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weed. It also is a good cover for a tank when it needs some shading, and many anabantoids like it to include in their nests.

- *Limnobium sp.* - Frogbit looks like a large version of Duckweed. It is often sold for ponds but can be used in an aquarium too. Frogbit does need strong lighting though.
- *Microsorium pteropus* - Java Ferns are an attractive epiphytic plant. Grow them on rock or wood. This plant reproduces by stem cuttings or from small plantlets that grow on the leaves.
- *Myriophyllum aquaticum* - These are a very fast growing lacy stem plant. It can be grown in moderate to bright light. The biggest draw back I find to this attractive plant is it's need of constant pruning. It is another good plant to use with fish fry.
- *Nymphaea sp.* - These are often sold as bulbs, sometimes plants. These are water lily. Many have a lot of red color in the leaves. They are easy to grow and will even grow in low light levels.
- *Rotala rotundifolia* - An attractive easy to grow stem plant. Will grow in moderate to high level lighting. It does take on a pinkish tint in brighter light.
- *Sagittaria subulata* - This is a medium to low plant, which will reproduce by runners. It tolerates low light levels but needs good lighting to reproduce.
- *Vallisneria spiralis* - This means gigantea. I pulled 44 inch leaves on these plants from a ten gallon tank. Vallisneria, like Sagittaria produce by runner. They are very fast growing and need to be thinned regularly.
- *V. spiralis* - This is a common plant, when I think of an aquatic plant, these come to mind, I think this is the most often illustrated aquatic plant. It's a fast growing plant. I recently pulled 80 plants from a five gallon hex tank.
- *Vesicularia dubyana* - Java Moss is a lovely moss that will creep over an entire aquarium. Another good plant for fish breeding.

I have kept a variety of fish in natural aquariums for years and have bred several. I started out as a live-bearer enthusiast. I still enjoy many of the livebearers. Many of the more common fish are quite suitable fish for natural aquariums and seem to enjoy the lush plant growth. I have recently started keeping several kinds of cichlids, some of which have already spawned.

Natural aquariums are not suitable for every type of fish. I don't think that any difficult fish should be included in natural aquariums until the fish keeper has really explored the requirements of the fish. Some fish that only are happy in strongly moving waters or fish that are plant eaters and diggers may also not be appropriate for natural aquariums.

I do believe that natural aquariums are a very real option for many common tropical fish. Any one from beginners to advanced aquarists should be able to set up and enjoy such a tank if they follow a few simple guidelines and trust in their own judgment concerning the fish, plants, and the health of the system.

