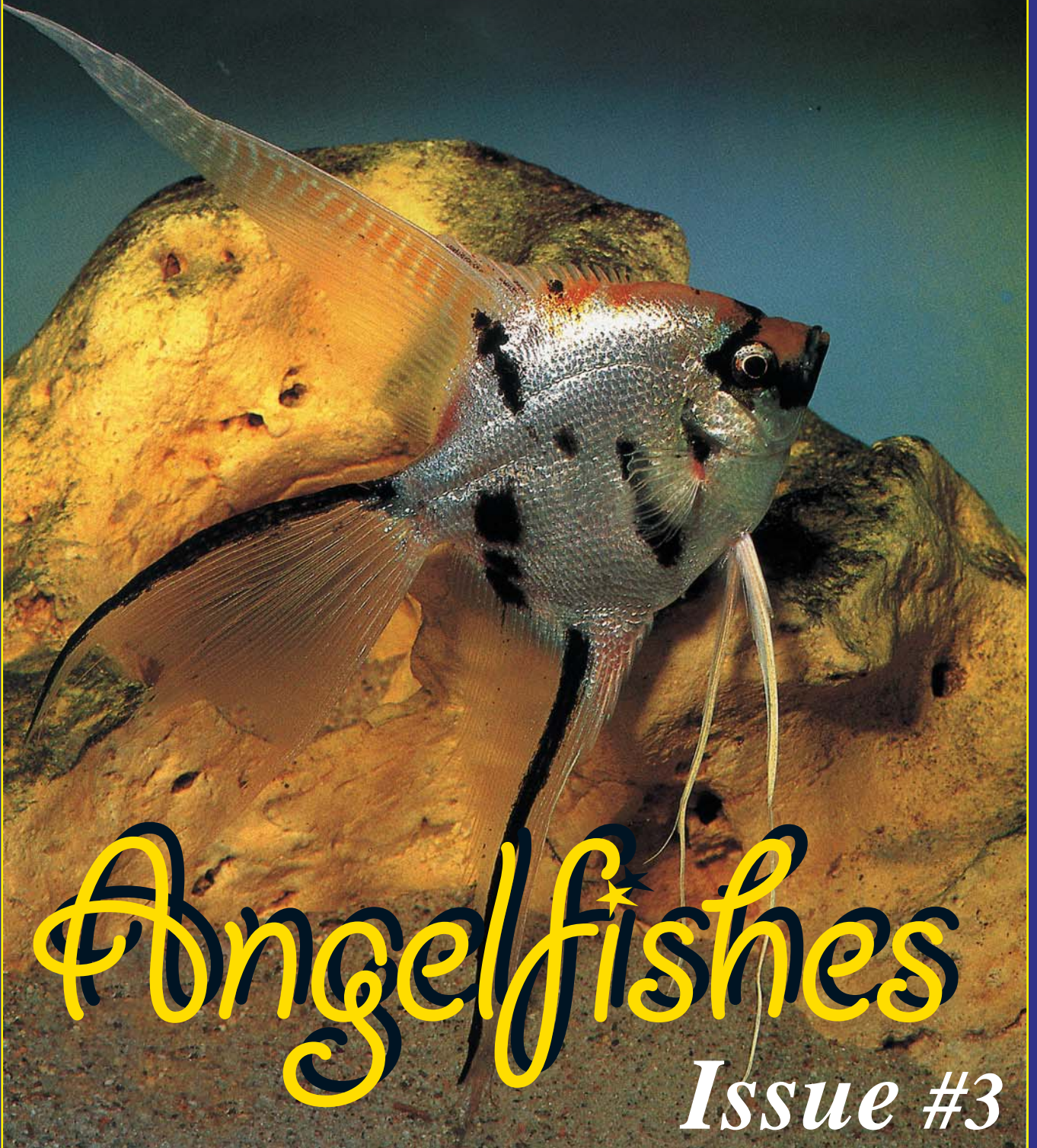


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Aquatic News



Angelfishes

Issue #3

Issue #3 - 2003

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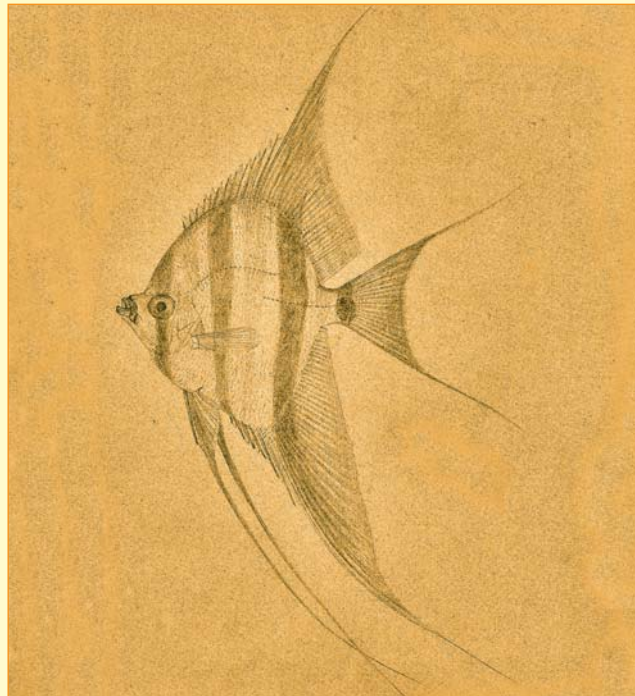
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Editorial

Dear Reader
NUTRAFIN Aquatic News is now well and truly international – published in no less than six different languages. Everyone is talking about it and not just in the world of the aquarium hobby. Our editorial office receives on a daily basis inquiries regarding biotope aquaria. People who have previously had no involvement with the best of hobbies want to get started and do it right: true to nature or biotope. Although such aquaria have been discussed for decades, they have only now, thanks to NAN, gained a firm foothold. You find the concept wherever you look, at conferences and exhibitions (page 14), in magazines and books, and on the Internet, not to mention discussions at fish auctions, in aquarium clubs, and at lectures. Even the trade has got wind of it: suddenly biotope and natural aquaria are being promoted in brochures, in leaflets, and in magazine adverts. Biotopes and nature have become the guiding light for many people, and this can have only a positive effect. Fishes (and plants) should as far as possible be kept as Nature intended (100% authenticity is virtually impossible), and then we will have an environment that provides a fascinating glimpse of life above and below water. And not just that: we can enjoy something and simultaneously learn from it (practically all of our knowledge is derived from Nature). In addition, there is the relaxing effect (the presence of an aquarium has now been found to ameliorate the incurable Alzheimer's disease). A biotope aquarium makes the best of hobbies even better – in every respect. And in the 21st century the general view that an aquarium is a lot of work

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Pterophyllum scalare – the Angelfish – the first drawing, made by the well-known naturalist Alfred Russel Wallace (1823-1913), who collected the fish during his trip to the Rio Negro and Uaupés (1848-1852).

