching this way and that, but without the round atoms at the end!

The plant grows as it forks until small plantlets separate from each other. Because of the plant's twig-like structure many little pieces link up. What makes this plant a beauty is that this does not just happen horizontally. Instead the plants form a thick cushion which can be 2in in depth. As individual strands are only loosely booked? together tiny fry are able to take refuge inside the bundle. Even better from a maintenance point of view is that, because the plants stick together, great lumps can be removed from the water at a time, making control of its spread much easier. It is very tolerant of a variety of conditions, even more so than the odious Duckweed. It will even grow where there is a surface current, the bundle of plants coming to rest wherever the water is calmest.

Not Suited to Brackish Water

Any temperature between 15 and 30°C suits it, and a pH anywhere from 6-8 will be fine The only condition it does not do well in is brackish water.

Since I discovered the beauty of Crystalwort I have been fighting to rid my tanks of the dreaded Duckweed, Hours of skimming and scouring have still not destroyed my enemy. It reproduces without going to all the trouble of flowers, getting pollinated, setting seed and so on; it can simply divide and multiply, like an Amoeba. So, all it needs is for one, single solitary leaf (not even a whole plant!) to be left lurking behind the filter, or tucked inside a mat of Riccia, and the problem happily mushrooms again.

I think I've finally cleared one of my tanks but, with Duckweed, you just never know!

Dave Garratt comes across some very terrestrial sounding invertebrates

PHOTOGRAPHS BY THE AUTHOR

Fruit & Veg

Francisco tolochirus sp the Soa Applie, is a popular Invent.

This Sea Cocumber, Helothurio fasikali, comes from the cooler waters of the Mediterranean and North The Sea Cucumbers belong to a diverse class of animals known as the Holothurians.

A Diversity of Species

he Sea Cucumbers, sometimes known as Sea Slugs, or even Sea Apples depending on the species, belong to a diverse Class of animals known as the Holothurians. Despite appearances to the contrary they are related to Echinoderms such as Starfish, Brittle Stars and Urchins. The Sea Cucumbers have lost the obvious five sided appearances.

ance displayed by Starfish but retain the five-sided theme on a more subtle basis through five internal muscle bands and five rows of tubular feet.

Their diversity can be illustrated by a number of characteristics. Their range is from inter-tidal levels to the ocean depths, size can vary from a couple of inches to 6ft, some are scavengers whilst others filter feed via elaborate tentacles. Cucumbers can make very colourful additions to the aquarium or they can be drab and slug-like. These contrasts can be seen in the species regularly available in the hobby.

> STRANGE DEFENCE MECHANISMS

The Holothurians display two

unusual defence mechanisms. They can discharge, via their anus, special organs known as Cuvierian tubules. Once discharged these tubules become elongated, extremely sticky threads that can entangle a predator thus allowing the Cucumber to escape. A more startling defence mechanism is their ability to discharge their entire intestinal tract through their mouths or anus. The process is known as envisceration and is followed by the regeneration of the digestive tract. The discharge is accompanied by the release of a lethal toxin which can, in some species, be discharged on its own. Some of the species that are kept in the home aquarium have this envisceration/toxin release ability hence excellent aquarium conditions must be maintained to avert such a discharge. For similar reasons aggressive tank mates such as large crabs or Triggerfish, and fish with a tendency to graze on the tempting gently wafting tentacles, eg. Batfish or large Angels, should all be avoided. Otherwise Cucumbers, particularly the Black Cucumber and the Feather Cucumber listed below, make ideal 'first-time' invertebrates for begin-

Stichopus chloronotus (Black

The Black Sea Cucumber, slug-like in appearance and resembling a blackened shrivelled cucumber, hardly has an appearance designed to enhance the beauty of a marine tank. However, this hardy species can perform a good job as scavenger as it slowly makes it way over the substrate on the tank floor. It swallows mouthfuls of detritus and extracts any organic food matter from it before ejecting the waste it cannot use.

The species is common in the Indian and Pacific Oceans where it may play an unusual host role. The cucumber allows the Carapus fish to take up residence in its cloacae, le, its anal opening. I have no idea what, the Cucumber gets out of such a relationship, the fish is obviously provided with protection in the form of a unique shelter!

Cucumaria miniata (Feather Cucumber)

The commonest species seen in the hobby has a pink body with five longitudinal rows of tiny bright yellow tubular feet. The species is common in the Indo-Pacific region and is usually obtained as a 2 to 3in specimen. Occasionally yellow species are seen for sale.

The mouth has an arrangement of feathery tentacles that the animal uses to filter water and trap food particles. They are usually hardy in captivity and make an excellent

choice for a beginner's invertebrate, Feeding is easy as they will readily take commercial invertebrate foods. frozen Mysis and Brine Shrimp.

Synabta macufata (Worm or Intestinal Cucumber)

These specimens are occasionally seen for sale but are not generally available or popular within the hobby. Some will find them fascinating creatures whilst many may find their snake like appearance, peristaltic body movements and very sticky skin, off putting to say the least, or even repulsive.

One can hardly ignore this species as was once demonstrated by a visitor to our home one evening. We were all sitting down to a quite meal when the specimen in my tank suddenly put in a dramatic appearance as it rose, pulsating, from behind the rock work at the rear of the tank. Our friend was sitting opposite the tank exchanging pleasantries and enjoying his meal when he suddenly stopped in his tracks to exclaim what the b**** h*** is that. He could not face the tank for the rest of his meal and sat with his back to it. My wife had similar thoughts about this cucumbers appearance.

They are beige coloured animals resembling fat worms up to 24in in length although species up to 5ft are

seen in their natural habitat. They possess feathery mouth parts with which they can trap and/or filter food. They also ingest detritus and the body of the animal pulses as the food passes along its digestive tract.

From my own experience and from the finding of a few fellow hobbyists they do not appear to survive for any great length of time in captivity. Although this may be a false impression due to the relative unpopularity of the species meaning there is very little aquarium based knowledge of them. I would imagine they struggle to find enough food in the average home aquarium.

Pseudacolochirus axiolo gus (Sea Apple)

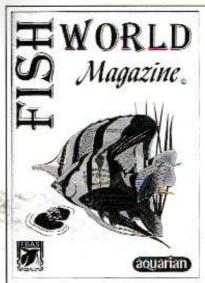
The Sea Apple is the most striking and colourful of any of the cucumbers seen within the hobby. The usual species offered for sale is from Indonesia, has a pinkish-blue body with five rows of yellow feet and the body is capped by an elaborate arrangement of beautiful red feathery tentacles. There is an even more striking species from the Great Barrier Reef possessing a vivid black and yellow colouration. However, this is rarely seen for sale and when it is it attracts a suitably

expensive price tag.

The Sea Apple filter feeds, traps food, and then passes each tentacle into its mouth in turn. Aquarium feeding is easy as it will take any suitably fine food. However, as many appear to slowly starve in captivity, they must be fed regularly and with fairly large amounts of food. Commercial invertebrate diets, emulsified Mussel or Clam, etc., frozen Brine Shrimp and Mysis will all suffice.

Good water circulation is essential. The Cucumber will often position itself directly opposite a waterflow from a powerhead or similar outlet. The Sea Apple is non-aggressive and will not bother any invertebraces or fish. Tank-mates must be chosen with care as the Sea Apple cannot tolerate any fish that will nip at its tentacles. The point was covered more fully when discussing defence mechanisms.

Bear in mind that this is one of the species that may respond to stress and threat by its envisceration defence system, bringing disastrous consequences for the tank as a



Post Code: society if any ol your cheque or postal order to: Fish World Magazine, Dopt AP, 22 Flamsted Avenue, Wembley, Middlesex HA9 6DL

Please make cheque payable to F.B.A.S. THANK YOU

Hobbyists whether they have the smallest Aquarium or the largest Pond. Articles Include: Caring for your Fish, Lighting, Water Quality, Plants, Solving Aquatic Problems. Filtration and many other interesting items Also includes: Society News PUBLISHED QUARTERLY Become a subscriber now at the special rate of £5.00 (including postage & packing) Overseas subscribers £15 (inc. postage and packing). For FOUR editions. starting with the

The best value

money can buy. This magazine is

suitable for all

fishkeeping

next issue.

Robert J. Goldstein hopes it never happens to you — but gives expert guidance if you think it might

PHOTOGRAPHS BY THE AUTHOR

BACK-UP

In the morning there was no newspaper and the city looked like a war zone.

The author in back yard leaning against the root ball of a old beech pushed ove by Hurrican Fran while wife Jayce (hands on hips) blames him for the hurricane and Sylvia Ross mugs for the camera. Photo by Michael

wo weeks of power outages from back-to-back winter ice storms were bad enough, but when Hurricane Fran wiped out half my 100-tank fish room I decided it would not happen to me again

When Category 3 Hurricane Fran blew ashare last September I snoozed like a baby because Raleigh is 150 miles from the coast. At 3am the shrieking wind woke me up, stopped for perhaps 20 minutes, then suddenly shricked again. The red numbers on the alarm clock disappeared.

In the marning there was no newspaper and the city looked like a war zone. Giant transmission towers leading away from the nuclear power plant had twisted and toppied. Hundred year old oaks, poplars, and hickories lay uproceed or snapped in two, and lanky pines littered yards, streets, and roofs like spilled toothpicks. Within 24 hours, convoys of utility trucks and troops began rolling into North Carolina. The air was abuzz with chain saws. Troops cleared downed lines and trees from roads as utility workers unraveled lines from smashed transformers. Logging companies brought in massive tree chippers, and vocant lots all around the city grew into 50ft mountains of smoking mulch.

People who live in the southeastern United States get used to power outages lasting up to a week. Winter ice storms snap the ubiquitous lablally pines that fall upon and snap power lines. Southerners skid over glozed roads to any motel with power and kiss the pets goodbye.

In the past few years reef aquaria have become common. If you think los-



ing fish is expensive, think of the guy with a reef tank. Like Jay Sauber "When I awoke I found trees down, my car windshield broken, and of course no power. Then I thought of my reef tank," he e-mailed. "No problem, they should have power up in a few hours. Was I wrong!" After trying unsuccessfully to find a portable generator jay settled for a battery-operated bilge pump to provide water flow. He lost all the fish, but the soft corals in his lagoon tank amazingly survived.

Jeff Voet wasn't lucky at all. Owner of one of the largest aquarioms in North Carolina with half the tanks dedicated to corals and marine fishes, Jeff was campletely wiped out. So were his reef customers, losing thousands of dollars in corais although the money was less important than the loving care that had grown them into gorgeous reef tonks.

I was out of power for nine days. This time, enough was enough. My little portable generator could handle the fridge, freezer, and a few pumps, but that was it. The lasses began piling up, and nothing could be done. This time. That's when I decided there would be no next time

We've all fantasised about having a back-up generator (among other things) that could handle an entire house. I've called contractors, only to have them fail to show up, or make some excuse if they bothered to call back at all. I finally checked Yellow Pages for suppliers of

POWER



industrial equipment, got two recommendations, made appointments and, of course, one of them never showed at But Dan Bitting did.

He reviewed my needs, explained me options, and showed me how to get me most power at the best price, minering out bells and whistles and putting the savings into copocity. If now in ready for a whole house solution, and an industrial bower supplier for a recommended person in your area. For a cheaper do it yourself solution, get a portable generator now, before it becames necessary and everybody else a during them up. You'll also need a place to store it and lots of petrol, security when the power is out, so too no be the power to the petral pumps.

Types of Generators

Generator choices range from small, air-cooled, single-cylinder partables to industrial or whole-house, water-cooled, six-cylinder engines that look like they were jury-rigged from a truck!

Anyone with a reef tank can afford a portable generator for back-up power. How far beyond you go depends on how much power you need for other household functions, how big a fish room you have, and what you're willing to spend. Price ranges overlap from the largest partables to the smallest whole house generators, so think big first and then let reality checks (spouses are good source) modify your scope. The features to evaluate include output, size, fuel supply, and price.

Some portables use recall start, others electric start, many have ground fault interrupters, and several have gauges to munitar temperature and other parameters. There will be two to five outlets for 120 or 240 volts (the common types in the US; it will be different in other countries). All require (usually two-stroke) lubricating oil, and most have automatic valtage regulators. Portable generators are as easy to use as a lawn mawer and require no professional assistance. They provide excellent back-up power for a few aquariums and minimal household applications. However, don't expect to get price and selection in the middle of a natural disaster, PLAN AHEAD.

Output

Output sufficient to operate a marine tank is easy to calculate by adding the wattage of your lights, chiller, and heater (if any), and adding 25 per cent, since most pumps and motors are very low wattage con-sumers. You will have other concerns besides your fish and coruls. Essential household appliances that can run on a portable generator must have plugs. Optional plug-in appliances include light

bulbs (100 watts), a microwave oven (750-1000 watts), refrigerators and deep-freezers (500 watts each), and electric coffee makers (1000 watts). Other appliances may not be practical because they are wired directly to the fuse/distribution box; to operate these appliances, consider getting a whole house generator that can operate off your distribution bax.

Portable generators range from 350 to 12,000 watts, and whole house generators from 2,800 watts to more than 40,000 watts (40 kw). Prices overlap too, but the requirement for an electricui contractor to install a whole house

The power from the house to the generator (to keep it warm and exercise the unit) and the power sent from the generator to the bouse will both pass through the concrete pad, so nobody can steal your generator.



unit adds to costs. At larger sizes, prices rise only slightly with vastly increased capacity.

Back-up Power

What Size do you Need?

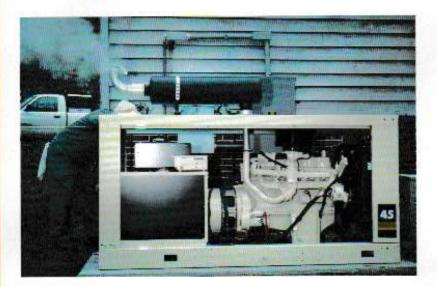
Simply add up the wattage of all essential appliances (refrigerator, freezer, charger for telephone) and aquarium equipment to determine the minimum size portable you must have Then go for one at least half again as

For a whole house generator, use an amp meter at your circuit box to find how many omps are pulled when the appliances on each essential circuit are running, then add 50 per cent for surge when it is turned on.

Because only a few appliances (drier, air conditioner, hot water heater, electric stove) consume most of the power, little additional is needed to run lights and other appliances. Add up the big power consumers to estimate your required wattage. Too expensive? If you turn off some appliances when using others (eg, turn off the air conditioner before using the stove, and use only one hurner at a time), your peak power need can be reduced.

You can run a whole house on 8-11 kw or less. Using deviously cunning arithmetic in support of future expansions to my fish room, I come up with a need in the 20-30 kw range. Taking advantages of significant additional capacity for little more cost, I settled for a 40 kw generator. After installation we ran a test. I turned on all electric stove burners, the air conditioner, the clothes drier, and the microwave oven. The

Testing the generator produces initial smoke as paint and coatings burn off. Later, there will be all.



Whole house generator completely installed



total bull was 71 ambs. The 40 kw unit can deliver 140 ombs, so this unit is considerably oversized. That, how ever, should give you a ball park idea of what you might mond

Fuel Supply

Partable generators run on petral (some on diesel fuel) and the oil you use in your lawn mower. They vary considerably in tank capacity. Look for the largest fuel tank possible on the portable of your choice to minimise refuelling in the middle of the night.

Industrial or whole house generators rum on petrol, diesel oil, propone gos, or netural gas.

Portable or Whole House?

The most popular portables are 2,500-5,000 watts, but they come larger and smaller. The most efficient salution is a partable generator for needs under 7,000 watts (7 kw), and on industrial generator for larger applicotions

Petral and diesel powered generators vary in rate of fuel consumption. Porto bles require refuelling every one to four hours for the smaller models, and at 10 hour intervals (enough to let you get a night's sleep) for the largest models

You can get a whole house generator that operates on propone or natural gas. Propane tanks can be buried and need not detruct from the beauty of the house If your house is an natural gas, that's the best choice, at you need never again warry about running out of firet.

Generators are noisy. The smallest portables sound like continuous firecrackers close up, but the larger ones have some built-in muffling that renders them less annoying than a leaf blower. Whole house generators are encased in weatherproof metal housing with insulotion to provide some muffling, and the exhaust pipe passes through a silencer that reduces naise to a loud hum simifor to a truck idling. A whole house generator makes less noise than a

Partable generators require heavy duty extension cords to reach their torget appliances: do not use ordinary household extension cords. Neither is it a good idea to mate extension cords; buy the longest heavy duty cards you can find and dedicate them to your gen-

Installing a Whole House Generator

A whole house generator is mounted

Back-up Power

on a concrete pod outside and adjacent to the house. Its output is wired to the house through a transfer switch. With an automatic transfer switch, the pener otor will start itself up, and your house will switch over to generator power ntirely automatically after a set interval of power interruption, such as 10, 20, 30, or 60 minutes. It's up to you

With a manual transfer switch you turn it on yourself. The manual transfer switch has there positions. One for normai conditions (receiving hower from your local utility), two (getting power neither from your local utility nor your hack-up generator) and three (directs power from your generator to the house). The purpose of the second position is to allow time for your generator to warm up and get up to full power (about five minutes) before you direct the load into the house. An unwarmed up generator may stall when you transfor power to the house. Automotic transfer switches are wanderful conve nieners, but they cost quite a bit more.