National Convention - Melbourne

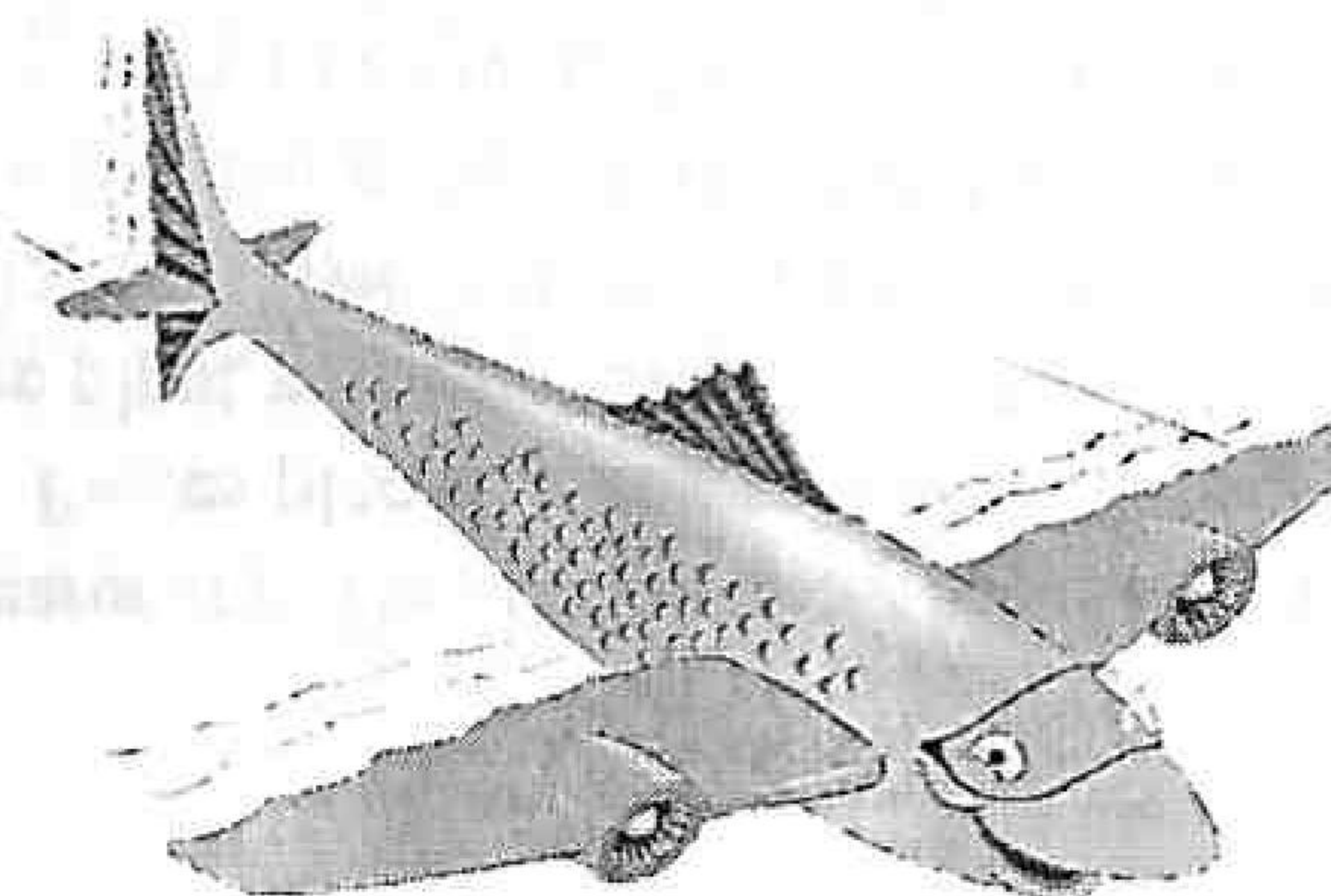
- Bruce Hansen

I wanted to share my impressions of this year's annual Convention hosted by ANGFA Victoria in marvellous Melbourne. The venue was the conveniently central Irico Hotel within walking distance from the Melbourne Zoo. Although there were a few minor hiccups with availability of services from time to time, overall patience prevailed and we all enjoyed the event. Even the weather was generally kind to us and everyone knows about Melbourne's weather :-)

Activities began late Friday afternoon with an informal gathering in the bar of participants in the Rainbowfish Mailing List where we were able to put faces to many of the names that had waged e-mail "battles" as well as offered helpful advice and thoughtful comment over the preceding few months. We even discovered that our guest from the USA, Roy Hunter, could talk without spelling mistakes and enjoyed repartee just as much "in the flesh"!

The main event of Friday evening was the AGM, the focus of the ANGFA administration year where the membership can hear first-hand how things are going for the Association and of course where members can have their say and provide the committee with valuable feed-back on their performance and direction.

Saturday morning gave us the Convention proper with the usual frantic hurly-burly of registrations, inspection of the smart bag of "goodies" and the folder, renewal of acquaintances, inspection of trade displays and club merchandise (and yes, the dark blue Polo shirt with the Galaxias fuscus embroidered on the pocket is tops). Mark Chettle's computer wizardry allowed us to enjoy the superb opening ANGFA audio-visual set to Peter Allen's emotional music and words. After brief welcomes from the Victorian and National Presidents it was on with the presentations.



Alex Caughey presented his overview of Australia's endangered fishes and was followed by Heinz Staude reminiscing on the good old days of native fish collecting - "Life before ANGFA". Rob Wager's presentation on "Conserving Queensland's Artesian Spring Ecosystems" was comprehensive and thought-provoking and delivered in Rob's much appreciated low-key style. Our last presentation for the morning was Gilbert Maebe, all the way from Belgium, who has become renowned for his well narrated slide shows featuring his travels and his beautiful fish. "Pajinka" the story of his trip to Cape York was a treat.