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Editorial

has long ceased to be the case. **NUTRAFIN Aquatic News** believes in sticking to a successful formula. In this issue you will again find the red thread leading through the pages – this time referring to the angelfish, the former king of aquarium fishes (former only because the discus has pushed it into second place). After the neon and cardinals (NAN #1) and the guppies (NAN #2) we now come to this group that has likewise won the hearts of animal and aquarium-lovers worldwide. Angels, like the community fishes covered in the two previous issues of NAN, are an ornament to (almost) every aquarium. They come from the Amazon and its basin and survive only in the rain forest (or in the aquarium).

Which reminds me of a splendid quotation from the meeting of the indigenous peoples of South America and forest-dependent peoples (and does this not apply to us all?) in Leticia, Colombia, on 9th November 1996: "All peoples are descendants of the forest. When the forest dies we die. We are given responsibility to maintain balance within the natural world. When any part is destroyed, all balance is cast into chaos. When the last tree is gone, and the last river is dead, then people will learn that we cannot eat gold and silver. To nurture the land is our obligation to our ancestors, who passed this to us of future generations..."

If we follow this precept then our children and our children's children will have a future. The same applies to the best of hobbies: with biotope- and species-correct maintenance our hobby has a future and we can enjoy it at its best.

Yours,
Heiko Bleher

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Fishes in nature and in the aquarium

“The Indio tirelessly dipped his round remo (paddle) deep in the waters of the tea-coloured Rio Negro and thrust backwards powerfully so that our unsteady dug-out moved a little further upstream. The sun burnt down on us mercilessly. The thermometer showed 40 degrees in the shade. A freshwater dolphin surfaced close to the boat, shooting a fountain of water into the air, about 30 blue-yellow aras flew away squawking above us, and woolley monkeys leapt shrieking from branch to branch in the canopy of the impenetrable jungle. We had been six hours en route to the place where there were supposed to be acara bandeiras. I didn’t know what these were, but perhaps the legendary angelfish which I had been hunting everywhere for years...?”

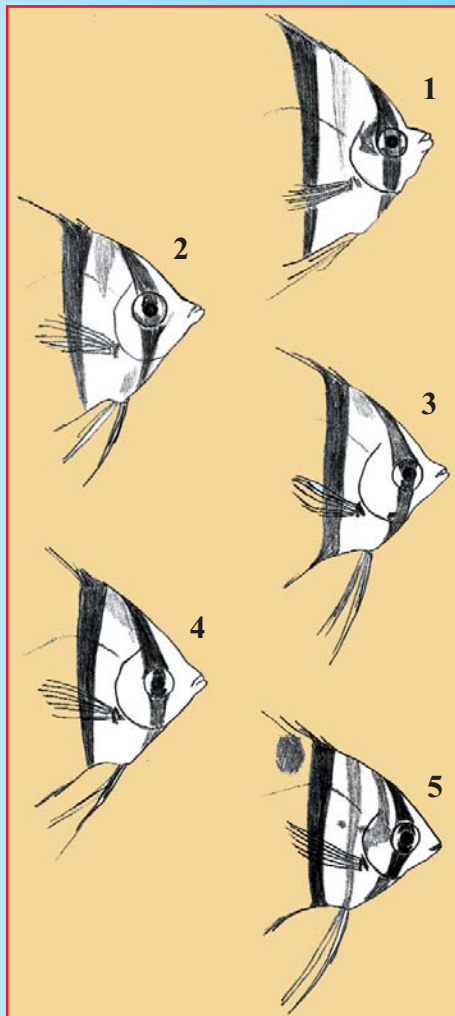
Angelfishes and their history

by Heiko Bleher

...and the storyteller, the German Bruno Sagratzki, did in fact manage to collect the very first the live angelfishes, in 1909. He could hardly believe his eyes when, after several exciting collecting trips in the Amazon region, he finally held this fish, known locally as *acara bandeira* (which translates as flag cichlid) in his hands. Even though after the six-hour canoe journey he captured only a single specimen. Luckily for us, however, he later caught 50 juveniles with a dip-net in a bay in the vicinity of Manaus (= Manaus). He found them in deeper water near a steep bank characterised by overhanging marginal vegetation. During the months-long voyage back he acclimatised his angelfishes to a water temperature of 77°F – from a starting point of 89.6°F.

In English-speaking countries they are known almost exclusively as angelfishes or angels, because their finnage resembles an angel’s wings. But Sagratzki called them *Blattfische* (leaf-fishes), and at the time of the first importation to Germany they were known only by this name (and the scientific one), cf *Brehms Tierleben; Fische*, published in 1910. Round about 1914 the French christened the angel *le roi de l’aquarium tropicale* (the king of the tropical aquarium), and a pair of Their Majesties purportedly spawned on the leaf of an aquatic plant in the aquarium of one Parisian enthusiast. But it was J. Cvancar of Hamburg who, just before the outbreak of World War I, first demonstrably bred these aquarium fishes, by now crowned “King of the Amazon”. And shortly thereafter somebody came up with the name *Segelflosser* (sail-fin), which remains the usual German common name to the present day (except for some call it *Skalare*).

Unfortunately many popular scientific publications contain a rather confused jumble of views on what constitutes the currently valid taxonomy of the genus *Pterophyllum* – that of the angelfishes. I will endeavour to provide an overview here. First of all, below there are drawings of the head region made by Natasha Khardina. The detail drawings of the 3 scientifically recognised species were prepared from the type material (without scales), and those of the local variants from



specimens from the locality in question: 1. *P. altum*, Atabapo, Venezuela (specimens from type locality right-hand page). 2. *P. scalare* – Rio Negro Altum (likewise right-hand page). 3. *P. scalare* – Peruvian Altum. 4. *P. scalare* from the central and lower Amazon basin (still often labelled as *P. eimekei* = a synonym of *P. scalare*). 5. *P. leopoldi* (see right-hand page).

The species had been scientifically named as long ago as 1823. In Berlin another German, Martin Heinrich Carl Lichtenstein (1780-1857), described the species *scalaris* from the east of Brazil and placed it in the genus *Zeus*, which Linnaeus had erected in 1758. Lichtenstein may have been thinking of a ladder (the Latin adjective *scalaris* = ladder-like), possibly of the markings like the rungs of a ladder or – as Meinken has put it: because of the ladder-like rise of the dorsal and anal fins of the specimen collected by Marcus Elieser Bloch (1723-99). In 1831 the Frenchman Baron Georges Léopold Chrétien Frederic Dagobert Cuvier (1769-1832) apparently described the same specimen after a visit to Berlin by his colleague Valenciennes, but this time as *Platax scalaris*. Now, this was understandable, as the elegant fishes of the genus *Platax*, which Cuvier had erected in 1816 and which today is restricted exclusively to marine species, are also very tall and majestic, and the angelfishes resemble them in some respects.