If the generator is sufficiently large, it can feed into your main breaker, and you can turn items off or on for leave them alone) depending on the size of the generator and the demands inside your house for power. Alternatively, you may want to use a load distribution panel to feed power to just those circuits you consider essential. This might

include the entire fish room. lights on one floor only, the water heater, the heater for, or the pir conditioner. Note that a separate load distribution panel also adds to costs.

Whole house generators require care if the engine is water cooled, the radiator (similar to you cor's rediator) must contain 50:50 antifreeze and be kept warm (for quick

storts) with a heating cable.
Antifreeze and SAE 30 (for must climates) engine of must be renewed annually or after protracted operation. The generator engine should be exercised once a week for 30 minutes; a programmable timer turns the generatar on and off at the day and time you choose. You can change oil and coolant yourself as needed or get on annual service contract.

Finally, ask yourself if it's worth the cost. Most of the reef keepers in Raleigh now have large partables. Several shops and strip malls are considering back-up industrial generators. How common is a whole house generator? Dan Bitting installs about one unit a year on private houses, and can't understand why new home builders don't offer them as an aptional amenity. They're certainly more valuable than a swimming pool! Hey, I just got a great ideal

What Lives and What Dies

That any animals survive protracted power outages resulting in stagnant water, zero flows, no dispersion of pollutant-saturated water, and no degassing of the water is amazing, considering the high biological load of reef tanks.

A few lessons have emerged from Hurricane Fran, Most important is that the lower the biological load, the more likely there will be survivors, and this opplied to both fish and reef aquaria. Densely stocked tooks, no matter what they carried, were wiped aut. Second, open water reef fishes (Butterflies, Pygmy Angels, Hawkfish) were less likely to survive thon nearshore fish (Damsels, Gobies). Yellow Tangs sometimes survived, but other Tangs did not. Stony Corols died without exception. Alcyonarian saft corals usually survived even after a week of no circulation. Crabs and Shrimp all died. Brittle Stars and Sea Cucumbers survived. Some warms and crustaceans in deep aragonite gravel emerged and survive, but the gravel may hold dead animals consumed when circulation returned. There were no reports of black gravel (hydrogen sulphide and reduced iron foci indicating anacrabic growth).

SAFETY FIRST

protect from or, at the very garage with the pen for ventilation closed to prevent odourless carbons stronoxide fumes

Descriptions of Two New Species of Corydoras, Lacepede, 1803 (Pisces, Siluriformes, Callichthyidae)

STEVEN GRANT, 34 LUMLEY AVENUE, CASTLEFORD. WEST YORKSHIRE, WF10 5LX, ENGLAND

INTRODUCTION

to science

hilst visiting Tingley Tropicals, an aquatic outlet, I came across two species of Carydores that are new

METHODS

Four of the specimens were photographed alive before preservation. I apologise for the poor quality of the photographs but I feel that their inclusion is essential as a poor photograph of the species in life is better than no photograph at all.

They were fixed in 10 per cent Formalin and preserved in what was acquired as 70 per cent alcohol but turned out to possibly be methylated spirit and therefore the specimens lost their black pigmentation fairly rapidly.

Measurements were taken with a micrometer and were rechecked for

Morphometric and meristic data as defined by Nijssen and Isbrucker 1976:108

Comparisons were made by use of the listed references and by observing some type specimens at the Natural History Museum Two Accession Numbers for the

Holotypes of both species will change as the Natural History Museum has arranged to deposit them in a Brazilian museum (Sao Paulo University), so as to comply with Brazilian law

ABBREVIATIONS

SL = standard length, BD = body depth, BW = body width, LDS = length of dorsal spine, LPS = length of pectoral spine, HL = head length, SN = snout length, LBO = length of bony orbit of eye, DCP = least depth of caudal peduncle, FONT fontanelle length, D = dorsal fin rays. P = pectoral fin rays, V = ventral fin rays. A = anal fin rays, DBS = dorso-lateral body scutes, VBS = ventrolateral body scutes, PAS = pre-adipose scutes, CA = width of coracoid area, C = caudal rays.

Figures in parentheses, given after measurements, are ratios where data has been expressed in head length or standard length.

DESCRIPTION I

MATERIAL EXAMINED

Corydorus kanel, NEW SPECIES (Photographs 1 and 2 and Figure 3) Holotype currently: BM(NH): 1997.10.23.1 38.0 mm SL Adult

Access No: MZUSP.52489 Corydords kane holotype (University of Sao

Aquarium specimen, said to be from Brazil, Roraima State near Boa Vista, possibly from the Rio Branco.

MORPHOMETRIC AND MERISTIC DATA

BD 16.1mm (2.4 in SL), BW 10.2mm (3.7 in SL), LDS 9.3mm (4.1 in SL), LPS 9.6 mm (4.0 in SL), HL



PHOTO I

Two New Species

12.2mm (3.1 in SL), SN 7.2mm (1.7 in HL), LBO 3.1 mm (3.9 mm in HL), DCP 4.2 mm (2.9 in HL). FONT 3.8 mm (3.2 in HL) CA 5.8 mm (2.1 in HL).

DBS/VBS 22/19, D 1/8, P 1/8, V 1/5, A 1/5, PAS 3, Pectoral fin spine weakly serrated.

Intercoracoid area partly covered by small plates, C 7/7.

Paratypes BM(NH):1997.10.23.2-4 Paratype 1: 40.8 mm SL. Adult (female ?)

Locality data same as Holotype. BD 15.6 mm (2.6 in SL), BW 9.5 mm (4.3 in SL), LDS 10.0 mm (4.1 inSL), LPS 10.4 mm (3.9 in SL), HL 12.5 mm (3.3 in SL), SN 6.9 mm (1.8 in HL), LBO 3.7 mm (3.4 in HL), DCP 4.0 mm (3.1 in HL), FONT 5.0 mm (2.5 in HL), CA 11.7 mm (1.7 in HL).

DBS/VBS 20/19, D 1/8, P 1/8, V 1/5, A 1/5, PAS 3.

Intercoracoid area partly covered by small plates. C7/7.

Paratype 2: 31,0-mm SL. Semi adult (female 2)

Locality data same as Holotype. BD 12.7 mm (2.4 in SL), BW 7.5 mm (4.1 in SL), LDS 9.1 mm (3.4 in SL), LPS 9.1 mm (3.4 in SL), HL 10.2 mm (3.0 in SL), SN 5.4 mm (1.9 in HL), LBO 3.4 mm (3.0 in HL), DCP 3.6 mm (2.8 in HL), FONT 4.1 mm

(2.5 in HL), CA 4.6 mm (2.2 in HL). DBS/VBS 21/19, D 1/8, P 1/8, V 1/5, A 1/5, PAS 3. Intercoracoid area naked C7/7.

Paratype 3: 32.9 mm SL. Somi adult (male !)

Locality data same as Holotype BD 12.6 mm (2.6 in SL), BW 7.8 mm (4.2 in SL), LDS 9.4 mm (3.5 in SL), LPS 9.4 mm (3.5 in SL), HL 10.4 mm (3.2 in SL), SN 5.3mm (2.0 in HL), LBO 3.3mm (3.2 in HL), DCP

3.9 mm (2.7 in HL), FONT 3.5 mm (3.0 in HL), CA 4.3 mm (2.4 in HL).

DBS/VBS 20/19, D 1/8, P 1/6, V 1/5, A 1/5, PAS 3.

Intercoracoid naked. C7/7.

Colour in life (see Photographs I and 2)

Holotype and two paratypes which appear to be females (see Photograph 1).

Base colour dark tan. Snout area brown. Black mask through eyes. Area from mask to tip of occipital process is brown. Body with numerous ill-defined small black horizontal lines on anterior DBS and VBS, small ill defined spots on posterior DBS.

Operculum, preoperculum, branchiostegal membrane and humeral shield show a metallic green/gold shimmer. Adipose fin membrane same colour as body and with few small dark spots. Anal fin spotted.

Pectoral and ventral fins clear and

Caudal fin with smaller and lighter spots than on body, spots confined to rays. Rays and membranes light brown.

Dorsal fin spine black and first two rays and membranes in between also black. The black on the soft rays and membranes starts at base of dorsal and continues to the tips of the first two rays. Rest of dorsal fin with small black spots mainly confined to rays.

These three specimens appear deeper bodied than the remaining one which appears to be a male.

Remaining Paratype (see Photograph 2).

As above except the black mask and black dorsal fin colouration are more intensive. The dorsal fin spine and first and second soft rays are

coloured black but the membranes

FIGURE 3

PHOTO 2

* = Holotype only (for C. melanistius brevirostris, Holotype of C. wotroi is included)

	Corydoras kanei	Corydoras xinguensis	Corydoras leucomelas	Corydoras melanistius brevirostris	Corydoras sanchesi	Corydoras atropersonatus	Corydoras surinamensi
BD	2.4-2.6	2.2-2.5	2.2-2.4	2.4-2.6	2.5-2.9	2.5-2.7	2.5-2.8
BW	3.7-4.3	3.4-3.8	3.2-3.6	3.5-3.9	3.5-4.1	3.5-3.8	3,4-4,1
LDS	3.4-4.1	3.2-3.7	2.9-3.6	3.1-3.8	3.2-4.0	3.3-3.8	3.1-3.6
LPS	3.4-4.0	3.0-3.5	2.6-3.2	3.0-3.5	3.1-3.8	3.0-3.5	3.1-3.6
HL	3.0-3.3	2.9-3.3	2.9-3.1	3.1-3.7	3.1-3.3	3.1-3.4	3.0-3.3
SN	1.7-2.0	2.0-2.2	2.0-2.2	1.8-2.3	1.9-2.2	2.0-2.1	1.9-2.2
LBQ	3.0-3.9	2.7-3.1	2.7-3.3	2.7-3.8	2.7-3.6	2.8-3.1	3.1-3.6
DCP	2.7-3.1	1.9-2.0	1.9-2.2	1.9-2.2	2.0-2.4	2.0-2.2	2.1-2.3
FONT	2.5-3.2	3.2*	- T.	4.3-4.8*	4.0*	8.1*	11.5*
CA	1.7-2.4	2.3-2.9	2.8*	2.0-2.7	2.0-2.8	2.5-3.1	1.9-2.7
DBS	20-22	23-24	22-23	23	23-24	24	22-24
VBS	19	20-21	20-21	20-21	20-22	21-22	19-21
D	1/8	1/7	1/7	1/7-8	1/7-8	1/7	1/7-8
P	1/6-8	1/8	1/7-8	1/7	1/8-9	1/8-9	1/8
PAS	3	2-4	2-4	2-3	3-4	2-4	3

in between the first three rays are black. The black does not start at the base of the dorsal fin leaving a clear gap at the base of the fin. The band initially looks as though it does not extend to the tip of the fin, but it does, albeit the top portion is much lighter. The caudal fin spots seem more intensive.

Initial colour differences in 'alco-

Base colour grey. Fin membranes white instead of tan. Mask dull black. Pectoral fin rays brown

DISCUSSION

Corydoros konei does not share the exact same colour pattern with any known species of Carydards.

In aquatic publications Corydoras multimaculatus, Steindachner 1907, is shown as a fish with an eye band, black dorsal fin band and black spots on the body, but this is not true of the type specimens. If one reads Steindachner's original description there is no mention of any eye band or black dorsal fin band. The pattern on the head, body and fins consists of 'dark violet flecks'. This is backed up by a picture of the Lectotype which appears on page 196 of Nijssen and Isbrucker's review of the genus Corydoras, 1980.

When compared to similar species of Conydores (see Figure 3 for morphometric and meristic differences), the species below differ from Corydoras kanei in the following ways:

1. Carydorus xinguensis, Nijssen 1972

Specimens used in comparison: Holotype (IRScNB 500) and 11 Paratypes:

C. xinguensis does not have an eye mask, the pattern on the body consists of spots which are brown and larger than those on C. konei, and the ventral fins are pigmented with brown.

2. Carydaras leucomelas, Eigenmann and Allen, 1942

Specimens used in comparison Holotype (CAS/IU 15818) and III specimens from the Rio Nanay and Rio Napo (listed in Nijssen and Isbrucker 1986), and the Holotype of Carydoras caquetae, Fowler, 1943

(synonym). The black in the dorsal fin covers more of the dorsal rays (up to the fifth membrane and the last dorsal ray is sometimes black). The black in the dorsal fin extends onto the body, the spots on the body are larger and more variable on the Holotypes of C. leucomelos and Coquetse. The adipose fin normally has just one spot on the membrane.

The caudal fin base has a narrow vertical bar followed by a twice as broad unpigmented zone.

According to Nijssen and

Isbrucker (1986) this caudal fin pattern is diagnostic for C. leucomelas.

3. Carydaras melanistius brevirastris. Fraser-Brunner, 1947

Specimens used in comparison: Holotype (BMNH 1946.10.10:1), Holotype, three Paratypes and 12 specimens from the Sarammacca river system (listed in Nijssen 1970) of Corydoras wotroi, Nijssen

and Isbrucker, 1967, (synonym).

The black in the dorsal fin extends onto the first five DBS. There are four to six indistinct bands on the caudal fin on specimens of C wotroi, and in the description of C. melanistius brevirostris it states that the caudal fin has 'intense black transverse bars', although the Holotype's caudal fin has now almost completely disappeared you can see a wide black band at the caudal fin base. On some specimens of C. wotroi there is pigmentation on the ventral fin rays. The mask extends to the tip of the occipital process.

The coracoid area is naked on all specimens of C. wotroi.

4. Corydorus sunchesi, Nijssen and Isbrucker, 1967

Specimens used in comparison: Holotype (RMNH 25319), 17 Paratypes and 12 specimens from the Sarammacca river system (listed by Nijssen 1970):

No eye mask, the caudal fin and rest of the dorsal fin not showing black spots, and the body pattern consists of spots which appear smaller than those on C konel

The intercoracoid area is naked on all specimens.

5. Corydoras atropersonatus. Weitzman and Nijssen, 1970

Specimens used in comparison: Holotype (USNM 204359) and 16. Paratypes:

Fewer but larger markings on body, especially on VBS. No black band in dorsal fin soft rays. Anal and caudal fins without any markings. Body paler. The intercoraçoid area is naked on all specimens.

6. Carydoras surinamensis, Nijssen,

Specimens used in comparison:



РНОТО 3



РНОТО 4

Holotype (ZMA 105.876) and 12 Paratypes:

On some specimens there are horizontal lines on the snout. Dortal fin with black pigment on first

four to five soft rays extending onto the supra occipital, and as low as the humeral shield, the blotch is also on up to the first seven DBS. Body with 'more or less regular lines' made up of one to three rows of spots on the DBS and one to two on the VBS. Four to Five vertical black bars on caudal fin. Adipose fin membrane clear. Pectoral fin rays clear in alcohol. Pectoral fin spine not as regularly serrated.

7. Corydoras achwortzi, Rossel, 1963

Specimens used in comparison: Holotype (SMF 6425) and II Paratypes.

Black dorsal fin band absent in some specimens. Body pattern consisting of vivid black broken band along top of DBS and bottom of VBS, bottom one not as vivid as other bands. A continuos vivid black band above and below junctures of DBS and VBS leaving a clear gap in between. A wide black band at base of the caudal fin followed by four more distinct black bands through caudal fin. Some specimens with dorsal fin spine and first soft ray gleaming yellow. Mask to tip of occipital process.

ETYMOLOGY

Named in honour of my son Kane Grant, who has and still is suffering much due to ill health.

The correct pronunciation of C. konei is Kayneye not Kayney-eye.

DESCRIPTION 2

Carydaras crimmeni, NEW SPECIES (Photographs 3 and 4 and Figure 6)

MORPHOMETRIC AND MERISTIC DATA

Holotype Currently: BM(NH): 1997.10.23.3 40.1 mm SL

Access No: MZUSP.52490 Corydo erimmeni holotype (University of Sau Psolo)

Anusrium specimen said to be from Brazil, Roraima State, near to the city of Box Vista. Possibly from the Rio Branco.

BD 15.4 mm, (2.6 in SL), BW 9.1 rem (4.4 in SL), LDS 10.0 mm (4.0 in SL), LPS 9.8 mm (4.1 in SL), HL 14.1 mm (2.8 in SL), SN 8.5 mm (1.7 in HL), LBO 3.6 mm (3.9 in HL), DCP 4.8 mm (2.9 in HL), FONT 5.0 mm (2.8 in HL), CA 4.7 mm (3.0 in HL).