Saturday's afternoon session began with Richard Carson's authoritative coverage on "Controlling Water Quality" and showed why he is a successful commercial advisor to the aquaculture industry. This was followed by Doctor Walter Ivantsoff talking on "Endangered American Fish" and he shared with us the ecological tragedies being played out in the USA and made us aware of many of the parallel risks we need to consider here in Australia. That "grand old man" of Rainbowfish, ANGFA's only Life Member, Ron Bowman then enumerated the many small but important steps involved in a successful egg-posting program. Our final offering was our visitor from Switzerland, Patrick de Rham, a delightful man who led us on a slide-illustrated search over the length and breadth of mysterious Madagascar in search of endangered freshwater fishes, especially the poorly known endemic Cichlids. He underlined to us that enthusiasm and persistence pays off and made us even more aware of the damage that development and "progress" can cause to aquatic environments.

Saturday evening's customary pre-auction Convention Dinner was proceeding smoothly when Alex announced that we had a special surprise speaker, a visiting Paleontologist from Germany who had been advising CSIRO on fossil fishes. In fact the speaker was Graham Bowman, son of Ron and Audrey and a professional corporate comedian, well he had everyone fooled for a while and had us all in stitches with his references to well-known ANGFA members and visitors. For me personally it was the highlight of the weekend. The evening finished with the usual "monster" 50/50 ANGFA Annual Auction which again demonstrated the full spectrum of generosity and enthusiasm of ANGFA members.

By Sunday morning the procedures were all working smoothly and we started with Gilbert Maebe's beautiful slides of his fish "Rainbow Symphony" followed by John Keohn who outlined the work being done on the Trout Cod. Unfortunately it appears that existing populations are not successfully recruiting and re-

stocking programs are not working either despite all the effort expended so far. Our next speaker was Tarmo Raadik and the results of the work being done on *Galaxias fuscus* habitat rehabilitation were much more encouraging. I'm sure ANGFA Victoria will be keen to be involved in supporting this work in any way possible. Still on the conservation theme, the next presentation was from Nick Romanowski who is well known for his work with aquatic plants and native fish such as *Galaxiella pusilla* who outlined his approach to "Genetics and Captive-breeding Programs for Smaller Fishes".

Morning tea was followed by Andrew Boyd and his panel (Alan Ford, Barry Meiklejohn, Roy Hunter and myself) who introduced the audience to the Rainbowfish Mailing List, an e-mail/Internet based forum that has been the "coal face" of the hobby side of discussion on our native fish for the past few months. The next presentation was Eddie Tootell with a narrated slide show of his "Cape Trip" in 1995 and it was liberally laced with Eddie's special brand of humour. Our final offering for the morning was a thought-provoking consideration of the future directions for Aquaculture by Richard Carson.

The Sunday afternoon session began with Nick Romanowski's beautiful slide show on "Growing Wetland Plants in Victoria" and I'm sure he inspired many to try more plants in their ponds. Andrew Murray followed with a repeat of the slide show he presented at Canberra last year. Then Noel Harcourt gave us an update on progress at the Melbourne Zoo in their "Grand Design" for fish to be involved in the biogeographic representations as the redevelopment continues. The "Eachamensis Update" from Walter Ivantsoff was next and it proved to be the most challenging presentation for many - especially the concept that many of the species that were previously considered to be "Splendidas" may actually be forms of "Eachamensis" according to recent and on-going DNA studies.

Rick Datodi took us here, there and everywhere on a slide-illustrated visit to the "fish farms" of the world that Rick has visited over many years of buying for his importing business. The Convention was closed with a replay of the Peter Allen theme presentation to stir the emotions again and Ken Smales introduced another "first" - a huge ANGFA banner to be passed on each year to next year's organising committee for promotional and display purposes.

In summary it was a great convention, once more I have to say, "Once you have been to one you will try not to miss any from then on"! Congratulations to you and your team Ken!

Ancestors of the Rainbowfish

- transcribed by Andy Wattam

One of the highlights of the 96 convention was the special 'guest' that had been organised to entertain us at the convention dinner on Saturday night.