However, in 1840 the famous zoologist Jakob Heckel gave the angelfish its own genus name: *Pterophyllum* (the Greek words *ptero* = wing, feather (= fin in fish taxonomy) and *phyllon* = leaf), signifying “leaf with fins” – perhaps this is where Brehms got the name *Blattfisch*. But this was not the end of this confusion of names. The scientists now placed it in the *Chromis* family, which were known mainly from the salt lakes and pools of the eastern Sahara and Ashanti Land, but with other species of the family found in the inland waters of tropical Africa, America, and the West Indies (Brehms Tierleben 1896).

Nowadays, of course, the former King of the fishes (now ousted by the discus) is assigned to the cichlid family (Cichlidae).

When, back then, Sagratzki arrived in Germany with his angelfishes everyone was absolutely amazed by their body shape, totally different to the aquarium fishes previously known. For this reason

alone they were immediately sought after avidly. People paid astronomical prices for this “luxury fish”. The less wealthy enthusiasts stood no chance. Even after the First World War breeding was kept secret because of the value of the fishes. Not until round about 1924 did breeding success become greater and these majestic creatures began their triumphal progress into the hearts and aquaria of enthusiasts. And the angelfish has retained its popularity to the present day. Despite the discus and almost innumerable other aquarium fishes, imported and captive-bred, the angelfish remains one of the most commonly kept fishes.

Its presence in practical every general community aquarium is a “must”. The fact that the angel is an attractive fish, suitable for the community, as well as easy to keep and breed, make it a front runner to the present day.

Of course, Man always finds it necessary to “improve” on Nature. Thus since the 1930s we have seen new cultivated forms and the strangest crosses practically every year (sometimes almost monthly). In Germany things remained very conservative (true to nature) for some years, and until shortly after the Second World War only a few colour variants were known. People were satisfied with the “Veil-tail”, the “Black”, and the “Marbled” angel.

But the Americans (and later the Singaporians) quickly began to breed their angelfish in all sorts of colours and numerous forms: “Half-Black”, “Albino” “Smoke”, “Blushing Smoke”, “Blushing”, “Chocolate”, “Ghost”, “Two-Spot Ghost”, “Unspotted Ghost”, “Koi” “Gold”, “White”, “Blue”, “Zebra”, “Zebra Lace”, “Leopard”, “Cobra”, “Blushing Gold Marbled”, “Blushing Half-Black”, “Pearl”, “Pearl-Gold”, “Pearl-Red”, “Marbled-Red Head”, and many more, to name but a few of the cultivated forms. Unfortunately most were produced by inbreeding (not line-breeding, as with almost all other animals) Since the First World War sibling matings have been the norm. This weakens the strain and commonly results in deformity or poor health (the natural immune system is upset and disease-resistance is lost). I have often advised breeders – worldwide – to take note of this and turn to line-breeding.

This reminds me of when, in the



P. scalare – the so-called Rio Negro Altum (centre - see also head on the left-hand page and the Wallace drawing on page 3). The true *P. altum* is left in this picture.



Pterophyllum altum - Altum angelfish from the type locality, an Orinoco tributary at Atabapo, Venezuela. Collector: H. Bleher. Photo: H.-J. Mayland.



Pterophyllum leopoldi - King Leopold III angelfish (often labelled *P. dumerilii*, a synonym of *P. scalare*, in the popular literature). Photo: B. Kahl

1950s, I visited isolated indian tribes with my mother and saw children with six toes and some with six fingers – deformed. And when I asked mother, she explained to me that among this tribe it was the custom for brothers and sisters to marry and that such deformities were the result. Since then at least I have known that it was wrong to do the same with fishes (let alone other creatures). Let us rather stick to the beautiful long finnage that is seen in wild individuals of all three known species everywhere in nature. Natural offspring should undergo a revival and bring us pleasure, just as in the beginning. This is the wish of the editors (and I believe I also speak for the publishers of this excellent magazine, the Hagen family), and hopefully all the fans of His Majesty.

In conclusion, some more on the three known species and wild variants:

1. *P. altum* Pellegrin, 1903: The Altum angelfish, the largest and most majestic of them all, can attain a height (including fins) of up to 20 in. (in nature) and is found only in the tributaries of the upper Orinoco (Venezuela, Colombia) (the type locality, and I have several times caught them there and imported lives ones for the first time at the begin of the 1970s). The true Altum (left) can be distinguished not only by its extremely high body and finnage (seen in no other *Pterophyllum*), but also by its extremely indented snout (see drawings), the often reddish striped markings – but always with a boldly shaded pattern on the body (not seen in the other species), and scales that are appreciably smaller than in the other two species. It is important to realise that the fish often offered as Altum angelfish in the trade and by breeders are, in fact, the so-called “Rio Negro Altum” (a very lovely *P. scalare*, which can also be tall and possess a somewhat indented snout – but is not as tall as the Altum, and doesn’t have such a deeply indented snout) or the “Peruvian Altum” (which is likewise a *scalare* variant, but looks less Altum-like than the Rio Negro form). Other individuals often labelled as Altum are simply normal *scalare* from Guyana, the lower Amazon,



Cobra angelfish



Two-Spot Ghost angelfish



Zebra angelfish



Half-Black angelfish

or Peru (these may include more than one species, but all populations known to date interbreed).

The Altum has been very expensive right from the start. They can be collected only during a single period of some three months each year (just like discus – because of the high water) and are (sometimes) supplied by just a single exporter. The Altum angelfish is in demand worldwide; people have been trying to breed it for at least 50 years – all over the globe – but, without exception, with no success (those who claim to have done it in fact bred the above-mentioned *scalare* forms). And for this reason the price remains very high as in the past (and a few exploit this fact...)

2. *P. leopoldi* (Gosse, 1963), King Leopold III's (of the Belgians) angelfish, is the only one of the three species to have a slightly to strongly down-turned snout, and is found only in the central Amazon basin as well as in the lower Rio Negro. It can also be recognised by its striking large black shoulder spot. The only one of the three with such a marking. This species is, however, rare in the trade, and as far as I know has not been bred.

3. *P. scalare* (Lichtenstein, 1823), the common angelfish, is found in Guyana, Venezuela, Colombia, in the Amazon south to Mato Grosso (Brazil) and in Peru. But a different race (or possibly a distinct subspecies or even species) inhabits every locality, often every river. The form from the lower Rio Negro and the central Amazon basin is that which is today bred worldwide (there are now also some from Peru and Guyana in breeding establishments) and from which the majority of the colour varieties (old and new) mentioned above are “created” – nowadays mainly in Asia.

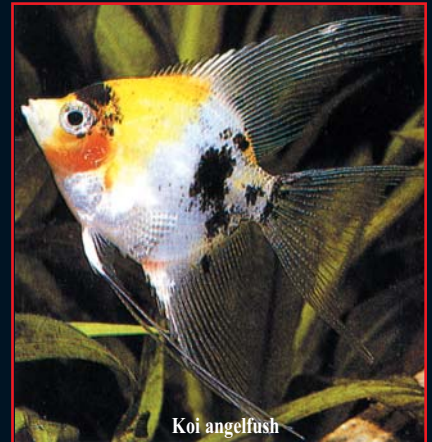
On these pages you can see the three species (with detail drawings showing how to distinguish the so-called Rio Negro and real Altum, and the Peruvian Altum from the real Altum), and a number of cultivated forms. On page 12 how an angelfish biotope aquarium should be decorated and on page 8 additional angelfish information in the internet.