DBS/VBS 23/20, D 1/8, P 1/8, V 1/5, A 1/5, PAS 2, Pectoral fin spine moderately serrated.

Intercoracoid area naked. © 7/7. Five Paratypes BM(NH): 1997. 10.23.4-8

32.9. 35.2. 36.3. 37.1. 39.4 mm SL. BD 12.6, 13.7, 13.2, 13.9, 15.1 mm (2.6, 2.6, 2.8, 2.7, 2.6 in SL), BW 7.4. 7.8, 7.9, 8.0, 8.6 mm (4.4, 4.5, 4.6, 4.6, 4.6 in SL), LDS B.1, B.2, 9.7, 9.0. 10.0 mm (4.0, 4.3, 3.7, 4.1, 3.9 in SL). LPS 8.9, 8.0, 9.4, 9.3, 10.0 mm (3.7) 4.4, 3.9, 4.0, 3.9 in SL), HL 11.8, 12.7, 12.5, 12.5, 13.1 mm (2.8, 2.8, 2.9, 3.0. 3.0 in SL), SN 6.3, 7.0, 6.4, 7.1, 7.7 mm (1.9, 1.8, 2.0, 1.8, 1.7 in HL),

LBO 3.0, 3.2, 3.0, 3.5, 3.6 mm (3.9, 4.0, 4.2, 3.6, 3.6 in HL), DCP 3.8, 4.2, 3.7, 3.8, 4.8 min (3.1, 3.0, 3.4, 3.3, 2.7 in HL), FONT 4.5, 5.1, 5.4, 4.9, 5.0 mm (2.6, 2.5,

2.3, 2.6, 2.6 in HL), CA 3.7, 4.3, 3.8, 4.2, 4.6 mm (3,2, 3.0, 3.3, 3.0, 2.8 in HU.

DBS/VBS 22/20, 23/20, 22/21, 22/20. 22/21

All have D 1/8, P 1/8, V 1/5, A 1/5, C 7/7, PAS 2, Intercoracoid area naked.

Colour in life (see Photographs 3 and 4)

Base colour very light brown/ beige. Barbels white. Snout brown, no sport.

Head area above eye and to tip of occipital process is brown forming a mask, mask under eye not as defined.

Point of occipital process raised like a small keel.

Area under eye with green metallic shirmner.

Operculum, preoperculum. ameral shelld and lateral line where DBS and VBS meet shows a metallic green shimmer.

Supraoccipital shelld with thin, slightly horizontal, band of yellow/gold sheen.

DBS, VBS and humeral shelld with numerous irregularly placed brown

Spots on body same size.

Top of first three to four DBS show brown pigment forming a very indistinct small brown patch below the dorsal fin spine and first two soft rays. This patch, depending on mood and lighting, does not always appear visible

Dorsal fin spine light brown, with two to three small brown spots con-

FIGURE 4

	Carydaras crimineoi	Corydores sychri [®]	Corydoras saram- maccensis	Corydores hetero- morphus	Corydoras biachi biachi	Corydoras approvaguensis	Corydores spilurus	Carydora: agassizii*
BD	2.6-2.8	2.5	2.7-3.0	2.7-3.0	2.5-3.0	2.4-2.7	2.6-2.8	2.6
BW	4.4-4.6	4.3	4.1-4.6	3.9-4.3	3.8-4.6	3.9-4.5	4.2-4.4	4.3
LDS	3.7-4.3	3.5	4.6-5.1	4.0.4.6	3.7-5.1	3.9-4.8	47-49	4.0
LPS	19-44	3.5	4.3-4.9	35-43	3.3-4.5	3.6-3.9	4.4.4.5	3.5
HL.	2.8-3.0	2.9	3.0-3.4	2.8-3.1	2.9.3.3	2.7-3.0	3.0-3.1	3.0
SN	1.7-2.0	1.8	1.5-1.8	1.7-1.9	1.6-1.9	1.7-1.9	1.5	2.0-2.1
LBO	3.6-4.2	3.2	3.5-3.9	3.0-3.8	3.0-3.7	36-38	4.2-4.3	3.3
DCP	2.7-3.4	2.3	2.1-2.3	2.2-2.6	1.9-2.5	2.3-2.6	2.3	2.6
FONT	2.3-2.8	2.9	3.3*	4.6*	2.3°	2.7"	2.5*	3.5
CA	2.8-3.3	3.7	2.3-3.0	2.3-3,0	2.9-4.9	2.3-2.5	3.0*	4.4
DBS	22-23	25	25-26	24-25	23-24	24	25	24
VBS	20-21	23	22-23	21-22	20-22	21	22	21
D	1/8	1/7	1/7	1/7	1/7-9	1/8	1/7	1/7
P	1/8	1/8	1/9-10	1/B-10	1/9-10	1/8-9	1/10	1/9
PAS	2	3	1-5	3.6	2-3	2-3	3	1/9

fined to each soft ray.

Adipose fin spine brown, approx two small brown blotches on membrane.

Brown line on ridge of back from base of adipose fin spine to base of caudal fin.

Outer principal rays of caudal fin light brown, rest of rays and membranes pale tan and devoid of any pattern.

Under close examination the segments which make up each ray are separated by a minute band of brown, but not forming bands or lines through caudal fin.

Anal fin has very light brown spots on some rays.

Ventral fins clear and colourless.

Pectoral fin spine light brown, rays colourless and devoid of any pattern.

Initial colour differences in 'alco-

Base colour grey. Lower eye mask more prominent. Some of the minute bands in rays of caudal more prominent than in life.

DISCUSSION

As with Corydoras kanei, no other species of Corydoras shares the exact same combination of pattern and colour as Conydoras crimmeni

The Corydoras below (see Figure 6 for morphometric and meristic differences) differ from Convolores crimmeni in the following ways:

1. Corydoros sychri, Weitzman, 1960

Specimens used in comparison: Holotype (CAS/SU 51295):

No markings on any fins, except the adipose fin. Mask not to tip of occipital process. No pigment under dorsal fin on DBS. Markings on body not as prominent but eye mask more prominent.

The pectoral fin spine is slightly more heavily serrated but with fewer serrations

2. Carydoras sarammaccensis, Nijssen, 1970

Specimens used in comparison: Holotype (ZMA 106.018) and nine Paratypes:

Snout spatted, blotch on DBS on scutes two to five. Eight or nine indistinct vertical bars through caudal fin

Black/grey on all dorsal fin ray membranes going higher on first two

Only a few spots on VBS. Faint mask over eye, not extending to tip of occipital process.

More anal fin rays: Pectoral fin spine is more heavily serrated.

3. Carydoras heteromorphus, Nilssen, 1970

Specimens used in comparison: Holotype (ZMA 105.880) and 17 Paratypes.

No definite mask above eye, VBS with scarce pigmentation, smaller spots on body. Adipose fin without brown spots.

More anal and ventral fin rays. The pectoral fin spine is not as heavily servated.

4. Corydoras blochi blochi, Niissen, 1971

Specimens used in comparison: Holotype (FMNH 75951) and 26 Paratypes:

On some specimens the first two soft dorsal fin rays and membranes in between have dark brown pig-

Adipose fin colourless. Brown pigment on caudal fin rays forming six to ten vertical bars. Snout with distinct acute shape.

The pectoral fin spine is more heavily serrated.

Corydoras approvaguensis, Nijssen and Isbrucker, 1983

Specimens used in comparison: Holotype (ZMA 119.098) and 22 Paratypes:

Smaller spots on body, adipose finmembrane clear, caudal fin with nine bold black transverse rows

Sexual dimorphism - males show thicker pectoral fin spines and dorsal fin spine. The dorsal fin spine also has minute prickles.

6. Corydoras spilurus, Norman, 1926

Specimens used in the comparison: Lectotype (BMNH 1926. 3.2.738) and the Paralectotype:

Vertical bands in caudal fin, small spots on last two rays of dorsal fin, remaining fins clear. Spots on body smaller and no eye mask.

The pectoral fin spine is more heavily serrated.

7. Carydoras agassizii. Steindachner, 1877

Specimens used in the comparison: Lectotype (NMW 61112):

Five black bands in caudal fin, a large spot on the adipose fin membrane, banding in the ventral fins, a black band on the dorsal fin covering the first two soft rays and membranes. Larger blotches on the body, especially along the juncture of the DBS and VBS.

ETYMOLOGY

Named in honour of Oliver Crimmen of the Natural History Museum in recognition of his extensive support, advice and assistance given to me in the preparation of these descriptions.

ACKNOWLEDGEMENTS

Thanks to Dr Stanley H. Weitzman of the Smithsonian Institution, Washington DC, USA, for reviewing these descriptions and suggesting important changes. Special thanks again to Oliver Crimmen at the Natural History

Museum for his invaluable assistance. Dr David Sands, Michael Hardman, Brian Walsh and Dr Han Nissen for their advice. David and Julie Peaks for the loan of their camera, Steve Garland at Bolton Museum. Graham and Barbara Haslam for the use of their PC. L.T. Morris for his assistance with the description of Corydoras approaiguensis. George Butterworth at Tingley Tropicals for finding out the locality data and Sheens Howarth for the translation of the description of Conyderes multimaculatus. Dick Mills for his assistance in the publication of these descriptions

REFERENCES

Nijssen, H. and I. J. H. Isbrucker. 1967: Notes on the Guiana species of Corydo-rus Lacepede 1803, with descriptions of riss acepted rads, with descriptions of session new species and a dissignation of a Neotype for Conydens punctatus (Bloch 1794), (Pisces, Cypriniformes, Callichthylae). Zool Meded, Leiden, 42(5): 21-50 5pls.

42(3): 21-30 app. 2 Nijssen, H & IJH. Isbrucker, 1980c A review of the genus Corptions Lacepede 1803, (Pisces, Siturtformes, Callichthyl-dae) Bijdr. Dierk., 50: 190-220.

3 Nijssen, H. and I. J. H. Isbrucker, 1983b: Sept especes nouvelles de poissons chat cuirasses du genre Corydoras Locepede 1803, de Guyane Française, de Bolivie, d' Argentine, du Surinam et da Brezil Siluriformes, Callichth Rev. fr. Aguariol, Herpetol., 10: 73-82.

4 Nijssen, H., 1971: Two new species and one new sub species of the South American catfish genus Curydoros (Pisces, Siluriformes, Callichthyidae). Besulortia, 19(250): 89-98.

Weitzman, S.H., 1960a: Figures and descriptions of four South American catrishes of the genus Corydoras includ-

ing two new species. Stanford ichth. Bull. 7: 140-154 6 Nijssen, H., 1970: A revision of the Suriaum califoles of the genus Corydo-ros, Lacepode 1803, (Pieces, Siluriformes, Callichthyidae) Beaufortia, 18 (230): 1-

7 Nijssen and Isbnacker: A review of the genus Carydoras from Peru and Ecuador (Pisces, Siluriformes, Callichtheidae) itudies Neatrop. Fauna & Environ., 21 (2): 1-68.

8 Nijssen, H., 1972: Records of the catrish genus Coydoros from Brazil and French Guiana with descriptions of eight new species. (Pisces, Siluriformes, Callichthyidae). Neth J.Zool., 21: 412-433

9 Nissen, H. and I. I. H. Isbrucker 1983s. A review of the genus Condores from Colombia, with descriptions of two new species (Pisces, Silvationnes, Callichthyidse) Besulontia, 33: 53-71.

10 Weltzman, S. H. and H. Nissen, 1970: Four new species and one new sub species of the catfish genus Corydoros from Ecuador, Colombia and Brazil. (Pisces, Siluriformes, Callichthyldae). Beaufortis, 18 (233): 119-132.

11 Steindachner, F., 1907: Eine neue Coriart aus dem Rio Preto. Anz. Akad. Wiss. Wien, mathem, naturwiss, KL 44. (17) 290-293.

Fraser-Brunner, A, 1947 - New fishes of the genus Carydoras, Proc. Zool. Soc. Landon, 117 (1): 241-246, 1pt

 Burgess, W. E., 1993: Three new species of catfishes of the genus Condoras (Callichthyidae Siluriformes) TFH August, pp 152-158.



GOLDFISH CARE BY DONALD MCCARTNEY (AGED 12)

WHAT TYPE OF HOME?

Although a Goldfish can be kept in a fish hotel it is better in a fish tank. If you have to keep the fish in a bowl, only partially fill it (up to the widest part only) so that the fish can get the maximum amount of air without which the fish will

HOW MANY FISH?

A Goldfish of up to 3in requires eight pints (one gallon) of water, or Itn of fish to every 30 sq in of surface area of the tank. Fish in too little water (or too many fish) will often die.

WHERE SHOULD YOU PUT THE GOLDFISH HOME?

Site your fish (a) away from VIBRATIONS, (b) away from HEAT SOURCE, and (c) AWAY FROM HOUSEHOLD CHEMICALS.





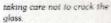
HELEN STEELE

Happy New Year! - and welcome to our new-look Juniors' page. Starting this month I shall be taking on the task of organising (not writing - that's your lob!) the Junior Page in A&P. I will be ably assisted by Lizzie who will tell me what you want to read about, as she, too, is a Junior. 'Who are you?" I hear you ask. My name is Helen and I am a teacher of mostly juntor children, spending much of my spare time working in our own fish-house (as you can see above!)

I look forward to bearing from you all with your articles, ideas and questions. Why not set a Quiz for the experts or ask for information about breeding a particular type of fish? I am ready to receive all your correspondence and will do my best to provide you with what you want! Happy Fishkeeping.

STEP-BY-STEP GUIDE TO SETTING UP THE TANK

(1) Thoroughly wash the gravel making sure all the dust and dirt comes out of it (do not use soap or detergent!) (2) Gently place the clean gravel on the base of the tank



(3) Fill the tank with water to within an inch or so of the top and then slope the gravel forwards (downwards from back to front) so that it makes it easier to clean.

(4) Landscape the tank adding rocks and plants. Never use limestone as it will slowly dissolve in water. Plants can be real or artificial and can be bought at any good pet shop.

(5) If you are using a filter to oxygenate and clean the water now is the time to place it in the tank. Once the tank has been set up, leave it operating for two weeks for the good bacteria in the water to develop in the filter.

(6) Now it's time to begin stocking the tank. Buy two or three fish at first and allow them to settle for a week or two before buying more.

LOOKING AFTER YOUR AQUARIUM

Doing regular water changes is the secret of a successful aquarium. Every tieo to three weeks siphon out a quarter of the water and replace with the same volume of de-chlorinated water. (Dechlorinators remove chlorine from the tap water and can be purchased from your pet shop). Clean the filter in some of the water you have siphoned out - never clean the filter under fresh running water as this will kill all the helpful bacteria

FEEING YOUR FISH

Feed once or twice a day on either fresh or dried food. Goldfish like a varied diet which includes flake foods, live Blockworm and Daphnia. You can buy special blocks which slowly release food to feed the fish when you are on holiday (the size of the block needed depends on the size of the tank and the length of your holiday). When feeding your fish you should sprinkle as much food on the water surface as the fish will eat in two to three minutes.

FAR LEFT Matthew Fiddes, Tetra Aqua Quix Champian 1997, with his traphy and prizes with FBAS President Jack Stillwell and Tetra's Roger Foggitt.

LEFT Tetra Aqua Quiz runner up Lizzie Porter collects her awards.





WESTON MEMORIES

BY KELLY. KAREN AND JACQUELINE (AGED 11, 10 AND 11)

We went to Westonsuper-Mare for three days. There were 15 of us and we came back with lots of fish. show tanks and prizes. On the first day we had tea and generally messed about. On the Saturday everyone entered into the fish Show, the fish were judged and the prizes given out. Even those that didn't

have their own fish could enter because we were able to adopt a fish.

In the Furnished ... Aquarium Race Louise and Karen come third in the heats, just missed getting into the final although the first two teams that did get through were all from Seascale. Later on in the evening after the Junior Fancy Dress Competition there was a surprise — the Laguna Girls! These turned out to be Les Pearce, Ken Saxby, Peter Furze, Roger Crew and Paul Corbett.

We all met with Geoff Capes in the Sunday Tug o' War and again a Seascale team won. Brian Walsh gave us a lecture and we found out how he kept his

fish and we even got to see some fish skeletona! We really enjoyed ourselnes!

Elizabeth Porter reports:

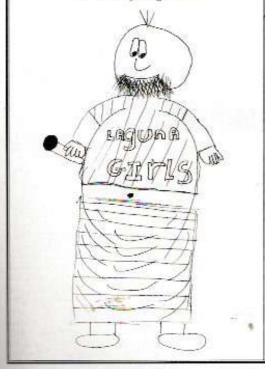
Weston super-Mare was the venue for the first ever Juniar Aqua Quiz sponsored by Tetra. In the preliminary round all competitors answered a sheet of questions on various aquatic matters. The competition received over 40 entries from Junior residents at the Pontin's Sand Bay complex and each received a goodle bag courtesy of Tetra.