The speaker was Ron Bowman's son, Graham, who most people had never met before. He was introduced as a palaeontologist to give us information on new cave drawings in the Northern Territory. He had everyone in attendance laughing till their sides hurt. I have provided a transcript of his speech and reproduce it for your entertainment below.

Goot evenink und thankyou for giving me der opportunity to speak to you tonight. This is my first trip to Australia, und I am enjoying it very much, having just spent several wonderful weeks in der magnificent Kimberley region und Northern Territory.

This country of yours has so much to offer in der way of its natural resources..... so much variety und so much land. No wonder Australia is referred to as der lucky country. Und please believe me - having spent much of my childhood in East Berlin, where I saw, for many years, a growing atmosphere of despair und dependency drive my parents to an early grave - I know the difference between a lucky und an unlucky country.

My interest in fish is, I think, a little different from your own. While I do keep a few fish at home, und study der collections of my friend Juergen Clasen und Hyko Bleher as often as I can, most of der fish I study are dead, und have been so for millions of years.

By studying fossils, palaeontologists der world over are gradually helping to put together der great jigsaw puzzle of life ... helping to weave a few more threads into der fascinating tapestry dat is der scientific classification of der plant und animal kingdoms.

I was initially invited to come to Australia by der CSIRO to examine fissils in North Western Australia, but it is not these fossils that have ended up causing me der most excitement. At der same time that I was up to my elbows in shale und sandstone looking for fossils, archaeologists made a breakthrough discovery in der Kimberley - you may have read about it in der newspapers. They discovered der oldest cave paintings in der world ... 170,000 years old ... which proves that aborigines were in your country much earlier than first thought.

As der archaeologists also noted some fossil remains in these caves, I was invited to extend my visit und ex-

amine these other fossils as well. But before der work on der fossils began, I was able to view der cave paintings. Most of der drawings were quite naive und primitive ... but a few were quite detailed.

Amongst them I saw a drawing of a lungfish ... a good representation of what is clearly a close relative of *Neoceratodus forsteri*. But it was der drawing below that particularly caught my eye - an unmistakable rendition of *Telmatherina ladigazee* - der Celebes rainbow from Sulawesi ... a drawing of a fish that should not have been there ... a drawing of a fish from der other side of Weber's Line.

Und next to *Telmatherina ladigazee*, a drawing of *Bedotia gayi* - der Madagascar Rainbow.

Now some of you will undoubtedly be thinking - these must be drawings of *Craterocephalus stramineus*, der blackmast, which some of you may remember as *Quirichtheus stramineus*. But no, der drawings are definately not of *Craterocephalus stramineus*.

It is ludicrous to think dat der Celebes und Madagascar rainbows - or at least their immediate ancestors - could possibly have been found in Sahul -especially in view of der definitive genetics clasification work done by Professor Walter Ivantsoff. Und yet der drawings are there ... drawings which have scientifically validated as being 170,000 years old. All of a sudden der jigsaw seemed less complete than ever before ... there were more missing pieces.

But at least one of der missing pieces in this particular jigsaw manifested itself last week. Two months ago, der same submersible which was used to retrieve artefacts from der Titanic was used to gather fossil bearing rock from der ocean floor South of Indonesia, directly beneath both Weber's Line und Wallace's Line.

Der findings are very interesting - in both samples, fossils have been found of a fish which I believe is der marine atherinid ancestor of both der Celebes und Madagascar rainbows, as well as der Australian rainbows und blue eyes.

Der fossil fish has features common to all groups, but it is der extra feature which seems to answer der riddle posed by der Kimberley cave paintings. Der spines at der base of der dorsal fin are strangely bifurcated, splitting into two as if der base of der dorsal fin encased something.

This finding caused me to look more closely at der drawings in der cave, und what they suggest is that der encased object was an external swim bladder on top of der atherinid, at der base of der dorsal fin.

It would appear that this external swim bladder allowed these early fish to float without any effort, in a vertical position, on der surface of der water. Der dorsal fin was also abnormally large, und Patrick DeRam und myself believe that it acted as a sail, enabling der fish to be easily blown huge distances across der oceans.