White angelfish



New cultivated angelfish ?



Koi angelfish

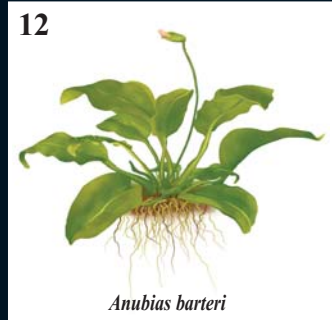


Pearl-Red angelfish



Marbled-Red Head angelfish

Aquatic plants in nature and in the aquarium



This time under the NAN topic *Aquatic plants...* we would like to present a number of species that are easy to grow, do well in a tropical aquarium, and can tolerate a variety of temperature, light, and water conditions. We present these species in association with a new series, starting in this issue (see p. 9: *Basic aquascaping*).

1. *Hydrocotyle leucocephala* or pennywort can be used as a floating plant or rooted, offers shelter for fry, and is fast-growing.

2. *Aponogeton crispus* has a very attractive olive-green coloration; fast-growing. 3. *Hygrophila difformis* or water wisteria is fast-growing, recommended for new aquaria, rapidly takes up micro-nutrients. For this reason the addition of Nutrafin Plant Gro Iron Enriched is strongly recommended.

4. *Aponogeton ulvaceus* is suitable for aquaria of 100 l upwards, and is fast-growing. 5. *Echinodorus bleheri* or Bleher's swordplant is a popular aquarium plant and very attractive. It needs space and regular pruning.

6. *Vallisneria*

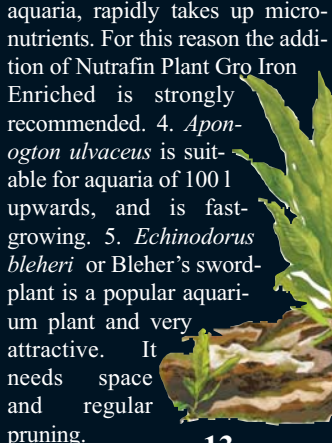
spiralis is recommended as a background plant and a good choice for newly set up aquaria and hard water. 7. *Hygrophila polysperma* or hygro is extremely resilient and likewise recommended for new aquaria.

8. *Ceratophyllum demersum* or hornwort grows very rapidly. It is normally a floating plant, and also well suited to circular aquaria.

9. *Echinodorus osiris* or Osiris swordplant is particularly attractive with its red-coloured leaves; suitable for aquaria of 80 l upwards. 10. *Cryptocoryne walkeri* is suitable for group planting in the foreground, and fast-growing once rooted. 11. *Cryptocoryne wendtii* is also ideal for group planting, but in the centre area; fast-growing, with brownish leaves.

12. *Anubias barteri* (Nana) is recommended for the foreground and for growing on driftwood or lava rock (slow-growing).

13. And *Microsorium pteropus* (Java fern) will also attach to driftwood or stones; thrives under dim or bright light and a variety of pH and KH values (undemanding).



Aquarium Technology: product highlight



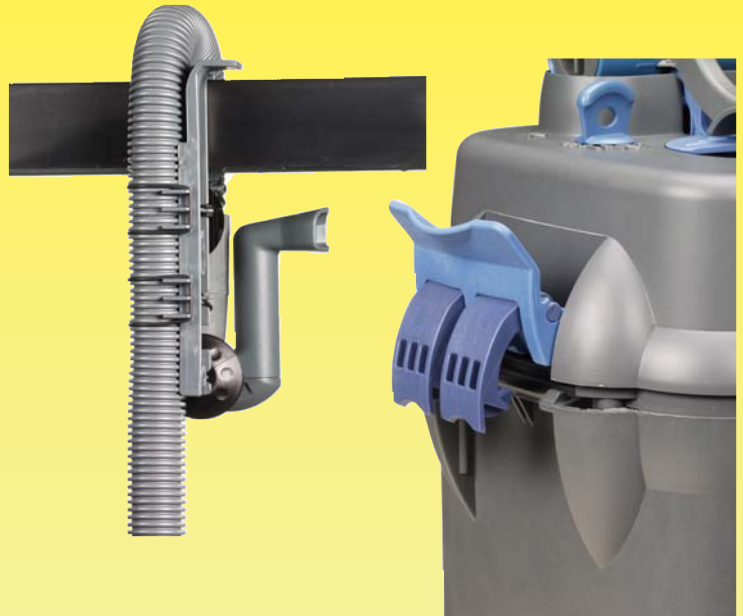
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Fluval MSF external canister filter systems deliver unmatched performance and convenience features. Rigorous testing and product review is a constant process to ensure Fluval filter systems remain one step ahead of the competition.

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Fluval canister filter systems have once again taken a step ahead.



THE AQUARIUM HOBBY ON THE INTERNET

In conjunction with our articles on angelfishes (pp.3-6+12), some internet pages: at www.freshwatertropicalfishkeeping.com/fishes_catalogue/angelfishes.htm there is brief but good information, except that the photo of *P. altum*= *P. scalare*, that of *P. dumerilii* also = *P. scalare*, *P. leopoldi* is correct, and *P. eimekei*= *P. scalare*, as *P. eimekei* is a synonym (see p. 6).

www.e-aquaria.com is another good angelfish site with very nice aquarium plants and beautiful photos of decorated aquaria. The website www.aquatic-gardeners.org/ is the home page of The Aquatic Gardener Association (AGA) and has a lot on plants: ie nicely decorated aquaria under *view Showcase*, and decoration suggestions for all sizes of tanks (*Large, Medium and Small*); an aquascaping contest (4th time), AGA convention information (C. Kasselmann is coming in November 2003); and best of all, *Biotope/Habitat aquaria*.

There are so many entries under angelfishes on the internet – mainly because of the marine angelfishes (family Pomacentri-

dae) which have the same English name – that it is almost unbelievable. But one page the enthusiast should not miss is at: <http://www.finarama.com/tba/chronicles/> the famous *The Angelfish Chronicles*, which is made for the serious aquatic hobbyist online and has everything the heart of an angelfish-lover could desire. The scientifically oriented write-up by W. Burgess is extremely interesting. He proves what is shown in this issue, that the Rio Negro Altum (*P. scalare*) is close to *P. altum*. As a matter of fact he classified (1979) the angelfishes into subspecies (but omitted *P. leopoldi*), but his work was revised by Kullander in 1986. There is a nice text in the chronicles from Wayne S. Leibel, in which he summarises the entire angelfish confusion very well. Also very interesting is a breeding report (from the Australian Rob Raulings) on *P. leopoldi*. However the fish shown seems to be (as he mentions) possibly a tank-raised form, which actually looks different from the natural species. Another report on breeding success is giv-

en for *P. altum*, with text from Sven Fornbäck. A team of Norwegian and Danish aquarists went to the Atabapo (type locality of *P. altum*) – a picture shows Alf Stalsberg with an real *P. altum* in a bag (one can see it perfectly – same species as on p. 5, centre). But all the fishes collected died. Eight months later they received an import with *P. altum* (says the report), which they bred about 16 months later in demineralized water (30 μ S/cm and a pH near to 5) and filtered over peat (the parameters measured in the Atabapo were: pH 4.8; conductivity 15 μ S/cm; total hardness 0°; carbonated hardness 0° KH; nitrite 0 mg/l, and temperature 30-32°C). The fishes were fed mainly on black mosquito larvae and they spawned after a pair of dis-cus showed them how...Unfortunately the spawning angelfishes in the photo are not *P. altum*...they are the fishes shown on page 5, top photo. Last but not least, the identification leaves a lot to be desired, but check out www.aquaworldnet.org/tas another great site: The Angelfish Society.