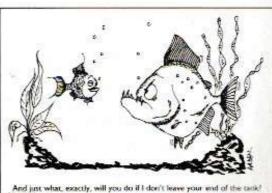
There were, however, six finalists — Angela Cank from Halton, Matthew Fiddes from London, Elizabeth Port from Seascale, Ruth Price and Claire and Richard Lawn from Silktown - who went on to compete in a round

of questions from Roger Foggitt. All stood up well to the gruelling questions but in the end there could only be one winner - the 1997 Junior Aqua Quiz title went to Matthew Fiddes followed by runnerup Elizabeth Porter. All finalists received Tetra products and will hopefully be back next year for another shot at the title!

Also taking place was the NJFA Fish Show All Junior residents at the festival were given the chance to adopt a fish, courtesy of Paul Davies of Alpha Aquarium; additionally, Juniors from all over the country brought their own fish to show well done to all that entered but special congratulations to Angela Cank, aged 12, from Cheshire, who as well as collecting numerous prizes won Best in Show with her Harlequin, Rasbora hengeli.

There was a Laguna Girl, Whose hair just wouldn't curl. With his long skirt and top, He decided to bop. He danced all the night (With no vodka in sight!), That wonderful Laguna Girl!





SUPPLIERS OF HIGH QUALITY PREM IUM GRADE BRINE SHRIMP EGGS AND RELATED PRODUCTS 93% HATCH RATE FAST 12 HOUR HATCH

£30 PER TIN DELIVERED £250 PER CASE DELIVERED

Self addressed envelope for full list — TRADE ENQUIRIES WELCOMED Yorkshire Brine Shrimp Supplies

Unit 19, Cape Mills, Coal Hill Lane, Farsley, Leeds. West Yorkshire LS28 5NA Fax: 0113 239 3426

A Touch





ay 'coldwater fishkeeping' and many people within earshot will presume you will be meaning Goldfish or Koi but, despite the universal popularity of these two areas of interest there are other fishes that can be kept in the pond or coldwater aquarium. Now for another disappointment for those 'know-alls' - British native fishes are excluded, so don't expect you've got to go canal or lake- trawling for

stock. If you haven't worked it out from the title (or sneaked a look at the pictures) you'll probably have guessed that this is going to be about Sunfishes — if you haven't guessed or are unfamiliar with the species then so much the better!

Sunfish (the freshwater kind, not Mola mola the marine giant) are members of the Centrarchidae family and are native to North America and lower Canada from approximately Florida upwards the majority occupy

ing much of the inland waterways near to the eastern seaboard with only a few species venturing into the middle lands. Along with the Basses, they make up a good proportion of sport fishes for anglers although some are quite 'tame' enough (and small enough) to make good aquarium or pond inhabitants. One virtue is that you can keep them in an unheated tank without the need for heater/thermostats and the like; obviously they can be kept outside too but most species will need to be brought indoors as approaches.

MOST SPECIES STURDILY BUILT

Considering their pugnacity in the fight against anglers especially, it is no surprise to find that most species are sturdily built with a strong resemblance to the Cichlid/Perch body shape with the Sunfishes being deep bodied than the stockier Basses. The dorsal fin is long-based and has two sections; the front part is tough and spiky whilst the rear part (often designated by a visible 'step' in the outline, is soft and more delicate. The anal fin has hard rays on its front section too. A good species-recognition characteristic (as far as aquarists are concerned) is often found at the rear of the large gill-cover, or operculum; here variations on shape and colouration usually provide the giveaway evidence.

The aquarium for Sunfish needs to have a fairly fine substrate and some plants around the back and sides leaving open space for swimming. Water conditions may not be too critical in terms of make-up but some Sunfish are not too keen on water changes so maybe 'a little and often' is a better rule, paying particular attention to making the replacement water (left to stand for a day or so) as near in make-up (pH, hardness and temperature) to that being removed.

The Sunfish diet in the wild usually

of the Sun

includes plenty of aquatic live food crustaceans, worms, etc. should be provided although they can be persuaded to take flake foods too.

Breeding is similar in fashion to that of some of the Cichlid group of fishes in that spawning sites are both pre-chosen (excavated, in fact), and subsequently defended and guarded once spawning has occurred and fry are born. The male fish builds a 'nest which resembles a mini moon crater with a low wall running around the circular circumference. The female is attracted into the area where spawning occurs. Breeding is more likely to be successful if the fish has been through a 'cooling period' such as occurs in winter.

Whilst the species list is quite comprehensive, apart from a few instances where specialist hobbyists are keeping substantial (but probably individual) collections, only a few species consistently make the journey to other countries to become regularly-available pond or aquarium subjects, so it is these species which will

SMALLER SPECIES

Large aquariums needn't be the norm to house Sunfishes and three, species at the bottom end of the size scale illustrate this quite nicely.

Almost any 'old' (even antique) aquarium book will mention the Black-banded Sunfish which used to rejoice in the name of Mesogonistus chaetadon. It is now known as Ermeuconthus chaetodon.

The pale, straw-coloured body is crossed vertically by a number of dark bands, so reminiscent of the Angelfish's colouration that it was earlier described as the Poor man's Angelfish except that as prices fell dramatically for the Pterophyllum species, Enneacanthus prices paradoxically remained high! The front parts of the dorsal and anal fins are both coloured with black and orange but they are oppositely done so -

the dorsal has a black front with the orange band behind whereas the anal starts off orange followed by black. The fish seems to be intent on providing contradictions for it is reported that it is the female's colouration that intensifies during breeding rather than that of the male. Spawning occurs in a depression in the substrate with the male guarding; females should be removed after

The fish is modestly-sized at 4in (10cm) and is native to the eastern seaboard areas of North America from mid-Florida up to Northern New Jersey.

An aquarium of around 5 gallons (say an 18x10x10in) will be more than an adequate home for the Pigmy Sunfishes — Elassoma evergladei, the Florida Pigmy Sunfish and E. zenatum, the Banded Pigmy Sunfish. Both com-ing from North Carolina downwards through Florida to the Mississippi Valley, Alabama, Georgia and Indiana means that they have quite a wide temperature tolerance and may almost be regarded as sub-tropical.

The 2in body is elongate rather than oval and the dorsal fin is longbased without the distinct notch which indicates the division between hard front rays and the softer rear section, although both these charactenstics are present. Body colour is not too much to get excited about being a olive green with a little lighter speckling in E everglader and a number of dark vertical stripes in E. zonoturn. However, once breeding occurs the male E everglodei turns a velvety jet black whilst the female remains pale.

Spawning occurs in amongst fineleaved plants after a courtship display by the male.

MEDIUM-SIZED **SPECIES**

Suitable for either the larger coldwater aquarium or the pond, Lepomis gibbosus, the Pumpkinseed, is probably the most popular Sunfish in terms of numbers kept. It is a native to New Brunswick, reaches Manitoba and the Great Lakes inland and extends south as far as NE Georgia,, South Illinois and the Mississippi Valley; it has be introduced to many other areas too.

Much larger than the previouslydescribed species at 10in (25cm) it has an oval body with a narrow caudal peduncle. The golden-browngreen body reflects many iridescences, especially under side-lighting, and the face is marked with Discuslike blue streaks. The 'earflap' is black with white top and bottom edges and a red rear area.

During breeding a nest is excavated, usually about 12in (30cm) in diameter into which up to 1,000 eggs can be laid.

Genera within the Centrarchidae

Acanthorous pomotis - Mud Sunfish (10in/ 25cm): Amblophies rupestri - Rock Bass: Goggle-eye (13in/ 33cm); Archapites interruptus — Sacramento Perch (16in/41cm); Centrarchus micropterus 6in/15cm): Choenobryttus gulosus — Warmouth (10in/25cm): Elassoma zonatum — Banded Pigmy Sunfish (2in/5cm). El everglade: — Florida Pigmy - Black-Sunfish (2in/5cm); Ennegcanthus digetodon banded Sunfish (4in/10cm); E. giariosus — Blue-spotted Sunfish (4in/10cm); E. abcsus — Banded Sunfish, Diamond Sunfish (4in/10cm); Lepornis auritus Redbresst Sunfish (1 Lin/28cm): L. cyaneilus Green Sunfish (10in/25cm), (Bin/ 20cm); L gibbosus Pumpkinseed Sunfish (10in/25cm); I. humilis Orange spotted Sunfish (4in/10cm), L mocrochina Bluegill (12in/30cm); L. marginatus — Dollar Sunfish (9m/23cm); L. megalots - Longrar Sunfish (9m/23cm); L. microlophus — Redear Sunfish (14m/36cm); I. punctatus — Spotted Sunfish (6in/15cm); L. symmetricus — Bantam Sunfish (3in/8cm)

References SUNFISHES (FBAS Booklet No 2)

Caught in the Net

Kathy Jinkings' latest catch from the Internet

The massive resources of the Internet offer a wealth of information about all aspects of fishkeeping, with far more facts and figures available than you would be likely to find in the local library. However, the Internet isn't just for research. and there are many pages that you can visit that are more like going to your local fish club ages written by real people with real problems, where 900 can look at their tanks, read about their triumphs a problems, and email the site athor for a chat. These are the 'homepages' put on the net by people who went to shere their interest in the hobby with others. The information to be found here is no less valuable. and a tour of homepages may find you some new triends most people are delighted to hear from readers who have visited their site, and want to offer advice, congratulate them or simply find that they share an interest in a particular aspect of fishkeeping.

First stop is at Richard's Fishtanks, http://luff.latrobe. edu.au/~mssrb/tanks.html. Richard describes all his fish tanks, along with the complete list of equipment he is using. and explains which fish and plants he is keeping together in each tank. There is a description of the maintenance schedule he uses on each tank, and some of the tanks are pictured. Most of the fish he is keeping have their own page of information, along with excellent photographs. The information not only consists of lots of straight forward facts (many of which obviously took lots of research), but also anecdotes of Richard's experiences with the speci and the page is well worth a visit by anyone keeping for thinking of keeping) smiler fish. The list of fish Richard keens is too long to print here so why not go and have a look? Christian C. Burke, at

http://www.geocities.com, Heartland/2640/index. html, claims to have a 'humble home on the web' where he is learning and trying out new things on his web site. His learning curve is obviously pretty good, as this is an attractive page with frames graphics, and even a recorded voice message from him! The aquaria pages are

comprehensive. He tells you the tanks he keeps, again with a full listing of the equipment and inhabitants. Another page explains his water chemistry and his filtration and water treatment, explaining why he has chosen the particular methods and systems he uses and other treatments that he doesn't recommend are also discussed. The 'Why Keep Fish' fish keeping. When you have read the aquarium pages, the page on fluffy the dog is worth a quick visit, too — this isn't the run of the mill pet photo! Christian actively invites his visitors to email him, so drop him a line about his fish, pages, or anything else.

These pages seem to have a very low hit count, and deserve a lot better as he has put a lot of work into them

Steve Robert's Aquatics page has been set up to help newcomers to fishkeeping, but he still wants to learn more and the first page includes a niea for anyone who knows better than him to se email. However, an than him to send him an examination of the site shows that he seems to be doing just fine, even though the new photo promised for August '97 does not seem to have materialised. The January '97 photo seems to show a very healthy tank though, and there is a full list of all the equipment he is using. The plants page explains his experiences with CO, and includes a lengthy section on a previous method he tried which wreaked havou amongst his fish. The healthy fish page is ominously empty. Let's hope that it isn't because he doesn't have any experience on the subject!

Mark's aquarta page, at http://www.omen.com.au/ -phoenix/index.html, is run by a dedicated lishkeeper. Although his main interest is evidently marines, he also keeps a freshwater tank, although unfortunately the link the page for this didn't work There are plenty of other pages bere though, including a useful fish tank calculator and a temperature converter. The information on his marine tank includes a plan, details of the equipment, and the fish he keeps. There are even more diagrams and some excellent pictures. You will need a

browser that can cope with javascript to get the best out of these pages. Be warned that the links to pictures open in a separate window, and on my system for some strange reason the second window wasn't on top: If it appears that they aren't working, check to see if another browser window is open, as that's where the picture is showing! The aquaria notes pages explain in detail how he set up his tank, and includes a diary so that you can see the timescale over which the setups took place. Disasters are catalogued as well successes, so you get the complete picture. There is also an extensive list of the species of inverts he has bought, and how much he paid for them, so you can compare prices. Mark also collects some of his own creatures for his aquaria, and there are descriptions of his dives and the animals he

Millicent and Bill Galegos have kept a journal of the trials and tribulations they and troustions trey
experienced setting up, and
keeping going, their reef tank.
You can read about their
experiences at https:// users.plinet.com/-mgall/. Once again, there are lists showing the equipment and tanks they are using, as well as the maintenance regimes and the foods they use. Their livestock is described along with a collection of excellent

photographs. Tim keens Goldfish, and his page at https://www.telalink. net/--tim/goldfish/ doesn't have much text about them. However, anyone wanting some photography tips could do a lot worse than contacting Tim, as the photos he has taken are absolutely superf and well worth the time taken to download them. His Goldfish share a 29 gallon tank with carfish, a Blue Lobster, and a Guppy, but somewhat surprisingly there isn't a nipped fin in sight, so he obviously has an extremely placid Lobster (or a very well-fed one)!

The Goldfish Pond, at http://www.ipass.net/ kestep/ goldfish.htm, is packed with information about the setting up of the pond, with a diary of what's going on in the nond, information about the fish and construction, and some photos of what looks like

an extremely attractive pond This is all delivered in an extremely readable style. Unfortunately the page hasn't been updated since January 1997, so all the bulletins are quite old news. You could always email and ask how

aways email and ask now things are going though! Eliza Lane is justifiably proud of her pond, and you can see pictures and read about it at http://www.geocities.com/ Wellesley/1779/thepond. html. This is a very anecdotal page, and you can read how the pond and equipment developed, and ideas they tried that didn't work as well as those that did. Furthermore,if you don't get on with your neighbours, reading about what Eliza's did may well make you feel rather fonder of yours

Our final visit this month is to "Le Home of Mot II", otherwise known as Adrian A. Heimann. There is lots of information about his listroom on this site (http://members.aol.com/ moitoo/index.html), including extremely comprehensive text and pictures of his equipment, including why he has chosen particular models, and precisely how each piece of equipment is used. His interest is in killifish, and there is a collection of photographs of his named(!) leilitish. Although the text and pictures contain lots of first class information, one of the major sources of interest in this site must be the style. For some totally unexplained reason he has elected to write the pages in a mixture of French and English, which seem to be two languages that he has an extremely limited command of!

> Next month we will be taking a deeper look at eugroups on the web, and

Kathy Jinkings (British Aquatic Resource Centre http://www. cfkc.demon.co.uk) (AquaSource International http://www. asource.demon

A to Z of plants

L FOR LUDWIGIA

Like many fishes or plants this genus described by Linné in 1753 is named in honour of a person, in this case Protessor C. G. Ludwig of Leipzig (1709-1773). The genus was enlarged more recently (in 1953) with the inclesion of the genus Jussiaea. There are around 75 species within the genus with some 20 per cent growing in water. either permanently or temporarily) with many others growing under bog or marshy conditions. Specially adapted roots have a pale spongy texture which allow for more efficient exchange of gases than other roots which may be in low air content mud.

LUDWIGIA REPENS (synonym L. natans)

Description: For a submerged species the leaves are quite self supporting when taken out of water. In describing the opposite and ecussate leaf shape the factor of the illumination period must be considered: short day leaves are narrow and long whereas long day leaves may be up to two or three times the width and more elliptical in shape. Multiberg states that there may be three different forms cultivated in the aquarium. Rounded submerged forms can either he green with a paler shade beneath or may have a recklish unclessible. When grown emersa, the structure is more horizontal but the plant holds itself more upright when grown submerged.

Distribution: Almost cost

Cultivation and Propagation: The plant requires good lighting but otherwise is almost undersanding in its needs. Water temperature can be as lose as 20°C (which seems to indicate a cooler over-wintering might be possible) but it is tolerant of higher temperatures too. It looks best when grown in clumps as a spacefiller for corners or between rocks and branches. Propagation is easily achieved by cuttings

Other species: Of the many species existing the following have heen reported: L. adscendens — began life as Jussiaea repens later renamed J. adscendens but when the genus was incorporated into Ludwigia the latter name had to be used to avoid duplication with the already existing L. repens: L. arcuata - southeastern North



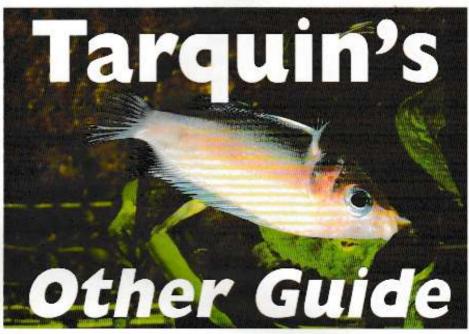
where the similarlooking I brentpes also originates: I palustris cosmopolitan, but not suitable for tropical oquatium. An E poliustris and L repens hybrid has been produced which may been referred to a L muilleret.