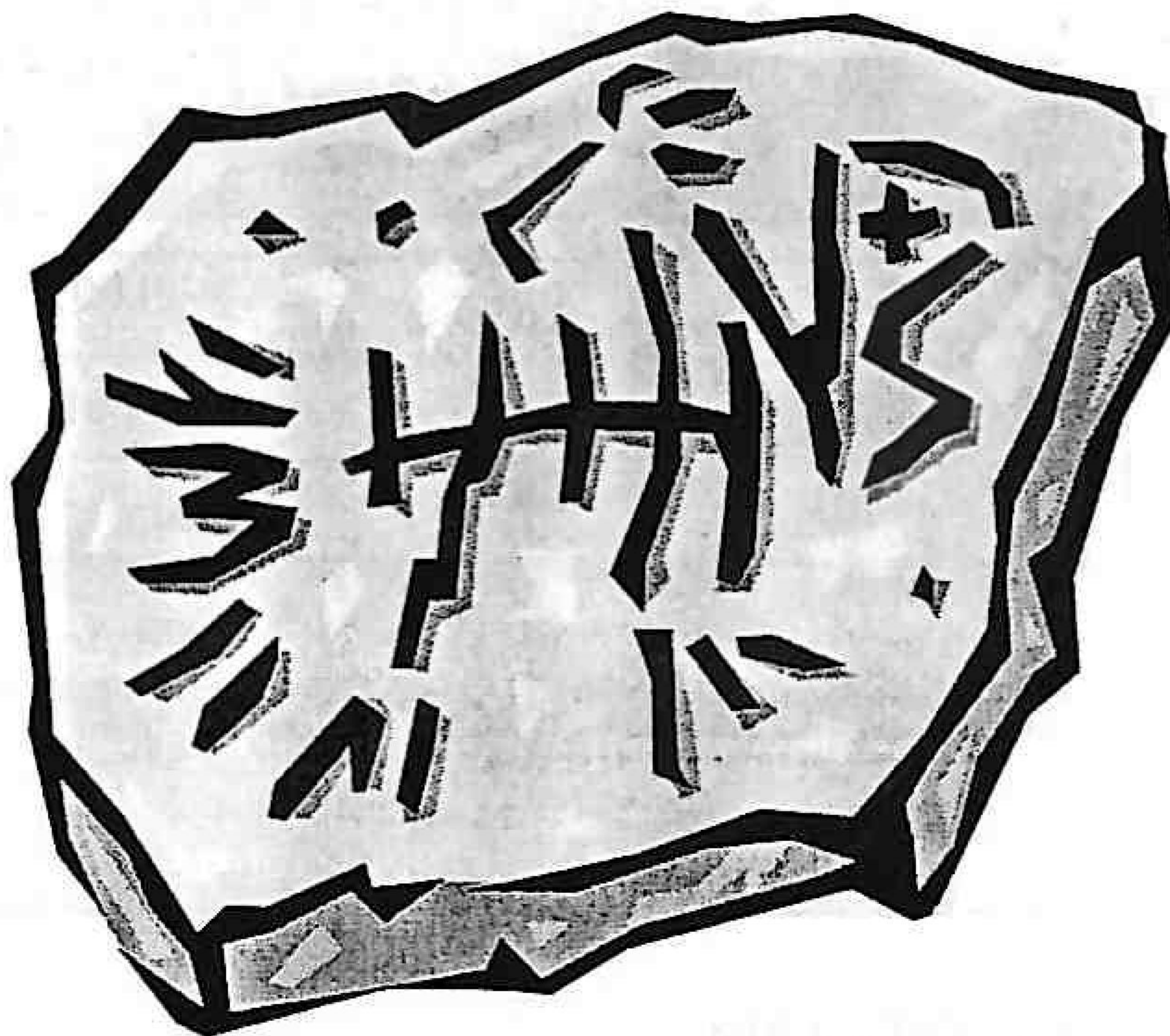
Back in Germany, an associate of Hyko Bleher's, Professor Boris Becker, is convinced that there were several of these marine atherinid ancestors, which variously resembled der Celebes, Madagascar und Australian rainbows, und that they originated within der pre-Cambrian, neo-gothic para-marine eco-basin that once covered all of what der ancient quasi-aboriginal forebears referred to as Sahulawesi. Und from there they sailed across der seas to their present habitats. Quite logical.