Do it Yourself: Basic aquascaping

Basic Aquascaping and the Planted Aquarium

With a little planning and creativity, one can build a strikingly beautiful planted aquarium that will highlight any interior environment. The process begins with purchasing the right basic equipment. Here are some helpful tips to help you create a successful and aesthetically-pleasing aquarium.

Equipment and Accessories

In order to facilitate aquascaping, it is advantageous to select an aquarium that is wider than 12 inches (approx. 30 cm.), preferably starting at a minimum of 14 inches (approx. 35 cm.). The additional width will allow a greater choice of plants and accents, such as stones and driftwood, as well as provide superior visual effects thanks to an improved depth perspective. The general rule is to purchase the largest

aquarium that both your budget and floor can support. Water weighs approximately eight pounds per U.S. gallon (3.78 L). For aquariums in excess of 90 U.S. gallons (approx. 342 L) this is an important consideration. Having a large aquarium but not being able to provide adequate illumination and/or filtering can be another problem, so consider the purchase as a whole system. Aquarium kits can provide an easy alternative to obtaining the right basic equipment in one convenient package.

Where you place your aquarium is also an important consideration. In general, position it away from home entertainment devices and natural light and ensure that it is within view of the main seating areas.

Canopies play a major role in aquarium lighting. With recent innovative products such as Light-Glo, which offer dual fluores-

cent lighting, waterproof endcaps and replaceable reflectors, the need for glass lenses is eliminated. Light-Glo provides superior light transmission and reduced maintenance, plus it has an attractive design that allows superior underhood air volume for efficient gas exchange. The dual bulb Light-Glo canopies are recommended for most planted aquariums to support healthy plant growth.

Beautifully planted aquariums require essential support equipment such as test kits, CO₂ systems, and plant nutrient supplements. They should be purchased at the start to maximize the potential of rapidly growing plants, which are the best choice for new plant displays.

Nutrafin Nitrate, Phosphate and Iron test kits are the preferred tools to determine when to re-dose with Nutrafin Plant Gro Iron Enriched and NPK. Different combinations and quantities of plants, along with other factors will result in varying rates of nutrient absorption. Regular testing will reveal when plants really need to be fed. This will not only help plant growth but is also a good preventative strategy against excess nutrients that could contribute to undesirable aquarium conditions.

Plants are composed of 40 to 50% carbon (dry weight). Carbon dioxide (CO₂) provides plants with the best and most easily assimilated source of carbon. This major nutrient is rapidly provided by units such as the Nutrafin CO₂ Natural Plant System. The rate of growth and condition of plants is dramatically enhanced by the use of CO₂. In order to maximize the benefits of CO₂ injection, the following recommendations should be respected:

1. Keep surface water movement to a minimum, just enough to support comfortable fish respiration and behavior.
2. Test pH and KH regularly. Maintain proper KH values to support ideal pH ranges.
3. Test iron levels regularly and supplement with Nutrafin Plant Gro Iron Enriched to maintain values between .25 to .5mg/L. For densely planted aquariums, nitrate and phosphate tests should be performed regularly and supplement with Nutrafin NPK when levels are close to 0.
4. Maintain lighting intensity by keeping fluorescent tubes and glass or acrylic lenses free of any deposits. Normal output fluorescent tubes should be replaced at least annually.

Through the invigorated growth of aquatic plants, the aquarium owner can expect a higher degree of water quality. CO₂ injection can provide a safe and gradual method of reducing pH values, ideal for many plant and fish species.

(To be continued in NAN #4)



Ruby Barb - Biotope aquarium 40 inches long.



Discus - Biotope aquarium 48 inches long.

New practical products

Waterhome

Waterhome Table Top aquariums

Waterhome Table Top aquariums provide an attractive focal point for any desktop or room environment. Aesthetically contoured, the aquarium kits come complete with many very appealing features. A powerful compact fluorescent light unit complete with a 5500K bulb (optional for 2 gallon model) that emits plenty of light,



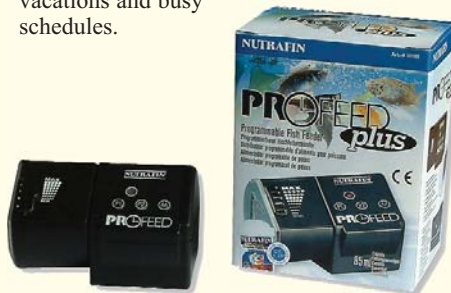
perfect for stimulating plant growth, a significant advantage in supporting water quality for smaller aquariums. The Glo lid is designed to blend harmoniously with the aquarium and base and allows easy access to the tank. To maximize aquarium space for fish and plants as well as to enhance water quality, a hidden dual cartridge top filter is located in the canopy. There are 3 models available: 2, 3, or 5 U.S. gallons (7.5, 11, or 19 L).

Fish Feeder

Nutrafin Profeed Programmable fish feeder

Nutrafin Profeed fish feeder can be programmed to feed up to two times daily. Programming is a quick and simple one-button process. Even the more serious aquarists can benefit from an automatic feeder by using it to provide fry with the extra feeding they need for improved growth.

In order to prevent humidity contamination and maintain fish food quality, the food dispenser opening is oriented away from the water surface. Complete with a manual operation test button, variable quantity control and a convenient transparent dispenser cover, this feature-packed programmable feeder is ideal for vacations and busy schedules.



Master Test Kit

Nutrafin Mini Master Test Kit

No aquarium owner should be without basic test kits. The Nutrafin Mini Master Test Kit is a convenient all-in-one starter kit for testing pH, KH, Nitrite and Ammonia in freshwater aquariums. These interrelated tests are essential when establishing a new aquarium, as pH will directly affect the toxicity of ammonia with nitrite being the next toxic nitrogen compound after NH₃ (toxic form of ammonia) and KH being a critical component of pH stability. Established aquariums also require regular testing to ensure efficient biological filtration is taking place and that KH values are suitable for pH stability as well as for plant health. In cases where fish seem to be dis-

tressed, many aquarium owners forgo proper diagnoses and immediately assume that disease is the reason and medicate, upsetting the biological balance as well as jeopardizing plant and fish health and condition. The proper protocol when evaluating fish stress is to first check temperature and filtration, then test pH, Ammonia, and Nitrite levels. Only after water conditions are verified should investigation of potential disease problems be considered as the sole or additional cause of stress.