> Bu DICK MILLS

РНОТОСЛАРН ВУ M.P. & C PEDNOR



Another viewpoint from the Big Pink Kisser PHOTOGRAPH BY M. P. & C. PIEDNOIR



irst of all let me apologise (I must learn to spell, I'm nearly as daft as her) about the title. I wanted to call it 'Tarquin's Traumatic Tantalising Tales', but she wouldn't let me, got no imagination, she hasn't. Anyway you'll never guess what she went and did - she only went and got me a friend and he's bigger than I am. I nearly died when I saw him (I think he's a he) but I could be wrong.

He wasn't very well when he came, full of holes he was; it seems he had been in a tank with three of those nasty cichlid things, you know the ones, they have a big lump on their heads; don't think it's anything to do with brains. He's still not very pretty although everything is healing, he has a big 'V' shaped scar over his eye and a hair lip. He wouldn't eat when he first came and lost a lot of weight, but she found this medicine for anorexic fish! Did you ever hear anything like it?

He wasn't too had at first, but I think that was because he wasn't very well. As you know, she lets me suck the worms from the comer of the net, so she started to do the same with him. I made sure I got there first, but after a few mouthfuls she held me away while he had a turn. I thought I suffered bad with wind, he's even worse, you've never seen so many bubbles coming from so many openings (I was going to use that other word orifice, but I couldn't spell it.) But as I say, apart from one or two little things, we were getting on great.

When he first came she said she wanted to breed us: I think she had some grand idea about getting rich when we bred. So Dosh, that's his. name on account of the week they bought him they were a bit skint and had economised on their shopping, then saw him, felt sorry and paid £10 for him.

I only cost a fiver. As I was saying, Dosh and I had a little talk and decided to have some fun, so we swam around each other, getting as close as we could. You know the sort of thing, you wrap your bodies around each other. The problem was, because of all his injuries, I had to wrap around him which wasn't easy on account of him being a lot bigger than me. We picked our time just right, there she was, sat with her feet up on that long thing when we started. Well, you've never seen the fat lump move so fast in all your life. She shot across that bloody room, than disappeared and came back with this glass on a stick. And what did we do? We went to the front of the glass to see what she was doing, we knew what she was after, we're not daft. She was trying to see if one of us had something that other didn't. But we weren't having any of that, you should have heard the names she called us. Oh it was funny. Mind you I was a bit annoyed; if I could talk, I'd ask how they would feel if someone watched them with a glass on a stick. They'd soon object, so we've decided to keep em guessing. She kept looking into the tank to see if one of us was getting fatter; she didn't know we were holding our breath and sucking our tummy in like what she does whenever anyone is looking at her.

I nearly forgot, we had our pictures in the paper again, or I should say I did again. Dosh hasn't been in before whereas me, being quite famous, am used to this sort of thing. She's always got to get in on the act and spoil it though. Oh, she says, to the bloke who comes, that she doesn't want to be photographed, but she always makes sure she puts that paint on her face before he arrives. It would have been a laugh if he's said alright, mind you the picture would have been better without her. It was quite funny though, we kept swimming over the other side of the tank and she kept telling the bloke how we

are normally so well behaved and come whenever she calls.

Anyway, I was telling you about this 'friend' she got for me. As I said, it was quite a shock on account of I've only ever been in a tank with little Platies and such and believe me they can be little sods at meal times. They charge about all over the tank, even though she feeds them at one end and me at the other, they still push in trying to get either between me and the net or me and her finger. If she lets me suck the worms from the net, too many come out sometime and I get too big a mouthful which gives me indigestion; but when she does it with her finger she only puts a couple on the end for me to suck off. Anyway that other big ugly thing she got, after a few weeks started getting really mean. I knew it would happen when she got him, but she thinks she knows best, she doesn't. I found out that they call her Fish Brain'! I thought, 'no way', she' s thick. Then I discovered it was because one of them other human species; probably one of them they call a 'Judge' - anyway, he said fish don't have no brains and that's how she got her name!

So, at feeding time, this Dosh started bullying me. It were terrible - there's only two ends to my tank and she fed the little un's at one end.

but didn't have enough ends to feed me and he started chasing me all over the tank. She ended up trying to hold him up at one end, the little un' s at the other end and me somewhere in the middle. But she's only got two of them hand things so it didn't work, He would dash round the back and grab me. She would stand there screaming at him, that other human who looks in our tank would scream at her and I would end up with a terrible headache.

Then one day he chased me round and round until I crashed into a rock and hurt me head, it was blooding so much it made the water all red, well it was bleeding a little bit. That rock shouldn't be in our tank actually, it's caused trouble before. Once when her hubby was doing a water change because she'd gone out - and he shouts and swears at me because he says I always want to be where he puts that thing that clears the gravel. So I got upset and charged behind this rock to come out through this hole, But it wasn't big enough and I got stock, I was shouting and screaming for ages before he came. It were terrible! He had me head in the water, the rest of me stuck out and nearly broke all me ribs trying to fold me in half to get me out. You should have seen the blood then, I was proper poorly for quite a while and

she was very worried. But she wouldn't leave me alone, I just wanted to rest and she kept tapping on the glass to make sure I wasn't dead. I just felt like saying: "Go away you silly old cow and I'll get better quicker!"

Anyway, as I was saying, he should never have been put in with me; so after a while they decided to move him out, apparently they had to rearrange the other tank to accommodate (that's a big word isn't ist) him. Her hubby was going mad, he's got a terrible tempor you know. He kept saying they should never have got Dosh because one 'big daft bugger' is enough. That really annoyed me. She was saying it was him that bought it. He said he got it because she felt sorry for it and wanted it. She said she didn't want it - he said he didn't want it. So can anyone explain why, if neither of them wanted it, why did they buy it Them human things are really strange sometimes and they sit in judgement on us!

Well, I've got to go now, don't forger if any of you need any help, write to Mr Mills, in fact even if you don't. still write to him, we fish have got to stick together. Apart from anything else, if you write to him he might ask me to do something else. I'm not daft; they might call her fish brain, but not me.

Pay a visit to

WHOLESALE TROPICALS

Large selection of Tropical Fish always in stock **Plants and Equipment**

Many of our customers say we have one of the best selections of tropical fish in London, and probably the country. With over 20 years experience supplying the aquatic trade.

WE STOCK FULL RANGE OF EHEIM PRODUCTS PRICES ON REQUEST

150 Tanks of tropical fish which normally include 20 species of Synodontis, 40 species of Corydoras, 25 species of killies, Blue Brown Tefe — Turquoise — Heckel discus. Clown — Blue-eye, a good selection of Clobbackel discus. gramma, and many others. Also Corydoras Panda and Brochis Britskil

A selection of aquatic grown Cryptocorynes

◆ SPECIAL OFFER — CASH ONLY AT THESE PRICES ◆

Tank, F/top cover, heater, thermostat, internal power filter, Crosux lighting, thermometer, gravel,

24" x 15" x 12" £65 — 36" x 15" x 12" £67 — 48" x 15" x 12" £103.50 k down tubular steel stand 24" £30.50 — 36" £32.50 — 48" £36.00

All-glass aquariums 24" x 15" x 12" £13.50 — 36" x 15" x 12" £17.95 — 48" x 15" x 12" £22.50

Any size of All-glass aquariums made to order at competitive prices

If you are in the area please pay us a visit Ask for Terry - Club visits welcome Open: Mon. Tues, Wed. Fri. 10am-6pm. Thurs. 10am-2pm. Sat 9am-6pm. Sun 9am-1.30pm.

10% DISCOUNT WITH A CUTTING OF THIS ADVERTISEMENT, APART FROM SPECIAL OFFERS

On No 8 Bus Route — Opposite main Post Office 220 BETHNAL GREEN ROAD, LONDON E2 Tel: 0171-739-5356 Fax: 0171-729-2444

A&P: How long have you been in fishkeeping and what started you off?

BW: I've been into fishkeeping for over 20 years but, funnily enough, I got into it through fishing and seeing an angling friend's aquarium and I was, as you say, hooked

A&P: Can you remember your first aquarium and what you kept in it?

BW: Looking back on it (and I've got a photograph of it still), it was a real old mixture of everything you probably shouldn't keep together! I had Rasboras, Gourannies, small Characins, Angels, Rift Valley Cichids and Livebearers all rubbing shoulders with each other

A&P: What are your special interests?

BW: Just as I think I've got a definite one, another one comes along but, seriously, I do like Characins and Catfish but then there's growing plants, furnished aquariums and anuscapes, breeding and photography - but not necessarily in that order.

A&P: Are you into

BW: Yes, I like to try my hand at any new breeding challenge. Give me a pair of fish that look interested, or showing signs of breeding activity and I'm more than willing to have a go at them.

A&P: Do you belong to any Acaptic Society

BW: I am a member of Derwen A.5. and also Vice-President of the Northern Area Catilsh Group

A&P: What do you think about Fish Shows?

BW: I don't believe that Fish Shows are only for those already in the hobby. They are our 'shop windows' in which we set out our stall of interests for passers-by. We should use them to impart advice and encouragement to others join us in fishkeeping so that any newcomers can get their

Famous Faces in **Fishkeeping**

A&P meets the faces behind the names and lets them tell you of their own individual aquatic interests.

> This Month: BRIAN WALSH. Chairman of the Federation of Northern Aquarium Societies



fishkeeping off to the best constructive start possible.

A&P: If money was no object what aspect of the hobbu would you like to follow?

BW: Me. I'd be on the next boat up the Amazon! I want to

visit fish in their own habitat. not necessarily armed with a net, but to see what conditions they are really used to, so that I could re-create them when I got back home for their better benefit.

A&P: What fish would you never keep and why?

BW: I have no particular don't likes but I would never keep a fish to whom I couldn't offer the best living conditions. So that rules out the very biggest, predatory catfishes for a start. Mind you, if the previous conditions came about maybe I could think big one

A&P: What's your favourite aquartum book?

BW: I dip into all manner of books, depending on what I need to find out but for sheer enjoyment I find Michael Golding's books on the Flooded Forest in the Amazon Rain Forest always draws me back to them

A&P: How do you think fishkeeping is keeping up with other modern day attractions?

BW: Sadly, I don't think it is. Whilst not exactly lagging behind today's other attractions, I feel that not enough is being made of today's technology to keep fishkeeping in everyone's minds. Much more could be done on CD ROM for instance.

A&P: What do you get from fishkeeping that keeps you interested?

BW: Well, I'll try to keep it brief: Although I take my fishkeeping very seriously, I also feel it has to have a proportion of fun as well. I definitely like socialising with other fishkeepers, have a good natter, exchanging ideas on all aspects of the hobbyfishkeeping, breeding, equipment and the like. It makes a real break for me to have a good social weekend and to me it's the people just as much as the fish that brings the complete satisfaction and ongoing interests I want.

A&P: What's next in your fishkeeping plans?

BW: I am looking forward to refurbishing the fish-house to make it more space-efficient. This means a better use of tank space so I can get on with breeding, growing plants, taking more photographs and expanding my list of lecture titles.

News Desk ... News Desk

Bioplast Changes

BioPlast Pet Ltd was formed in June 1997, following severe health problems suffered by Berti Gesting: Directors of the new Company are son Use Gesting and Jorgen Meuche with Customer Liaison Executive Susan Milablez

The existing BioPlast range of products will continue with plans for big expansion in the future.

Delivery of products is by the

company's own vehicles, with the only exception being in the south of England where distribution will be done by Peter Golding. proposally appointed for the plurpose.

A number of new products have already been on the market for a little time and include the Nutrilles CO: system which now fentures a new pure COs tables which does not incorporate a plant fertiliser. Existing tablets are Iron, Manganese and Potassium with COs. There is new

packaging for the CO_V Starter

The Aquasensor pH is an electronic unit to measure and control pH in the aquartum in consunction with the CDs units but it can also be used as a handheld unit and incorporates an elerm function.

AquaPads are an excellent alternative to the polystyrene tile used as a tank cushion. Unlike polystyrene the grey-coloured high-density foam does not cramble away at the edges over a period of time. A Background Foll is also available.

In production for early release in 1998 is a new exclusi-Aquarium Hood, Aquartum Sens. SicPlast Water heaters and Purros and a modular system of acception filters exclusively made by BioPlast.

Details of products, and further information about the company, can be obtained from: BioPlast Pet Ltd. 16 Bronte Close, Rugby, Warwickshire CV21 3PD. Tel/Fex: 01788 544298



Turtle Alert!

As you sit by the through all the Mediterranean travel brochures for this year's it is quite possible to visit a beach resort where you're promised a chance to see **Turtles** coming ashore to lay their

eggs. Unforminately,

increasing tourism means a lessening of available suitable Furtle equisiting sites as much of their sandy sites are being removed for the developed of even more hotels to house tourists ... who come to see the turtles!

The World Society for the Protection of Animals (WSPA) lest year issued a Turtle Alert Brochurg outlining the perils demands on Turtles' lifestyle especially at breeding time The brochure vividly sets out the perils and also what can by done to alleviate some of

theproblems by way of excellent Turtle-friendly Tourism' advice panels.

Thousands of copies of the brochure has been sent to tour operators and the sincere hope is that both tourist and turtle can enjoy each other's company in the proper conditions which will suit both of them for a long time to

Further details on the Turtle Alert' Campi any other aspect of WSPA's Jonathan Owen, WSPA Press officer on 0171-793 0540 ar mobile 0467-234689

New Sea Life Centre

'Sea Life' is set for a "Legendary" move into Irelandi Vankon Attractions has delved deep into Calhic lore and mythology to lend a unique myetical aspect to its first development in the Emerald Isle

With 16 Sea Life Centres already in the UK and four more on the continent the company is w exporting its winning formula to Issiand ... with a £3m scheme focusing on the former National Amartum in Brey, which closed a usor ago. but is now destined to become the latest in Vardon's growing network of high-tech marine life experiences, and will be re-christened the National Sea Life Cactre, Beny.

The move will consolidate Sea Life's position as the world's leading againsm "bond," with annual visitor numbers exceeding four million. As with the other

Centres the TWW attraction will focus on the and habitate found off the achiecent shoreline. and in скититися with the most necently developed Centres will include some frustruppor distribute.

We've been keen to add on bish arm to the

Sea Life metwork for quite some time," wild managing director Nick Varney. "This opportunity to one troin bas award-lead a basing to popular oraștal resorts uza reallu too good to be nissed, and will



access to Ireland's huge. CONTRACTO visitor market au well as to the resident population." Vardon has that overseas market perticularly In mind with some of the creative design elements of its now

Centre which is set to open at Easter.

As well as journeying from high mountain stream to the ocean depths visitors will travel back through time to beland's registeral Critic roots ... encountering an

ancient goddess, standing stones Celtic crosses and one or two toore surprises on the way

Sea Life's wenture across that Irish See will further strengthen the network's appeal to blue-chip commercial partners, for promotional tie-ups especially

"Ireland is an important market for many of our promotional partners," said Mr Varney. "The fact that we say now offer added value to their frah customers as well as those in the UK will make See Life centres an attractive option for promotions with many leading brands."

A division of lesure group Vardon plc, Vardon Attractions also owns and operates the London and York Dungeons, the National Seal Senctuary in Comwall, and wildlife centre Nature Quest in the New Forest

For further information plea contact Mark Onkley, 01202 896289

Turf'n Surf

Daniel Conway visits Kew Gardens to see marine plants thriving

PHOTOGRAPHS COURTESY OF ROYAL BOTANICAL GARDENS

Red and green algae in rockpool tank.

The Marine Display at The Royal Botanic Gardens in Kew is safeguarded from the changing seasons of the outside world.

Frosty dew under foot 1 entered the historical sanctuary for gardeners where glasshouses galore protect specimens from all four corners of the earth. An unending avenue of trees led me to the magnificent Tropical Palm House. I opened the door and stepped inside to find I could not see anything.

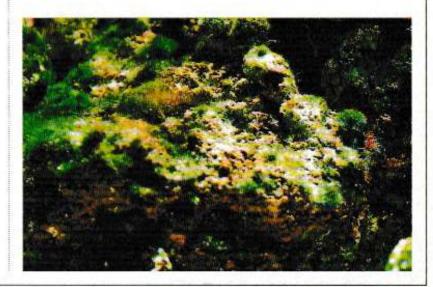
as my glasses steamed up in the heat and humidity, that lies waiting to greet

Undersea world ablaze with colour

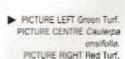
There are surprises installed in the vaults of this cathedral, which has an undersea world. An aquarium that is ablaze with colour and a

veritable hive of activity. 'Algae', as the notice on the wall, in the underground chasm, declares, 'supply the earth with 50 per cent of the earth's oxygen'. They should be considered an integral part of any living environment and not come in, a poor second place to fish.