But what happened to der external swim bladder? I will explain der most likely hypothesis. Der same period of time - der pre-Cambrian- saw der emergence of der felafel necked, gusset warbling, ferret gull, a very well adapted und highly predatory sea bird who found der sailing atherinids very easy prey, given that they could always be found at der top of der water. Und so der feature of an external swim bladder was selected against, und der processes of evolution lead to der current rainbow forms.

It is interestink to note dat extinction also came eventually to der felafel necked, gusset warbling, ferret gull, mainly to der highly successful predatory behaviour of der ancient marine reptile, der yellow bellied platychidnasaur. Der yellow bellied platychidnasaur was not large, but was very aggressive, having a duck like bill covered in sharp spines, which it used to attack diving felafel necked, gusset warbling, ferret gulls. Der yellow bellied platychidnasaur was closely related to der stiff tossed marsupial Gondwana frog, which as you all know was der ancestor of der wombat. But ich digress.

In der same site where der rainbow cave drawings occur, there has also been gefound strong evidence that aborigines were keen aquarists.... unmistakable life size drawings of brine shrimp und tubifex worms... und in midden heaps outside the cave have been found der remains of what could only have been a pedal driven version of a Rena pump. This discovery came as a shock to us all, und I couldn't have been more surprised if Barry Crockford had had a sex change and married Gerry Allen.

But that's neither here nor there ... that's a silly english expression isn't it? ... I mean if it's not here und it's not there, where der bloody hell is it?



Damen und blokes, on behalf of Hyko Bleher und Juergen Clasen, I would now like to announce some of der fish-keeping developments initiated by members of der European sect of ANGFA.

Firstly, Juergen Clasen und his neighbour, Dr. Stefi Graf, have found dat der eggs of hardyheads are der perfect medium for organically gworing der new drug Ferodox, which can reduce der damage caused by brain haemorrhages in humans. So this could be quita a lucrative sideline for some of you. To assist you in dis matter Gunter Schmeeda has been perfecting an automatic hardyhead breeding, egg culturing und Ferodox extraction system, which he is intending to make available to interested aquarists through a franchise arrangement, for a nominal sum of \$85,000.

Also, Hyko Bleher, in conjunction with der head of der Berlin Institute of Microbiology, Emeritus Professor Michael Stich, has just discovered a promising treatment for ulcers in rainbow fish. It is now clear dat der microbacterium dat causes rainbow ulcers is susceptible to der actions of der Koleesee virus which is currently being used in Australia to eradicate rabbits. All you have to do is get som pus from der eyes of an infected rabbit und add it to der tank of sick fish und der ulcers will be gone within 48 hours.

Alternately if you have a large pond containing hundreds of fish, just throw der whole rabbit in - then you won't have to worry about feeding dem for a few days either. Alex Cocky will be selling der appropriate pus collecting apparatus throughout the conference.

Actually I would just like to add here dat I am very pleased to renew my acquaintance with Herr Cocky at this conference. For those of you who don't know, I first met Herr Cocky quite by chance last year in Munich, at der Oktober-Daphnia-Fest. We met in der

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main street after der official Gala Dinner und Gluhwe-ing Tasting - he was making his way back to his hotel when I accidentally stood on his fingers.