The Nutrafin Mini Master Test Kit, is an essential tool for water quality analysis and provides effective problem diagnoses for accurate solutions.



Fish Food

Nutrafin Max Complete Micro Granules for small Tropical Fish

Nutrafin Max Complete Micro Granules is a complete tropical fish food for smaller species such as tetras, rasboras, livebearers, gouramis, bettas and others. Even larger species that have small mouths will appreciate the bite-size format. The palatable granules will initially float and then slowly sink to allow fish that prefer feeding at different levels ample opportunity to do so.

Like all Nutrafin Max foods, premium ingredients for optimal nutrition is the focus. Micro Granules contain P.D.P. (Pre-Digested Plankton) which rapidly enhances colors and is easily digested. Multi-vitamin supplements are also included to ensure growth and disease resistance. Granules are an excellent choice for automatic feeders due to more consistent disbursement as compared to flake food.



New in the trade

Fishes

New Dwarf Cichlids

Dwarf cichlids belong to the family Cichlidae, order Perciformes (like the angel-fishes). In the aquarium hobby the species of the genus *Apistogramma* are often categorised thus. But this general term is broadly used to encompass all the smaller – and usually suitable for a community – species of attractive and colourful dwarf cichlids of various genera from South America and Africa.

This time, however, we will be discussing just new *Apistogramma* species. These dwarf cichlids – are found in South America, east of the Andes, from the extreme north of the continent to northern Argentina. They often live for only a single year in nature, but longer in the aquarium – on average 3-5 years. They are extremely peaceful little chaps and well suited for community aquaria. And they are not only attractive in their coloration, but also interesting in their almost exclusively bottom-oriented behaviour and their continual interactions. A fascinating spectacle for ages of 7 to 100 years. The number of variants in nature is almost too large to catalogue – new ones are discovered almost every month (often every week). There are also cultivated forms, usually produced by selective breeding, with increasingly more colour. Here are just a few of them, along with new discoveries.

1. Cultivated form of *Apistogramma viejita*



Photo: N. Khardina

Using selective breeding, the German breeder Uwe Müller has “created” this colourful dwarf cichlid, almost matchless in its form and colour. Water parameters are: temperature 75-84°F, pH 6.5-7.0, conductivity 100-330 µS/cm. A splendid, undemanding fish.



2. The red-head Apisto *Apistogramma gibbiceps*



Photo: N. Khardina

Herr Müller has likewise intensified the colours, again by selective breeding, of this dwarf cichlid discovered by Heiko Bleher in a bay in the lower Rio Marmoré, Brazil. In nature the species lives in bank zones rich in aquatic vegetation at temperatures up to 86°F, pH 5.8-7.5, conductivity 20-150 µS/cm. A prize for all dwarf fish freaks, and a new colour variety.

3. Two new dwarf cichlids *Apistogramma* species 2 and 3



sp. 2



sp. 3

A second *Apistogramma* (possibly two different undescribed species that live sympatric) discovered by Bleher, and collected by him in 1996 in the central Rio Guaporé, on the Bolivian border with Brazil. It has now been bred several times in captivity. species 2 has a striking orange-yellow breast, violet banding in the fins and a slender body. By contrast, sp. 3 has a bulkier body structure, roundish, extremely long yellowish dorsal finlet, no colour on the breast, and the violet bands are finer. The water parameters at the collecting site were very similar to those for species 1 (top).

The fellow on the left is certainly not a dwarf cichlid, but it is a cichlid: *Geophagus proximus*. A splendid male specimen that Khardina and Bleher netted in 2002 in a bay in the Rio Itaparana in the south of Amazonas state, Brazil. *Geophagus*, also known as eartheaters, are very peaceful (like *Apistogramma*) large cichlids and they can be this beautiful.

Plants

New swordplants

“Yet more swordplants!” These are now the most popular aquarium plants of all. Moreover the genus *Echinodorus* offers the most new types, and recently more than ever before. In addition they are ideal plants for the angelfishes (pages 4-6+12). Here are 3 “new” ones:

1. *Echinodorus longiscapus*

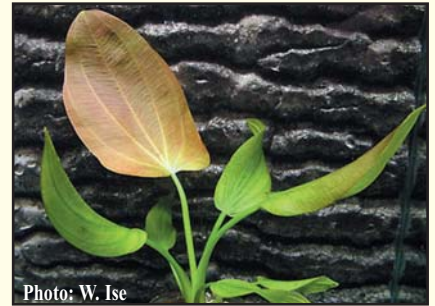


Photo: W. Ise

In the aquarium young plants of *E. longiscapus* are easy to cultivate. Its origin in southern Brazil, Paraguay, and Uruguay means that this swordplant will also tolerate cooler temperatures without problem. Unfortunately its (eventual) size and its tendency to form floating leaves mean that it has so far failed to become more widespread.

2. *Echinodorus* “Red October”



Photo: W. Ise

Named after the Hollywood film “The Hunt for Red October”, a fantastic new cultivar from the company ZOOLOGiCa in Berlin, Germany. For years *E. osiris* has been repeatedly incrossed and this new “creation” results from *E. “Harbich Red”* x *E. “Indian Red”*.

3. *Echinodorus uruguayensis* var. *minor*



Photo: W. Ise

is a variety discovered by Chr. Kasselmann in 1995, only recently described. At only about 6 - 12 inches tall, it is significantly smaller than the nominate form. A splendid ornament for smaller aquaria. But please make sure you use a nutrient-rich substrate with added clay and intense lighting. Click on www.Echinodoren.de/ (in German).

Biotope aquaria: for leaf fishes

The angelfish aquarium

Almost everyone who starts maintaining an aquarium (usually with guppies, see NAN #2) sooner or later becomes aware of the angelfish. It is – and always has been – a majestic creature, an (almost) indispensable adornment for any underwater landscape. Its elegance, its extremely long fins (present in all but a few cultivated forms), jerky swimming movements, inquisitive look, and its constantly repeated search (in adults) for a nice big leaf (or undisturbed spot on the aquarium glass) on which to lay its eggs, all provide endless fascination. Likewise the way two individuals sometimes face up to each other with wide-spread fins, as if in rivalry, is a real wow. This is, however, not actual aggressive behaviour, as these are truly the most peaceful of fishes – like discus, their close relatives, often found together with the angelfish in nature. (But *P. altum* and *P. leopoldi* are not found with discus in nature.)

Now if you want to provide this former king of the aquarium fishes with an optimal home and enjoy it to the full, here are a few simple suggestions as regards the biotope.