Algae are found on coral reefs and off our rocky shores. Nature's own aquarium, the rock pools on our seashore,



Turf 'n Surf





would not be the same without them. The Rock Pool tank recreates this theme and it was here that I started my private viewing, with the manager of the Marine Unit, Mr Peter Morris.

The scene in the Rock Pool tank is set for the greens to contrast dramatically with the reds.

Porpbyra purpurea is well known for making Laverbread in South Wales and another famous red for eating, Dulse, Palmaria palmata, is socalled because it is shaped like the palm of a hand with leafy digits. The Sea. Lettuce, Ulva factuca, as the name suggests, looks like a shiny green leaf of Lettuce. It is also eaten in Japan under the name of Anori.

Two other British habitats represented at the Marine Display are more coldwater tanks, kept cool by using expensive industrial beer chillers, keeping the water temperatures between 15-15°C. They are the Kelp Forest tank and the Tidal Rocky Shore tank. In the Rocky Shore tank the water level actually rises and falls, twice a day, just

like the Thames Estuary. In order to keep the water temperatures down the water passes through a stainless steel coil set in a water bath behind the viewing tanks, at 3-10°C. As is the danger in all coldwater aquaria the water is more likely to heat up in an enclosed environment than cool down:

The most visible group of seaweeds

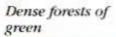
The Rocky Shore tank has the most visible group of scawceds throughout the British Isles hanging off its rocks and they are the Bladder Wracks or Fucoids, Some, like Aschophyllum nodosum, can live up to two years and be very slippery under foot, but sadly in captivity even a tidal pool is not enough to regenerate the right conditions for them to survive for more than three months at a time.

The Kelp beds on the other hand appear to fare a bit better. Peter Morris has witnessed this group of leviathan seaweeds

grow a metre in length and go through their reproductive cycle. Kelps, like Laminaria saccharina, the Sugar Kelp, and Hyperborea digitata - often only seen after being washed up on the beach after a winter's storm are suddenly reproducing spores which stick to the window of the Kelp Forest tank. It is generally true that there are many more varieties of browns in the colder seas of the north and south than in the warmer climes.

Situated like this, with the Palm House above, it is only fitting to consider the beauty of the tropics Since the opening ceremony in the summer of 1991, by HRH Princess Margaret, the same green and red turfs of tropical algae continue to grow with great success. If you look carefully in the Tropical Turf tanks you will see one of the tropical turf varieties called Sailor's Eyeballs, Valonia sp., looking like glistening bubbles, stuck on to the Tufa rock





The heat was on as I moved along to the centre of the collection to view the Tropics. The water temperatures for all the tropical tanks are kept above 24°C. Caulerpa thrives under these conditions, there are four varieties to see, all of them forming dense forests of green, just as they would in the sea. "The green turk of algae growing on limestone pavements behind the seaward edge, is possibly the most productive habitat, of any reef system," says Peter Morris. "The green and red turf habitats recreated in the aquarium have grown naturally since they were first collected on an exotic trip to Thadand. The calcarcous red algae that grow on the seaward edge at the top of the reef, form what is commonly known as the 'algae lip'. This red lip is probably the second most productive zone on a recf."

Naturally, the light intensity



will determine what you can grow. The standard 150 Watt metal halide lamps used in the aquarium really only allow Peter Morris the possibility of recreating that part of the reef which is down at 20m and not at the algae lip of the

reef which would be fully exposed to much higher intensities of light.

The Coral Reef tank has a tropical brown variety named after the Sargasso Sca. Sargassum sp., floating like the icing on the top of the coral reef cake. The lighting system was deemed appropriate, as Peter Morris said, "it reproduces the least number of peaks of any on colour of the light spectrum." Peter Morris prefers to have all the wavelengths of light represented, across the spectrum. He has found through experience that a concentration of light from one particular hand of the colour spectrum does not generally have the desired effect.

Not all the plants that grow in sea water are classified as algae. Just as in freshwater the aquarium also houses a beautiful display of terrestrial plants that have adapted to an immersed life. The Felgrass, Zoitera marina, found growing on our sandy bays and modflats, for

instance, is shown with Scahorses clinging to each other or the blades of the sca-grasses.

Unique to Kew Gardens

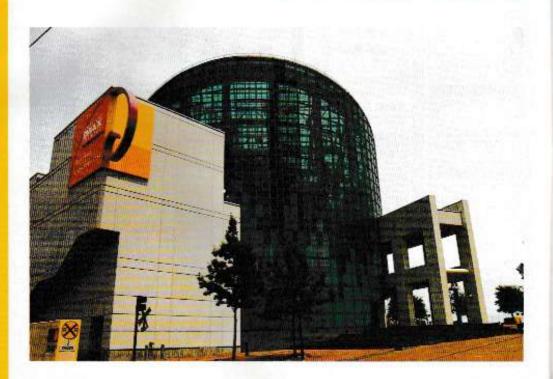
The Mangrove Tank is probably unique to Kew and was only possible because of the expertise that is world known at the Royal Botanic Gardens to grow plants in a nursery, from seed

Research at the Marine Unit involves the observation of lifecycles and even finding ways of combatting these shae that not even the Marine Display want to appear too prominently. The baddies in all this are of course the single-celled swarms of filamentous algae or blue-greens which if left unchecked will form a thick carpet of wire mesh. So far, a biological solution to the problem at Kew has been to employ the Yellow Eyed Surgeon fish, which enjoys a good feast of filamentous algae, 'mMM Tangy' Of course, an artificial environment almost always puts nature on the spot and the challenge must be to get the balance right. Introducing marine plants will go a long way to enhancing the harmony of an aquarium and the fish will definitely feel more at home.

Iggy Tavares, PhD, goes Out & About in New Orleans

PHOTOGRAPHS BY THE AUTHOR: TAKEN WITH A PENTAX Z-20 CAMERA

Aquarium of the Americas



scientific conference took me to New Orleans, USA, in April 1996. I was keen to get away from the poor spring that we were experiencing in London and to get some sun on my back, so to speak. Moreover, I had heard about the Aquarium of the Americas and wanted to see it for myself.

An eight hour flight from Gatwick, London, brought me to Atlanta, USA I was grateful to only have a three hour

I had heard about the Aguarium of the Americas and decided I wanted to see it for myself.

unexpected delay in Atlanta, caused by a thunderstorm, before boarding another plane for New Orleans. A col-

league of mine, trovelling on the same day by a different airline which landed in Dallas, had a 12 hour delay, five of which were spent cooped up in a plane on the runway. Apparently, southern USA is prone to thunderstorms and some cyclones in April. I actually experienced a thunderstorm while in New Orleans but luckily I was in the hotel at this time. The sky opened up and the rain deluged down for some three hours during which time the morning turned as black as night. In the afternoon it was sunny again.



French Quarter

Among the many attractions of New Orleans is the French Quarter of the city. Here the old fashioned French colonial style streets, such as Bourbon Street and Royal Street have been maintained. The French Quarter is hame to a whole host of shops geared for tourists, intermingled with bars, clubs and restaurants. The French Quarter is famous for its jazz music and every night live bands play in the various bars. At weekends there always appears to be a festival of one sort or another, and jazz bands then play in the streets during the day. The food here is marvellous with plenty of sea food on offer. I would highly recommend Cajun food which is a strange blend of French and local Indian cooking and is a speciality of the area. I missed out on alligator steaks which are another speciality of the

There are several risqué men's clubs in the French Quarter. One such club, called Maiden Voyage, had a particular attraction in the fayer which impelled me to to enter. This consisted of a 6ft bowl-shaped aquarium built into the wall so that half the tank was in the fayer and the other in the club. The aquarium contained a dozen or more large Malawi cichlids which included orange morph Pseudotropheus zebra and Nimbochromis livingstoni among others. The fish were all large and healthy with a lot of interaction and activity taking place in the tank, making it an attractive sight. I was kindly allowed to take photographs of the tank but because of the shape of the tank could not avoid some flash reflection in the photographs. The bouncers promised me that the lady artists within were as frisky as the fish in the tank outside and would provide



The backwater swamps and marshes of the Mississippi River delta.

The Lionfish

SPECIAL FEATUR

a lively show. With great difficulty I managed to

Entergy IMAX Film Theatre

Adjoining the Aquarium of the Americas is the IMAX film theatre which specialises in 3-D films. I was in luck because the theatre was screening a film about coral reefs on the Californian coast called Into the Deep. I put on the special 3-D spectacles and sat back in front of the huge screen to enjoy the one hour film. It was amazing to actually sit in the depths of a coral reef with the colourful fish within inches of me, without actually being wet by the water. I swam among the huge Kelp jungles and saw Starfish actually eating the roots and releasing the Kelp. Fortunately, the Starfish were kept in check by other creatures which ate them. I watched Octopuses and Eels coming out at night to feed, Lobsters moulting, and much more. Of particular interest was an orange-coloured fish, probably Garibaldi (Hysipops rubicunda) building a nest, attracting a mate, spawning and guarding its nest much like a cichlid would do.

Particularly dramatic were Cuttlefish spawning en masse, followed by them all dying and being eaten by a whole host of sea creatures including Seals.

Swamp Tour

Being aquatically minded, I went on the Swamp Tour. This involved a Aquarium of the Americas

journey by covered_skiff into the backwater swamp and marshes of the Mississippi River delta. The Louisiana swamplands have some waterways which are kept clear, called bayous, which are usually lined with mossdraped Cypress trees. We travelled olong these to see and hear life in this fascinating habitat. I saw many Alligators of various sizes, some of which had developed a passion for marshmallow sweets. These mallows were used to bring the Alligators right up to the boat. An attempt to catch a small Alligator with a net was, however, unsuccessful, I also saw a few Herons, Egrets and other bird life, a large, sleeping snake, some Turtles and a few Nutria (large rodent). There was no sign of White-tailed Deer or Mink. The guide kept us entertoined with his stories about life in the swamps. After the hustle and bustle of New Orleans it sure was quiet and peaceful out here in

Aquarium of the Americas

The Aquarium of the Americas is reported to be one of the top five public aquaria in America. It focuses on the aquatic species of North and South America and the preservation of their natural habitat. Five hundred different species are housed in 60 separate exhibits ranging in size from 500 to 400,000 gallons of water. The Aquarium is arranged into five major exhibition areas to include Caribbean Reef, Amazon

Rainforest, Living in Water, Mississippi River and, finally, Gulf of Mexico.

I entered the Caribbean Reef by wolking through a large aquarium bu in the form of a tunnel. This exhibit contained many large marine fish ranging from Sharks to shoots of Chaetodiperus fober and the strange looking Look-Down, Selene vomer. Another exhibit contained several large green Eels hanging from their holes half asleep. The coral reef display was very colourful and included Anemones and Clownfish. I spent a lot of time at the Lionfish display enjoying and photographing their effortless and soothing swimming.

The Amazon Rainforest set in the dry season housed fish that I was more familiar with except that most were higger than I had seen before! There was a limited range of cichlids, catfish and large characins. A special feature included a shool of beautiful, large, Redbeilied Piranha housed with a range of other fish. The Piranha, which looked in the prime of life, and obviously well feed, were very docile and did not trouble any of their tankmates.

The Living in Water gallery had a large Penguin display at its entrance. Penguins are entertaining creatures and are always a hit, especially with children. This interactive educational gallery with a large number of smaller displays, explains how fish adapt their shape, colour and senses to the changing environment. A special

Piranhas



exhibition called Mating Games explained some of the problems that fish have to avercome to reproduce. In this gallery I was particularly taken by the Jellyfish display tank.

The Mississippi River exhibit was arranged as a journey through freshwater swamps and wetlands where Alligators, Paddlefish and Catfish live. This exhibit was very useful because it gove me an insight of the underwater life to complement what I had seen on the Swamp Tour. A full grown White Alligator with blue eyes was housed in a large display with another common

Grey Alligator, Half a dozen White Alligators were raised by chance at the Aquarium, but they all turned out to be male. At the moment there is a breeding programme in conjunction with the Audubon Zoo to raise more White Alligators

The Gulf of Mexico consisted of a huge 400,000 gallon saltwater exhibit which is 14ft high. This aquarium contained some of the larger Sharks, Tarpons and Stingrays among other large fish. A seated arena around the aquarium allows visitors to watch in comfort the daily feeding of the Sharks. I in fact missed this activity but while I was there four divers, kitted out in wet suits and air cylinders, were in the tank doing the cleaning chares. Two divers were on guard with special probes to fed off Sharks, while the other two were actually scrubbing one of the back walls. The large Sharks and other fish in this tank were always on the go making for a very impressive display tank. I noticed that the well-fed Sharks seemed to follow a set route round the large tank all the time, but in spite of this I had difficulty in photographing them because they were large and fast swimming.

Sharks are an important feature of the Aquarium of the Americas with a large number of different species kept here. These are housed in various exhibits including the Caribbean tank tunnel, the Pacific Reef Shark exhibit and the massive Gulf of Mexico exhibit. The Pacific Reef Shark exhibit was crammed with different species including Leopard Sharks, Smoothhounds, Californian Bot Sharks, and even Australian Zebra Sharks and Wobbegongs, Many Sharks in this tank looked lethargic and were content not to swim but rather to he down on the bottom, sometimes on top of each other. The Blacktip Reef Sharks appeared to be the most alert and active in this tank. Other species of Shark kept by the aquarium include the Puff-adder Shyshark, the Coral Catshark and the Tasmanian Swell Shark, Several species of Shark have been bred here including the Arabian Carpet-Shark and the Whitespotted Bamboo Shark, A particular attraction is the hands-on Shark Pool where it is possible to pet and handle young Nurse Sharks and feel their sandpaper-like skin.

Conclusion

I enjoyed my six day trip to

New Orleans and found the twoday Scientific Conference very useful as well. Not having a hire car I was restricted to the city centre but there was plenty to do.

Apart from enjoying the sunshine, the jozz music, the eating and the drinking, there was also a paddle boat trip, visits to the Zoo and art gallery and some shopping. The Aquarium of the Americas was one of the highlights of my New Orleans working holiday and well worth the two hours I spent there.

BELOW The Sunfish.

BOTTOM OF PAGE A small Reef Shark.





Peter Lewis finds a cichlid that thinks it's a swan

PHOTOGRAPHS BY THE AUTHOR

'CYGNU

Young I in Standard **Mingsh** logus sp. Cygnus



n February of 1996 | purchased four 2.5cm fry belonging to a colourful Tanganyikan cichlid that were obviously Lamprologines and that I can now best describe as swans that grow and mature into ugly ducklings. The fish, up to a total length of 6cm, can easily qualify as one of the most colourful representatives of this genus I have ever

Sold throughout the cichlid community and hobby as Neolamprologus sp. 'Cygnus', these cichlids have yet to be fully described and identified without argument. According to Konings both N. sp. 'Walteri' and N. sp. 'Cygnus' are merely geographical variants of N. falcicula (Brichard

A superficial comparison of photographs I took of the adults to pubLamprologines can best be described as swans that grow and mature into ugly ducklings.

lished photographs of N. falcicula lead me to believe that Konings could be right but I reserve judgement until full taxonomic data are available.

The species designation as used throughout the hobby of 'Cygnus' comes from the Greek meaning 'swan'. The best comparison I can give to this highly noticeable colour difference between young and adults

within the cichlid world is to refer the reader to the cichlid we keep as Tropheus duboisi, where the young fish feature a sooty blue-black body peppered liberally with white or pale blue dots. As the young become mature adults these dots appear to become fused together as a wide, white band that passes at a slight angle from the central portion of the fishes dorsal fin to the belly region.

In giving the name to this cichlid of Neolamprologus sp. 'Cygnus' I have followed the protocols discussed by Mark Smith on the current status of Lake Tanganyika's 'Lomprologus' as it appeared in the American magazine, Aquarium Frontiers.

DESCRIPTION

Such is the tremendous difference

between juvenile and adult colouration that one can be excused for thinking that the young and adults

represent two different

prologines.

species from the genus. The basic adult colouration of this torpedo shaped cichlid is nothing more than olive drab with very few body colours to break this monotony. The dorsal, anal and caudal fins are long and flowing, resembling N. brichardi in overall appearance, each fin is edged with a very faint white line that varies in intensity between specimens. Under each eye is a thin, pale blue line, characteristic of most Lam-

The caudal is strongly lyrate with filamentous extensions on both upper and lower lobes that are a distinctive feature of the adults of this cichlid. The soft dorsal and anal fins also possess flowing extensions and the pelvic fins of both male and female are long and pointed. The head of the fish is definitely pointed and the jaws are strong and terminal. The teeth are conical but the canine teeth are most definitely 'fang-like' in nature and, in my opinion, appear more well developed with mature males as compared to females of a similar age. Older males develop a distinct gibbosity between their eyes which seems to become fleshier as the fish ages although it never comes close to that sported by many South American cichlids or the extreme of Cyphotilapia frontosa.