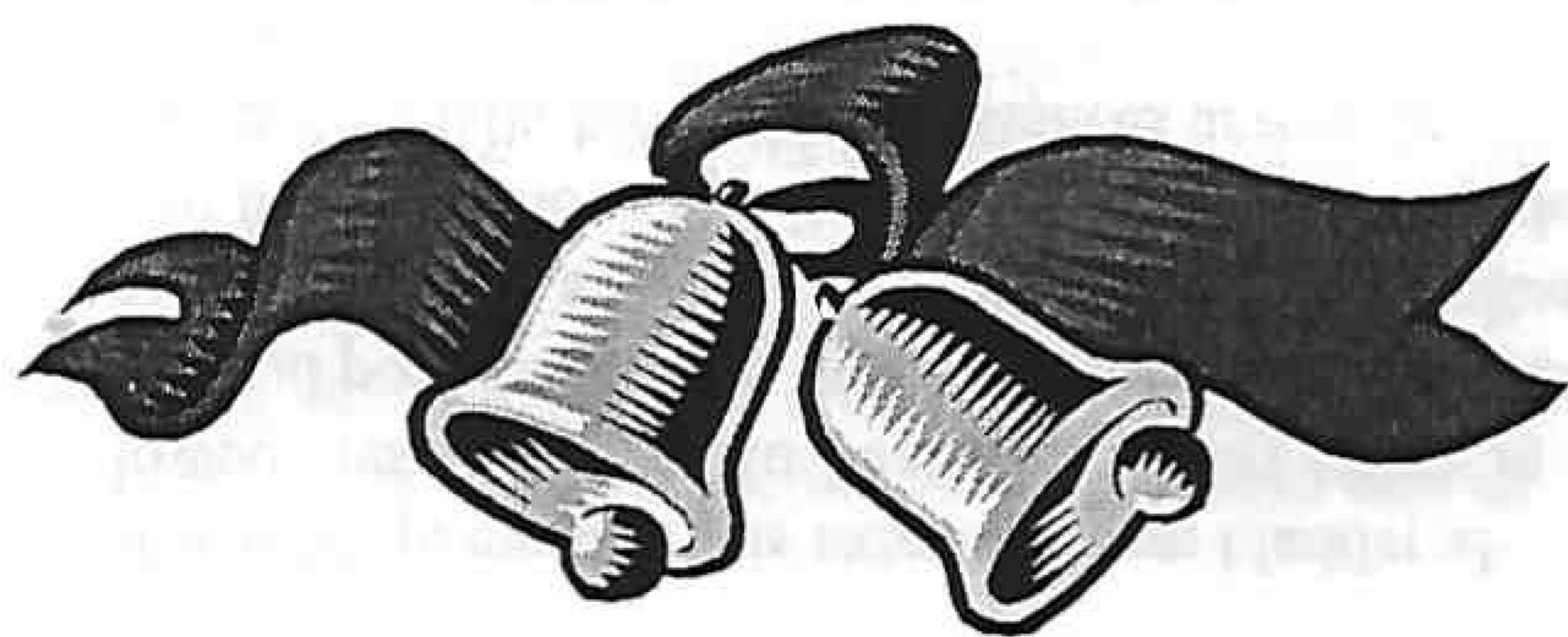
Probably der most significant development in Europe over der past year has been der trend towards nude fish-keeping. Many aquarists are finding dat without der limitations of clothing they are able to enjoy der tropical fish-house environment more ... relate much better to their fish ... und achieve results dat are simply wunderbar. Indeed one of der most satisfying experi-ences I have ever had as a fish-keeper was when I was working in my fish-room - naked - standing in front of a row of aquariums about this high (pointing to his waist) ... und then leaning over a tank full of kissing gouramies. Der only problem was - after a few kisses I was no longer in contact with them.

When I knew I was coming to Australia, I was very gekeen to tryen outen diesen nude fish-keeping ap-proach within der native gehabitat of Sahul fishes. But I was a bit worried about crocodiles so I asked a few people for advice. One person told me dat a crocodile won't bother you at night, if you carry a torch ... but when I asked someone else if this was true, he said it depends how fast you carry it!

So then I thought, I'll ask a real expert ... someone who would definately know ... someone whose opin-ion I could trust... someone who would not let me down ... Hyko Bleher.

Well, Hyko stated quite categorically that crocodiles are not der slightest bit interested in hurting human be-ings. So, armed mit dieses gefact, two weeks ago I bravely marched into a big river in der Northern Terri-tory ... entirely naked ... to commune with nature. Af-ter a few magical minutes of swimming amongst der most beautiful rainbows und blue eyes I had ever seen, I came face to face with a couple of baby crocodiles... und a minute after dat... I realised that I no longer needed to keep my appointment to have de vasectomy.

Damenb und blokes, ich wishen you all das gutes luckes for deinen fishen zu keepen ... und thank you for allwoing me to come here dis evening, und share mit you some of meinen thoughten.