Setting up the aquarium: As usual, the larger the better, but for the angelfish the aquarium should be at least 40 in. long and 14 in. wide (or wider), and 16-20 in. deep. (For Altum angelfishes at least 48 in. long and 24 in. deep.) We also unreservedly recommend (biotope correct) fine white sand. This should be at least 2 in. deep (3-4 in. deep at the rear) – and, of course previously well washed (always check sand sold as “washed”). A number of nice pieces of bogwood are indispensable – either pre-soaked or weathered over a long period. If you want to add rocks then please use rounded ones, as the fishes may injure themselves on sharp rocks. It is advisable to plant the

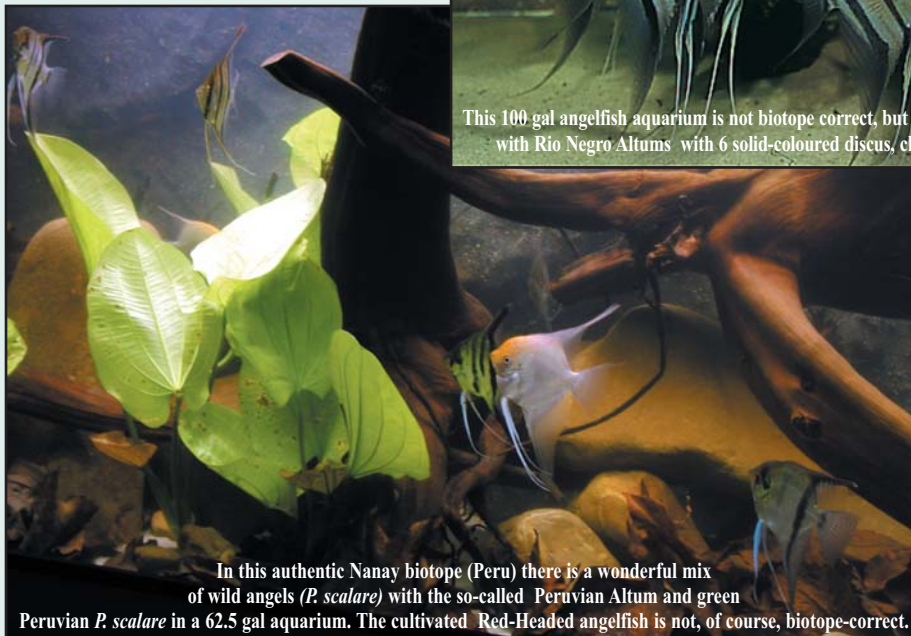
aquarium: as can be seen from the biotope aquarium below left, the so-called Peruvian Altum is often found with the large-leaved horizontal swordplant (*Echinodorus horizontalis*). The common angelfish and Bleher’s swordplant (*E. bleheri*) are a good combination (page 7). But in all cases a few large swordplants. You may also care to include – more for the foreground and between the pieces of bogwood – the dwarf, grass-like swordplants (*E. quadricostatus* and *E. tenellus*), both of which are carpet-forming. For the sides (or in between) *Hydrocotyle leucocephala* and a further group (at the sides) of *Hygrophila guyanensis*. You must, of course, decide for yourself whether or not to add lots more plant species. Those mentioned are biotope-correct, except that the majority of angelfishes do not occur in areas where aquatic plants grow. Like discus, for the most part they make their homes among roots, branches, and fallen trees, as well as trailing greenery (at high water). The tank will look rather different with a population of only, or mainly, tank-bred angelfishes or cultivated

forms. Or, if you deviate from the actual biotope (as below) and mix cultivated discus varieties with wild-caught angelfishes – and Altum angelfishes (which we really do not recommend), then you can add plants that are alien to the biotope. It is, however, important always to allow a large amount of open swimming space for angelfishes.

The fish population for the aquarium: Here the question arises: do you want to be biotope correct, as then you should mix only wild-caught individuals or tank-breds of natural forms (ie one, two, or all three of the species mentioned: *P. scalare*, *P. altum*, *P. leopoldi*). Next there is the question of small specimens or those already adult: if small individuals, then start with a group of 8-12 in the size of tank cited. Fewer if larger, and with Altums only about 4 in 100 l. As tankmates in such a tank you can add a group of mailed catfishes (eg 6-8 *Corydoras leucomelas*, *C. atropersonatus*, *C. trilineatus*, or a mixture). About 10 *Otocinclus arnoldi* to eat algae. Plus 1-2 groups of tetras will look nice. About 10 brilliant rummy-nose tetras (*Hemigrammus bleheri*) and



This 100 gal angelfish aquarium is not biotope correct, but nevertheless the fish are happy. There are 20 adult Altums with Rio Negro Altums with 6 solid-coloured discus, characins, mailed catfishes, Java fern and hygro plants.



In this authentic Nanay biotope (Peru) there is a wonderful mix of wild angels (*P. scalare*) with the so-called Peruvian Altum and green Peruvian *P. scalare* in a 62.5 gal aquarium. The cultivated Red-Headed angelfish is not, of course, biotope-correct.

6-8 bleeding heart tetras (*Hyphessobrycon erythrostigma*). Always remember that the total number of fishes depends on the rule: 1 cm of fish per 2 l of aquarium water.

General: The water temperature should be 77-85°F (max. 86°F); The lighting should be on for 10-12 hours per day (see NAN #1); the pH about 7 – up to 8 doesn’t matter too much (except for Altums); allow biological filter media to do their work; change water now and then; feed young specimens several times daily, adults once per day; and that’s it. And then you will have many hours of educational viewing – often better than the TV.

The story continues...

Those of you who have read NAN #1 and #2 have already learnt how people maintained, housed, and prized fishes for the first, approximately 48,500 years up to 1644. We have also seen how the first “ornamental fish book” (*Chu sha yü p’u*) was published in 1596 BC by Chang Ch’en (1577-1643), and covered practically every detail: how to suck water out of the basin or glass, along with the mulm; how to feed the fishes; how to protect them from the heat of summer and the cold of winter; and how best to house and breed these prized ornamental fishes. (So why do we bother publishing this newsletter?!). In all conscience we can justifiably call Chang the father of the aquarium hobby, as although Guillaume Rondolet had already written about a fish in a glass back in 1554 (NAN #2), he mentioned no details of the maintenance and housing of ornamental fishes...

Unfortunately the pre-Columbian cultures didn’t have writing, as it may in fact have been they who first kept ornamental fishes, even before the Chinese. Although evidence of this has only recently surfaced (or rather, been dug up). The Tiwanakus, a culture that lived long before the Incas – some people assert up to 14,000 years before our time – had a seahorse and fish cult (see *aqua geō* no. 24). Perhaps they also kept them, as ceramic sculptures and gold items have been found as grave goods, and similar objects have come to light in the Temple of the Rainbow (Huaca el Dragón, circa 1300 AD). The tomb of a priest, decorated with ornamental fishes (?), was discovered in the middle of this gigantic Andean citadel (see photo, centre). There is even an aquarium (?) above his throne (seat). Nobody knows the significance of this, as there is no inscription... Was this perhaps the first aquarium?