Young specimens, however, are highly coloured. Most striking are the fins which are a bright, iridescent 'Cygnus'

blue, with the exception of the pelvic fins which are clear. The caudal fin is also highlighted further by the presence of a series of bright blue spots that seem to flow outwards from the caudal peduncle to the edge of the fin. Two distinct orange bands pass across the flanks of the fish, the upper band beginning at the nose, passing just above the eye and finishing at the midpoint of the dorsal fin. The second band begins at the lower Jaw, passes through the eye and ends just slightly sooner than the upper band at a point almost centrally located on the flanks of the cichlid. The lower band branches at the top of the operculum and forms an orange line that ends at the base of the pelvic fin. The upper jaw is edged with blue and a faint blue patch is evident between the fish's eyes. The overall body colour is pink suffused with a very pale blue.

The photographs featured alongside this article should leave the reader in no doubt as to the colouristic dimorphic differences shown by the young and adults the as yet unnamed, Neolamprologus sp. 'Cygnus'.

> SEXUAL DIMORPHISM

A slight, but distinctive feature, of

a mature pair of N. sp. 'Cygnus' is their small size difference in that a fullgrown male will be 10cm standard length while the

female is likely to be almost 1.25cm smaller. Young fish will take from 12 to 15 months to mature, losing most of their beautiful colours within the first nine months, before any sexual dimorphism is apparent. With the pair that I have observed breeding the male is the larger of the two and also his head shape is slightly difference in that a distinct, but small, 'protuberance' is evident on the forehead of this fish.

NATURAL HABITAT

Coastal rocky outcrops and shear rocks faces of Lake Tanganyika with a substrate of fine sand or coarse gravel. Found at depths from 15 to 18 m.

WATER PREFERENCE

Since the lake temperature remains stable year round at approximately 26.5°C aquarium water at a temperature of 25.5 to 28°C is ideal with a pH between 7.5 and 8.5 and a hardness that can be allowed to vary from 12 to 14 dGH. Water changes are not too critical, a change of 25 per cent of the aquarium water every 10 to 14 days is appreciated by these undemanding cichlids. Both good filtration and aeration are a must and since N. sp. 'Cygnus'

Immature adult at sever months old



shows no tendency to dig pits or spawning nests, undergravel filtration is practical.

SPAWNING METHOD AND DETAILS

Because of the lack of obvious external sexual dimorphism a pair is best obtained by the method of 'natural selection,", that is by purchasing 'Cygnus', housing them in a large. rock filled community tank and allowing some type of relationship to form between a male and female as evidenced by their performance around other members of the tank as they mature. The best indication I can describe is that the fish that was obviously the male would only 'tolerate' one particular conspecific in the vicinity of his chosen rack site for any length of time. After nine months in a 500 litro aquarium the male could be seen constantly displaying to one of the three females as opposed to chasing her away from his chosen patch as he had been doing up to this point in time.

Once selected the pair should be removed to a suitably propared, previously set up breeding tank containing ample rock work and water of all chemistry to that in the tank from which the pair has just been

Breeding appeared quite straightforward and was accomplished by placing my one pair in a 115 litre aquarium furnished with a fine gravel substratum and a multitude of small caves formed in the rock work to provide both a refuge and a spawning site. Within the community tank the male was extremely territorial, defending his chosen rocks and caves with the utmost vigour, being especially aggressive toward any conspecifics, hence the advice to provide a spawning tank as opposed to trying to breed the N. sp. 'Cygnus' within a community

Conditioning consisted of feeding the pair on a high quality flake food in addition to several feedings as regularly as practical of such small live foods as adult Brine shrimp, Dophnia and Cyclops. In the wild the food of N. sp. 'Cygnus' consists mainly of small invertebrates picked from the rocks and algal growths in the lake. Adequate feeding appeared to be critical prior to the pair spawning since, once the eggs were laid and fortilised, the female was retired to the spawning cave as the male steadfastly refused to let the female do anything but tend to the spawn.

Spawning took place in a small cave that had been previously cleaned to the satisfaction of both male and female. The oval eggs were off-white and about 1.5mm along their largest axis. Hatching occurred after 48 hours at 26.5°C and the fry were free swimming some three days later. A typical batch of fry from this relatively young pair always appeared to be rather small, often no more than 15-20 young. At the free swimming stage the fry were approximately 5mm long. As their first food they were able to take newly-hatched Brine Shrimp and filtered Daphnia supplemented with powdered fry food or crushed, freeze dried Krill.

Gradually the young became both bolder and larger and ventured further from their parent's protection until they eventually tried to establish their own territory. The full colours of the young do not become readily apparent until they approximately one month after they have become free-swimming. Since the breeding tank was not large enough to allow several territories to be established the young were removed after about three months to a 250 litre tank, filled with rocks from floor to the water line, to prevent family squabbles that may have resulted in death of the weaker fish. Sexual maturity takes 12 to 18 months to achieve and the young

begin to lose their juvenile colours tion between the age of eight to 10 months.

KEY TO SUCCESSFUL SPAWNING

N. sp. 'Cygnus' appears to be a monogamous cichlid, characterised by a weak pair bond that forms between the male and female. Water condition is not critical but filtration should be more than adequate to service the chosen spawning tank. Spawning can often be initiated by a water change coupled with an increase in temperature by two or three degrees above the aquarium norm. The hobbyist keeping N. sp. 'Cygnus' can easily keep the fish in optimum condition by carefully planning the variety of foods to be fed and supplementing their diet with live food such as Brine Shrimp, Dobhnia and Cyclobs. Excessively fatty food such as Whiteworm should be

I have not yet had enough experience with N. sp. 'Cygnus' to decide whether they fall into the class described as 'pulse spawners', such as N. hueschen, which will often go through a resting period often as long as a few months prior to commencing breeding again.

Adequate rock work littered with suitable caves is vital to a successful relationship between a pair placed together to spawn. The original pair will become intolerant of their offspring should they be left in the tank so long that they begin to establish their own territories in opposition to their parents.

REFERENCES

Dieckhoff, H. W. and Konings, A. Tanganyiko Secrets. Cichlid Press, p. 145.

Smith, M. Aquanum Frontiers, Fall 1995, pps. 4-19

PRECISION SCALES (Accurate to 0.1 gram)



 Swiss Made ● 200g Capacity ● Compact and Lightweight 3 Year Guarantee

These ultra accurate scales are ideal for weighing out exact amounts of medicine or pond additives.

£69.99 inc. P&P

Trade Enquiries Welcome.

Available by mail order only by: WARDWORTH LTD., 67 HIGHER SHADY LANE, BROMLEY CROSS, BOLTON, BL7 9AQ. TEL/FAX: 01204-598408

Some readers may be aware of the Adoption Scheme run by the Zoological Society of London in which individuals or organisations are invited to 'adopt' an animal (or part of, in the case of large, expensive ones). H. & D.A.S. members re not only aware of the Scheme but have, in fact, done something about it. They have, quite appropriately, adopted the Siamese Fighting Fish at the Zoo's Aquarium. sponsoring its upkeep and thus helping the Zoological Society meet its ever-increasing maintenance bill. To the best of our knowledge, H. & D.A.S. are the only Society in the UK involved in the Scheme and bring notice of this in the hope that others may follow suit.

H. & D.A.S., founded in 1950, has its aims in furthering and promoting interest in the keeping, breeding and showing of tropical and coldwater fish, and of furthering the knowledge in all other aspects of the hobby.

Meetings are held every other Wednesday at St Stephens Church Hall,

Meet the Societies



HOUNSLOW AND DISTRICT AQUARISTS SOCIETY

Parleide Road, Hounslow, starting at 8.00pm (meetings for January are the 7th and the 21st). The Hall itself seems ideally suited to the Hounslow style of meeting in that it has a large main Hall which can be easily divided to allow Table Shows and Lectures to be held simultaneously, and for refreshments to be made available. All are welcome.

Meeting activities include Lectures by visiting Speakers, Table Shows (judged to FBAS) Rules by a qualified Judge), Inter-Club Table Shows and Quizzes, Bring 'n Buy evenings, outings to places of interest. other Societies' meetings and displays mounted at local Garden Shows and Kot Shows. Two popular events are the annual Pond and Sea Hunts, with the highlight of the year being the Society's Annual Open Show which this year is to be held on September 12.

Trophies won by members include the 'Breeder of the Year Trophy', and are presented at the Annual Christmas Party

For further details of the Society and its activities please contact Mr Bob Nelhams, 35 Exelorde Avenue, Ashford, Middlesex. (Tel: 017842 59880).

By DEREK LAMBERT

In this column, over the coming months, I shall be highlighting the work of Specialist Societies throughout the UK. Some of these organisations will only have a membership limited to a small geographic area whilst others will have an international membership including ichthyologists and biologists throughout the world. What all of these organisations have in common is that they are solely dedicated to a group (or even as single species) of fish and cater to the needs of aquarists interested in that area of the hobby. This month I am focussing on the British Killifish Association.

This organisation is one of the older specialist clubs in the UK and is 'dedicated to the study of, propagation of and publication of knowledge pertaining to Killifish'. The B.K.A. offers the following services to its members

1. A very high quality those fish they monthly magazine are looking for. usually with some 3. A weekend International colour photographs 2. An egg and fish list Convention and Show, Oversess where members advertise spare speakers are stock for sale usually in the and/or a line up and list of

Editor's Note: Societies are invited to send in 'pen portraits' about themselves (please include a picture of your Society's Badge) and their activities. The format can be formal or lighthearted. All we want to do is get your message across.

convention, held in October. was no exception with Rund Wildekamp topping the bill.

- 4. Area Groups around the country which hold Auctions and regular meetings.
- 5. A Services Secretary operates a discount book service and there are Tape/Slide shows available as well.

Having been a member off and on over the years I can thoroughly recommend this organisation to anyone interested in Egglaying Toothcarps. Membership costs £15 Inland. £18 for other European countries and £28 for Overseas. This runs for a year from the time you join.

To join, send a cheque or PO (made payable to the British Killifish Association") to the B.K.A. Registrar, 8 Cropthome Close, Woodrow North, Redditch, Worcestershire B98 7SJ



In 1990 the tanker Rosebay was in collision with a trawler off the south coast of Devon spilling 110 tonnes of crude all despoiling one of the richest coasts for marine fauna in Britain. The scientists wanted to go down and assess the damage caused when the oil washed up and coated the rocks and seaweeds and smothered the other rock pool animals. Unfortunately, a proper scientific assessment could not be done because there were no written down records of what lived on the shore before the oil spill.

In response to this shortfall of information the Devon Wildlife Trust prepared surveys of this particularly interesting coastline around Start Point and the Salcombe estuary. However, it still remains true that for most of the length of the British coastline the flora and fauna between the tides is still under-recorded. The local crabbers might know all the good spots but this information is not filed away in the national biological records

SHOREWATCH BIOLOGICAL RECORDING

My own fascination about the shores around Britain, shared by the other members of the British Marine Life Study Society (BMLSS) and lots of other enthusiasts as well, is because we find the life that lives between the tides interesting and varied.

The Shorewatch Project, started under this title on





BY ANDY **HORTON**

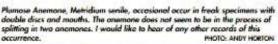
fish and marine nverteb that are both nteresting and oquerists.

January 1 1995, was formed to share information with other rockpoolers interested in going down to the shore and finding out what lives under the rocks. In the pools and amongst the seaweeds. The information is published in the verious publications of the BMLSS including the journal Glaucus and the Shorewatch Newsletter, on the BMLSS Web Site and other electronic publications like

the Torpedo Electronic Monthly News Bulletin. As regular readers of this column will know the most interesting discoveries will be included for the benefit of A&P readers and this will often be the first time that the finds will appear in

All records are on the computer files and it is now possible that these will be

collated into a useful format so





that anybody interested can find out more about the creatures that live between the tides. This is a long term plan and fits in with initiatives undertaken by English Nature and the Marine Biological Association of the UK at Plumouth as well as other groups in Scotland and Wales. The Shorewatch Project will be a separate database that will be placed on the Internet World Wide Web for the next Millermium.

UK MARINE BIOLOGY

The title for the new initiative in biological recording is called UK Marine Biology. The information to be recorded is the description of habitats and communities of marine life and the species that occur, where and when.

At this stage for readers wanting to find out more information it will be best to contact the British Marine Life Study Society at the address at the foot of this article with as many details of your interests as possible. The life on the shore is so varied that it will be impossible for the biological recording to be done entirely by trained professionals. This means that the knowledgeable and enthusiastic amateur can have a valuable part to play, and further his hobby at the same time. This presents various problems like the correct identification of the species, which even for experienced

rockpoolers can present difficulties. It was to solve these problems that the BMLSS was started in the first place as well as to share information.

AQUARIUM STUDY (WET THUMB)

Most people keep aquaria as a moving picture of wildlife, However, a properly established tank can be an invaluable aid to identifying the small fish. crabs and other life that lives between the tides. I find it to be much more destrable and efficient and ever more accurate than the detailed examination of picked specimens. It is important that full records of where and when various creatures were found Report Cards are available with details of the information required.

PHOTOGRAPHY

If a detail needs to be examined a photograph can be taken. If necessary the picture can be enlarged. Hints on taking photographs using the SLR camera were featured in the November 1997 Shore Watch column. This article can be found on the BMLSS Web Site The URL is at the foot of this page).

In the article I explained that the new still digital comeros were unsultable for this type of photography. Mark Burningham quickly EMailed me some fine photographs taken with his digital camera in his tropical tank. They were nearly good enough for reproduction. This set my mind thinking and I concluded that these cameras could be a useful tool for identifying species. The cameras are compact enough to form an expensive addition in the rockpooler's kit for taking pictures on the difficult



iduinny Wrasse, Ctenolobrus rupestris, are seen commonly by divers but we we no BMLSS recards of this fish being caught in pools on the shore. PHOTO: ANDY HORTON

conditions on the shore, and with adequate lighting would prove useful for aquarium shots as well. I would be pleased to try and identify British marine animals and seaweeds from clear images sent to me.

GATEWAY TO FURTHER INFORMATION

By clicking on to the BMLSS Web Site you should be able to find links to the best sites for

further information about marine life around the world. The site is really only designed for British marine wildlife information and

The National Committee of the UK Biology have held workshops to discuss how the biological information will be recorded and he made available to the public. The Internet plays a key role. The web site to try is part of the Species 2000 initiative and all readers of this column (not only British marine) life enthusiasts) should visit their local Cyber Cafe and log on to:

The Cushian Star, Asterina gibbosa, is an inhabitant of the seas and shore only in the south and the west of the British Isles. HOTO: AND HO



http://ibs.uel.ac.uk/ lbs/sp2000/flshbase/ fishgen.htm which is the URL for FishBase WWW: Fish Finder and find out information about their favourite aquarium fish. You do not even have to know the proper scientific name as over 50,000 common names are included on the database. References are given to obtain further information This is the best reason I know for getting connected to the 'Information Superhighway'.

COLOUR OF THE SEA

If you have wondered why the journal of the BMLSS is named after the Greek mythological character Glaucus the answer he in its Latinised version of the Greek Glaukos which refers to gleaming bluish-green colour of the oceans, at least, as seen from outer space or on a sunny, summer's day. If you can brave the cold January weather and fancy cooling off the Christmas spirit with the bracing winds, the colour of the sea will more likely to match the grey of the overcast

Life on the shore is likely to be sparse for most of Britain Comish shores are worth visiting during the first month of the year. If you are on the southern

coast of our southernmost county and discover a Common Dolphin. Delphinus delphius. which are sometimes washed up dead during the early part of the year, the number to ring for the Strandings Report of dead sea mammals and turtles for Cornwall is Tel: 01872 273939. Telephone numbers for the rest of the British Isles are on the BMLSS Web Site.

ALL THE BEST FOR THE NEW YEAR!

References are available for the information in all Shore Watch columns

Andy Harton, on behalf of the British Marine Life Study Society, will help readers who have any difficulties to pursue their interest in the marine life around the British Isles. The first enquiry will be answered free of charge but please enclose a return stamp and do not forget to include your address, Telephane calls should be made during office hours. For more information please write to: Andy Harton, Shore Watch, British Marine Life Study Society, Glaucus House, 14 Corbyn Crescent, Shoreham-by-Sea, Sussex, BN43 6PQ, EMail: bmlss@compuserve.com Web Site: BMLSS (England) URL= http://ourworld.compuserve.com/hamapagas/BMLSS/BMLSS (Scotland) URL= http://www.ed.ac.uk/~evah01/bmlss.htm The Webmaster for the Scottish site is Alan Pemberton.