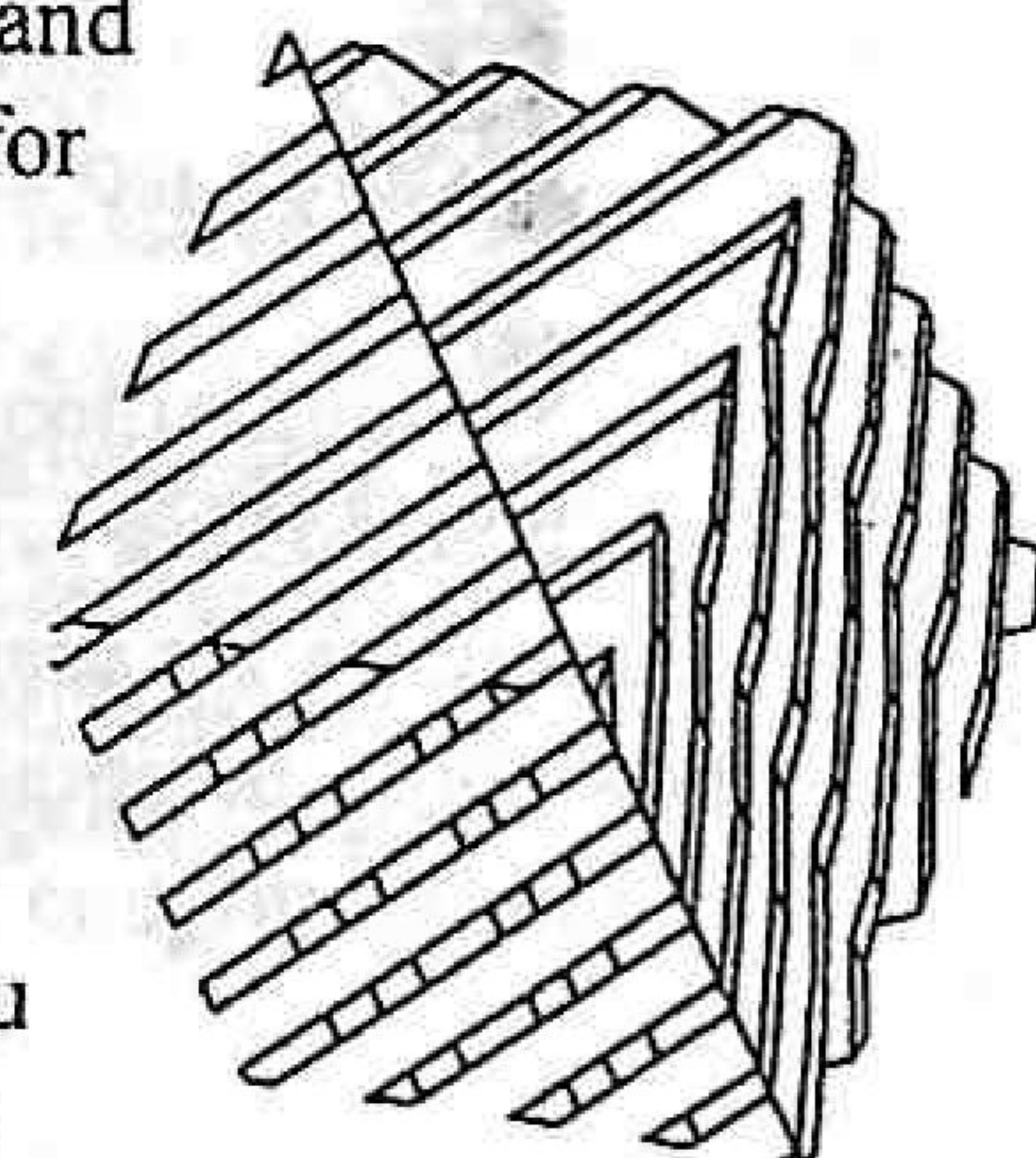


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Recommended filter media capacity		
Media Capacity	Compact Units	Random Units
1 litre	39	25
5 litres	195	125
10 litres	390	250
100 litres	3900	2500
Pond Capacity	Media Capacity	Random Units
5,000 litres	100 litres	2,500
10,000 litres	200 litres	5,000