But we do know from the diary of Samuel Pepys, entry for 28th May 1665, that he kept ornamental fishes: “Thence home and to see my Lady Pen; where my wife and I were shown a fine rarity: of fishes kept in a glass of water, that will live so for ever, and finally marked they are being foreign.” This must have been the first exotic aquarium fish, as goldfishes were at that time still “marooned” in Europe. That much can be proven. Undoubtedly Lady Pen had some paradise fishes (*Macropodus opercularis*), which is “fine” and “lives forever”, a labyrinth fish can survive “forever” in a glass...

Next, in the 18th century, the first writings and books on goldfishes (= ornamental fishes) came out in Europe. In 1742 Thomas Gray wrote his “Ode on the Death of a Favourite Cat – Drowned in a tub of goldfishes”. Although it is impossible to establish whether this was the first cat to drown in a goldfish bowl, without doubt it won’t

have been the only one, for, as Gray writes:

“What female heart can gold despise?

What cat’s averse to fish?”

- something that everyone knows.

Barely 4 years later William Arderon, an exceptional student of nature who lived in East Anglia, sent a communication to the Royal Society. He had studied sticklebacks in his fish bowl and reported on their unique behaviour (they are underwater nest-builders, like birds) and their insatiable appetites.

In his *Zoophylacium*, published in 1763, Gronovius writes in detail about 11 different goldfishes. From this we can deduce that there were by then cultivated forms such as the the lionhead, comet, veiltail, etc in Europe. Thus by the second half of this (18th) century at the latest the ornamental fish and the goldfish bowl had found their way into European courts and among the upper classes. About 200 years after it became an almost everyday practice for the Chinese to enjoy keeping fishes

and learning from them (as today...?). There are a number of other publications, not all of which can be mentioned here, however. But none of them mentions an aquarium. Up to this time the only containers known ranged from basins set into the ground to elevated floating bowls or large vases made of pottery and jade, of marble or stone, and, of course, glass, in which ornamental fishes (= goldfishes) had their permanent home. But only for as long as the cat didn’t swallow the golden fishes, or until they died of lack of oxygen or over-feeding (or the opposite occurred – there was no Nutrafin back then...). And, of course, the lady of the house or dear James, the butler, may have forgotten to change the water (as Fluval filters were unknown, and there was as yet no electricity...).

The aquarium (as we know it today) had not yet been invented. That didn’t happen until the 19th century. A very exciting story, as you may well imagine – but that must wait for next time. Don’t miss it, as it will be very interesting...



The tomb of a priest (centre) discovered in the Andean citadel, with the “aquarium” above his seat and surrounded with (ornamental) fishes, indicates worship, a cult, or maintenance (Chimú culture, circa 1300 AD). And what is the meaning of these 2 fishes from the Bahia region of Ecuador (500 BC-500 AD)?

Nutrafin news

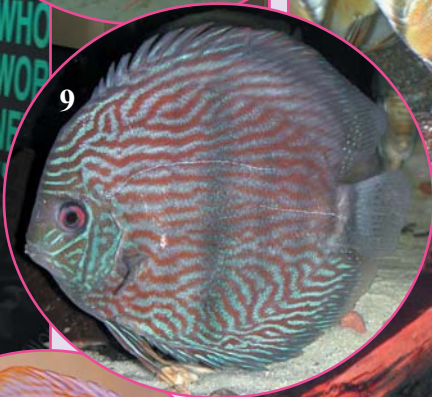
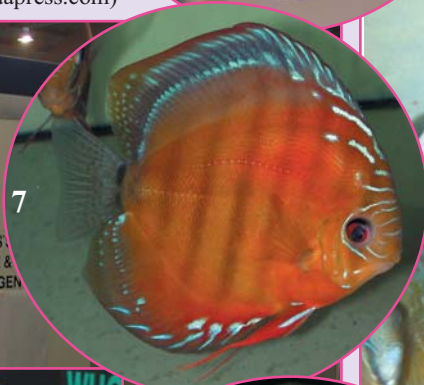
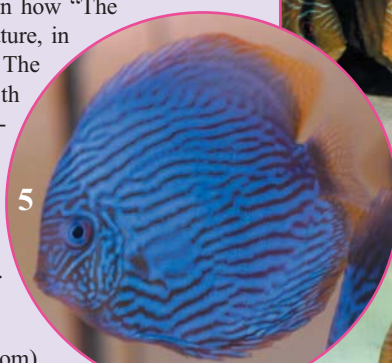
Nutrafin for the first time presents a discus biotope set-up at the 4th International Discus Championship

Who would have thought that more than 24,000 visitors (20,462 paying) would stream into a discus championship from all over the world. The championship itself provided a stage for 402 discus from 24 nations, in order to select the finest discus in the world. Over 2 days eight judges selected the victorious fishes from those exhibited in the 12 categories, with both of the major special prizes going to Singapore. Winnie Nio/Conrad Chia won the award for the “best wild form” with a discus from the category “D/green”, and Chai Koon Seng took the prize for the “best bred form”. As at the exhibition two years previously (this was the fourth of its kind), the “King of the aquarium fishes” was a very good Red Spotted Leopard Snake.

But the visitors had much more to enjoy than just the judging of the competition fishes. There were about 80 exhibitors, offering discus of every colour and virtually all available discus-related products. An

outstanding event, underlining how far the discus still retains its status despite the world economic crisis and Flower Horn hysteria in Asia. And Nutrafin was very much at the forefront. Heiko Bleher – with the support of Rolf C. Hagen, Inc., also one of the main exhibitors and sponsors of the event – had specially sought out and located new discus variants in the Amazon region for this exhibition in Germany. These were now presented for the first time anywhere in the world on the unique Nutrafin biotope stand (a number of these new discus are shown here).

The Nutrafin discus biotope stand was stormed by all the visitors, often several times, and question upon question asked. For the first time in the history of the discus people were shown how “The King” lives in nature, in 8 huge aquaria. The habitats of both species (and 4 subspecies) were portrayed true-to-nature, including decor supplied by Hagen Germany. (For details see www.hagen.com or ask aquapress.com)



1. Nutrafin biotope stand. 2. Jack Wattley, the world-famous discus breeder, with Heiko Bleher. 3. Heckel discus from the Rio Negro at high water (the leaves of the trees are submerged and discus hidden beneath them). 4. A high-bodied Nhamundá-red cultivated form from the breeder G. Schneider. 5, 9+10. Heiko's Heckel discus new discoveries from the Rio Uatumá (unbelievable colour forms). 6. Heckel discus (subspecies *S. discus willschwartzii*) in the Paraná Urariá biotope. 7+11. Brown discus (red variety) and typical Alenquer region biotope with 50 specimens from the area (this is how they live). 8. A green discus in the Lake Tefé biotope (with 50 specimens).



New Hose Brackets, adapts to any aquarium frame; securely positions hosing; maximum placement flexibility of the intake and output on aquarium rim



New More Powerful Motor, increased pressure; flow rates and head heights have increased 15-25%; air evacuation is dramatically improved for quicker starts

evolution

an unfolding; process of development of change *to excel*



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