Hints on Catching Fish

H. STEVENS comes up with a laboursaving, fish-catching device

This is not an article on angling, that is to say, river or sea angling, but aquarium angling.

How many times have we needed to catch one special fish from a nicelyplanted aquarium and how many times have we viewed with disgust the disorder and general destruction after chasing a lively Rosy Barb, or similar fish, around the aquarium, sometimes unsuccessfully? All too often for me, at least.

Many times I have prayed for an easy method of removing fish without upsetting the aquarium and its contents, and at last I have discovered something which should prove a boon to all aquarists, in fact I am practically certain that aquarists will erect a statue or something in my honour.

The method is cheap, and can be made by any aquarist, Firstly. purchase a square of celluloid 15x15in

at your local motorcycle shop: It's the stuff they use for windscreens. Cut off two corners at about 11/2in, then roll into a tube, with rubber bands placed around the top or. better still, use a celluloid cement along the seam. The cut corners then form an arch at the base of the tube.

In using the catcher, place the tube in the water with the rounded corners downward; it is invisible to the fish and they will swim under it quietly and unsuspectingly. When the desired fish is underneath push the tube down and your fish is trapped. Place your net under the tube and withdraw both together.

With this method I find it possible to catch any desired fish in less than 30 seconds without any trouble, commotion or need to replant the aquarium.

First printed in the Aquarist & Pondkeeper, January 1948

Tetra COMPETITION

Celebrating Tetrafin's 40 Years with 40p OFF!



Tetra continues the 40th Anniversary celebrations for its premium coldwater fish food, TetraFin, with 40p off! For 40 years millions of fishkeepers all over the world have used TetraFin because it provides their fish with a complete and perfectly-balanced diet. Goldfish are Britain's most poplar pet and, as omnivorous feeders, they require a diet containing both plant and animal matter. TetroFin's new recipe — a careful blend of natural ingredients — will be a best-seller, too, providing all the vitamins, protein and trace elements vital for active, healthy and brightly-coloured fish!

To mark the occasion TetraFin has new packaging as well as a new recipe.

To win one of 24 20g Tubs of TetroFin, perfect for Goldfish, send your answer to the question below on a postcard or sealed envelope to: Dept TetraFin, TetraFin Competition, PO Box 2162, Bournemouth BH2 5ZA, to arrive no later than February 10 1998.

QUESTION: What two types of food found in TetraFin will give Goldfish a balanced diet?

About

A&P visits the Supreme Festival of Fishkeeping '97



Fancy Dress



second place in the Society Furnished Aguarium



Peter Anderson (left) and Peter Caira (right) with the Society's Furnished Aquarium.

ne of the brighter things in the otherwise dark and dreary November days is the Supreme Festival Fishkeeping which rolls into Pontins' Sand Bay Holiday Chalet Centre every year. Organised by the Federation of British Aquatic Societies, and supported by Rolf C. Hagen, this 'end of the year' aquatic happening has swiftly become the event to be at, regardless of individual or group aquatic-affiliations (the pun is intended) as aquarists from all parts of the UK converge for a weekend of fun, friendship and almost, as a last resort it seems at times, some serious fishkeeping.

Of course, the Friday evening always looks as though the Show will never be ready in time with feverish and increasingly over-tired activities trying to compete with the alsoincreasing social atmosphere you imagine trying to set up a display or furnished aquarium when every few minutes someone wants to greet you with a hearty handshake saying 'Nice to see you here again'! But that's exactly what the weekend's all about.

This year the Juniors again set the pace with their own Open Show on Saturday with other activities especially arranged for them to follow. The Junior Furnished Aquarium race was just a part of it; Peter Anderson and Brian Walsh both put on lectures for the youngsters whilst others were colouring away at their own Painting Competition. The Junior Show was excellently supported with entries (both fish and exhibitors) well up on last year.

Under a generous scheme supported by Aqua Aquarium, resident Juniors who hadn't fish to enter of their own were able to 'adopt a fish' for the day and so enter the Show along with the rest. Another popular event was the Junior Aqua Quiz, sponsored by Tetra, in which a fair number of young fishkeepers pitted their mental wits against each other: The ensuing Quiz Champion was Matthew Fiddes, an independent young fishkeeper of many years standing, as a regular Weston 'resi-

dent.' Next year will be different for him, as this year was his last within the official age group for Junior membership. The Sunday afternoon's relative quietness was well and truly shattered by the vocal encouragement by participants and onlookers alike as the youngsters battled through the various heats of Geoff Cape's traditional Tug o' War. During the Saturday evening entertainment the Junior fancy dress brought out the very best in designs (what? No Teletubbies?) with the very young team from Bracknell A.S. portraying "The Flintstones' sweeping the awards.

Back in the peaceful surroundings of the Show Hall the excitement of the Hagen Master's Open Show and FBAS Supreme Championship was building up nicely. With no less than 68 entries in the Supreme the Judge, Chris Cheswright, was in for a busy time although the 500 plus entries in the Open Show also kept the other judges equally occupied.

A new feature for this year was the Society Furnished Aquarium Competition which produced some excellent entries, with honours equally shared between tropical and coldwater interests. The overall winner was a tropical set-up but the runner-up was a coldwater display which was equally impressive. A talking point was the tank containing some very colourful North American native fishes which kept up their brilliant display all the weekend. Anyone thinking about taking up fishkeeping for the very first time would have had a hard choice to make between the rivalling attrac-

tiveness of the two systems. If there's one thing you can guarantee about the Sunday afternoon's activities it's that someone's going to get wet! As so it proved in the manic Final of the Trade Furnished Aquarium Race: Despite the efforts of everyone to sabotage everyone else's efforts (including an initially dreadful 'handicap' of a 6x4x4in tank provided for the Hagen Team) the emergent victors (from bubble baths, spilt water and soaked 'T shirts) were Bullseye Trophy Centres with 'one they had made earlier' in true Blue Peter style.

So much for the fun. On the fishkeeping front, in addition to the slightly tenuous activities already outlined, there was ample opportunity for the visitors to catch up with all the latest equipment, purchase fish, plants and books, attend lectures, handle animals (courtesy of Bristol Zoo), meet Specialist Societies or see some excellent fish on display in the Shows. The weekend built to its traditional climax as the

announcement of the 1997 FBAS Supreme Champion was announced - this time in plenty of time for the rest of the 'weekenders' to view it before de-benching occurred.

National Junior Fullkeapers Association Open Show, Beet in Show, Angels Cank, Halton A.S.; Highest Pointed Junior, Robert O'Grady, Swanses A.S.; National Junior Fishkeepers Association Quiz (sponsored by Tetra) Champion, Matthew Fiddes; Junior Furnished Aquarium Race, The Glow-worms, Seascale JFS; Junior Painting Competition (sponsored by Aquartan), 1st Chris Jones (aged 6) Yartoo, Bristoi, 2nd Louise Pannell (aged 9) Hastings, 3rd Yvonne Garbutt (xged 13) Leeds: Junior Fancy Dress, 1st 'Flintstones', Bracknell A.S., 2nd 'Little Bo Peep', Samantha, Seascele A.S., 3rd 'Count Dracula and Bat', Tom and Ben: Adult Furnished Aquarium Race, 1st The Brummies, 2nd Bracknell A.S. 3rd Grimshy & Cleethorpes A.S., 4th Glow-worms, Seascale J.F.S., 5th - Seascale A.S., Trade Furnished Aquarium Race Bultweye

Trophy Centre Group
Handly any other entry — or entrent —
appeared to be left recognisable, standing
or dry. There is no truth in the rumour that next year's event is to be renamed World War 3!

Society Furnished Aquarium Competition (apomorad by BTC squariums supplied by Raif C. Hagen), 1st Hounslow A.S. (Tropical): 2nd Portsmouth A.S. (Coldwater): 3nd Rudhill & Reigne A.S. (Tropical): 4th fele of Wight A.S. (Coldwater): 5th Bracknell A.S. (Coldwater): 6th Erith A.S. (Coldwater)

Hagen Masters Open Show, Best in Show Titopio detalkoferi, 84 pointa, owned by Eddle Mabey, St. Austell, A.S.; FBAS Trophy Class O (Male Gupples) 84 points David Latto, Solway A.S.: FBAS Trophy Class U (Single-tailed Goldfish) Common Goldfish, 77 points, D.Clark, Cosby, Leics

1997 FRAS SUPREME CHAMPIONSHIP sponsored by INTERPET

This year's Final Round at the Supreme Festival Fishkeeping saw the number of entries grow with no less than 84 pre-qualifier although only 68 ("Only 68!" said the appointed judge, Chris Cheswright) actually got to the Show bench. One of the problems with a competition such as the Supreme' there are (by definition of qualification winning FBAS Championship Class Trophies throughout the previous year) bound to be excellent quality fishes

competing for the awards. This was reflected in the policings, which showed that a large proportion of ercries gained 80 points or above. The Top six in this year's points or above. The Top six in this ye final work. FBAS SUPREME CHAMPION (1997 Labor

inectus (92 points) owned by Faul Whitdett, Mid-Sussex A.S.; Runner-up Herkhthys pourse (91) owned by Gary Threates, Linth & D.A.S. 3rd Spoodurals ongolicus (90) owned by Haydin O'Grady. Swansez A.S., 4th Dominton entitions (89) owned by Keith Sollitt, Brackwall A.S., Sdr. Phalkchthys creates pittien (88) owned by Tom Mayle, 6th Leporello vittato (87) owned by Gary Thwaites, Erith & D.A.S.

BELOW Eddie Mabey, St. Austel A.S., collects his Best in Show Award from FBAS President Jack Stilwell.

BOTTOM OF PAGE FBAS 1997 Supreme Championship winner Paul Whiddett, Mid-Sussex A.S., with Jack Stilwell and Interpet's Richard Burton.





Special Offers and **Events for FBAS Diamond Jubilee Year**

To celebrate the 60th Anniversary of the founding of the Federation of British Aquatic Societies, a number of benefits for Societies has been announced.

Societies affiliating to the FBAS in 1998 will obtain a DOUBLE-YEAR MEMBERSHIP with nothing more to pay until the year 2000.

Societies holding FBAS supported Open Shows will be allowed TWO CHAMPIONSHIP TROPHIES for single-fish

FREE HIRE CHARGE of the Federation's Tape/Slide and Video programmes during 1998 all that hiring Societies have to pay is the return postage.

An early highlight of the year will be the FBAS DIAMOND JUBILEE DINNER which will be held at the Queensway Hall, Dunstable, on Saturday May 2.

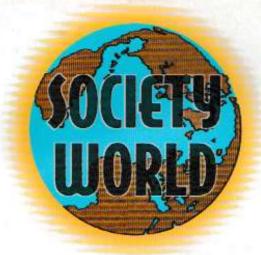
A second major event to be held in the same month will be FISHWORLD '98, again at the Queensway Hall in Dunstable over the weekend of May 30-31. As in 1997 this event will comprise Junior and Adult Open Shows together with Koi Shows and other attractions

Ticket prices and details of overnight accommodation rates for the Diamond Dinner, plus details of Fishworld '98 are available from: J. Nethersell, 8 Acacia Avenue, Brentford, Middlesex TW8 8NR

Yorkshire Attractions

The Yorkshire Aquarists Festival this year (March 21/22) will feature a number of changes. Organiser Marie Harrop reports that visitors to this year's event will certainly notice a difference.

The major change (which may take a season or two to take effect) is that the Tableau Competition is being phased out. Societies who may already have built their '98 model will-still for welcome to display it but there will be no prize money for this Competition apart from a generous £40 participation allowance. Instead, look out for the DISS! No, not the Government body but Display



Information Stands by Societies, It is these areas where fish will be benched rather than as in previous years on the Tableaux

The provision of information is also behind another innovation the 'Fishkeeping Concertina. Just as the musical instrument can be expanded, or opened out, so too can this display section depending on its needs. For this year it will comprise four sections — Beginners' Basics, Breeding, Fish Nutrition and Showing, each section will be staffed by qualified experts in the particular field...

On the competitive front, two new contests will be introduced - the Furnished Aquantum Competition and the Water Garden/Pond Competition, The Furnished Aquartum minimum size is 2ft and entries will be staged around Doncaster Racecourse's concourse or on Society Stands. Water Garden/Pond entries can be any size and there is a £30 participation allowance per entry in these Competitions, too.

Visitors will also have other attractions to admire — the Pet. Section will include the 'Artis Pet Sanctuary' presented by Gerald and Vicky Coley and the British Houserabbit Association will be making its furry debut at the Fostival.

Full details of YAF can be obtained from Marie Harrop on 01484 666591

Auctions

The following dates have been notified for Societies' Auctions. It is hoped that more detailed

information will be forthcoming in these columns before the actual events occur.

February 1 Sillstown Show Team: February 22 Glenrothes A.S.; March 1 CAST 88; March 15 Merseyside A.S.; March 29 Halifax A.S.; June 28 York A.S.; September 14 Silktown A.S.: November 15 FNAS.

Jersey A.S.

Following the recent Extraordinary General Meeting of the Jersey Aquatic Society. the following Officers have been elected: Chairman, Tony Pame; Secretary, Ms Gail Worm (Tel: 01534 484419); Treasurer, Nigel Dodds; Membership Secretary, Mrs Sue Bichard.

One of the aims of the Society during 1998 is to develop a more active Junior Section and to further this aim posters will issued shortly to Schools and Youth Clubs in the area. The age range for Junior Membership of J.A.S. is 8-16. J.A.S. meetings are held on the first Monday of every month and details of these can be obtained from the Society's Secretary at the contact telephone number shown above

London Aquarium Winners

The winners of the London Aquarium Family Ticket

OPEN SHOWS

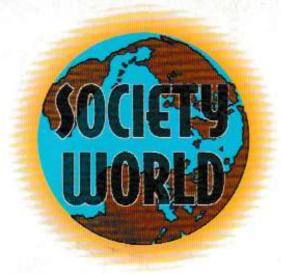
Competition (A&P, October Competition (A&P, 1997) were: D. Barlow. Rothwell, Northants; Lisa Burchall, Warrington, Cheshire; Chris Clifton, Haxey, South Yorks; Mrs B. Coleman, Lowestoft Suffolk R. Middleton. Sturry, Kent.

The winners will be receiving their Family Tickets direct from the London Aquarium in due

Pen Pal Wanted

I would like some fishkeeping pen-pals in other parts of the world and wondered if through A&P I could find some likeminded friends.

Fm: Caryl Simpson (38, married with two teenagers) and keep tropicals, cold and local cold marines (plus Budgles, Guinea-pig and cat). I am:



Secretary of my local fish club (my husband is President) and I am also the editor of the FNZS Aquarium World magazine.

Anyone wanting a pen-pal can write to me at 8a Faulkland Drive, Witherlea, Blenhelm, New Zealand or email me at simtron@xtra.co.nz

Make a Date with a Dumpling

Meetings of Thorpe & District A.S. are held on the third Monday of every month at The Norfolk Dumpling, Livestock Market, Hall Road, Norwich, at 7.45pm. Meetings usually comprise an Auction plus a talk by a visiting speaker. All are welcome. The next meeting will be on January 19.

Full details of the Society and its activities from J. Bedingfield, 8 Hubbard Close, Wymondham, Norfolk NR18 0DU, Tel. 01953 605394.

SOCIETY MEMBERS — Get A&P each month and save money in the process. Take advantage of the Special Offer made by MJ Publications Ltd., publishers of A&P. Your Society can order A&P in bulk (12 copies or more) for their members at a Privilege Price of £1.50 per copy plus £4 postage. There are no conditions to observe, you do not have to order for any minimum period of time — and no more journeys to the newsagent; the magazines will arrive promptly each month to a single address for distribution at your next Society's meeting. Simply send in a cheque/PO (payable to MJ Publications Ltd) for the required number of copies plus postage to: A&P Society Copies, MJ Publications Ltd, Caxton House, Wellesley Road, Ashford, Kent TN24 8ET, and we'll do the rest.

A PERFECT COMPANION TO YOUR AQUARIST & PONDKEEPER MAGAZINE EEPER BINDER is now available The quality Easibinder is designed to hold 12 copies of A8P using binding wires. The Eastbinder is manufactured from micron board with the magazine name gold blocked on the spine To obtain your Easibinder just fill in the details below and enclose a cheque/PO for E6 (Inc. p&p). (*Overseas rates on request). Alternatively, use our credit card facility. Only No. of Easibinders CREDIT CARD [] ACCESS [] VISA No. ... Expiry Date Signature p&p* Name:.. Address Post Code Sent-orders to: BINDERS, MJ PUBLICATIONS LTD., CAXTON HOUSE, WELLESLEY ROAD, ASHFORD, KENT IN24 BET