

NOVEMBER 1987 95p

AQUARIST

AND PONDKEEPER

FISHKEEPING AT ITS VERY BEST. ESTABLISHED 1924

FOCUS ON CATFISH:
Corydoras in the wild

What is a Catfish?

Spotlight on
Synodontis
multipunctatus

FREE-TO-ENTER

FABULOUS

Tetra

HOLIDAY COMPETITION

**FISH COLLECTING
IN COSTA RICA
WHAT EVER
HAPPENED
TO SUMMER?**



AQUARIST

FISHKEEPING AT ITS VERY BEST. ESTABLISHED 1924

NOVEMBER 1987

CONTENTS

Vol. 52 No. 8

4 WHATEVER HAPPENED TO SUMMER?

Summer disappeared a long time ago after making a nominal appearance; now, winter is just around the corner. John Cuvelier gives sound advice about the well-being of Koi during the cold period that lies ahead.

FOCUS ON CATFISH 20 SPOTLIGHT

Synodontis multipunctatus is an African Catfish with a difference... and a very unusual difference at that. David Sands reveals some of the secrets of this interesting fish, plus a great deal more besides.

22 WHAT IS A CATFISH?

We all know what a Catfish is... don't we? As Tetra's Dr David Pool demonstrates, the question may be easy but the answer certainly isn't!



COVER STORY

Photograph by
Arend van den Nieuwenhuizen
Taenionotus triacanthus is known by several common names, including Swayfish and Sailfin Leaf Fish. An impressive-looking, albeit quite small species (c. 6in.-15cm.), *T. triacanthus* is found in the Indo-Pacific. Its body shape clearly shows that the Sailfin is a bottom living fish. There, it sits in wait for prey looking, for all the world, like a dead leaf swaying in the current. There are numerous naturally-occurring colour varieties of this slow-moving predator which should only be kept with tank-mates that are too large to be swallowed. *T. triacanthus* is a member of the Scorpaenidae, the family which includes those other well-known Scorpionfish belonging to the genus *Pterois*.

24 CORYDORAS PART I (Suitable for Beginners)

Arend van den Nieuwenhuizen has photographed and collected Catfish in virtually every corner of the tropical world. In this first of two articles on *Corydoras* he puts forward some of his personal thoughts on the keeping of these fish.

29 COSTA RICA — CROSSROADS TO FISH COLLECTING PARADISE

Rick Gibson of Tampa, Florida, went to Costa Rica recently and found it even more exciting than the Amazon. Read his entertaining account of his visit to Paradise.

36 YORKSHIRE AQUARIST FESTIVAL REPORT

Dr David Ford, head of the 'Aquarian' Laboratories, reports on this year's eventful YAF at its new venue in Leeds.

43 TETRA CAPITAL WEEKEND COMPETITION

Win a fabulous all expenses paid luxury weekend for two in London, courtesy of Tetra.

REGULARS

News, 2 Diary Dates, 2 Out and About, 8 Product Round-up, 11 Books, 16 Coldwater Jottings, 41 Tomorrow's Aquarist, 49

COMPETITION WINNERS

Full list of winners from our September competition sponsored by LMB Aquatics/Aquatop, 16

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News

King British Appoint Technical Manager

King British Aquarium Accessories Co. Ltd. have announced the appointment of **Martin Jaffa, PhD, BSc (Hons.), CBiol, MIBiol, MIFM**, as their new Technical Development Manager. Dr. Jaffa, 31, has been heavily involved in research and development within the aquatic trade for several years and received his PhD in 1983, following significant research into dietary and nutritional technology.

Keith Barraclough, Chief Executive, King British, reports that, "Dr. Jaffa's appointment comes as a significant step in the further advancement of our business. His considerable knowledge and experience in the technological field is a natural 'marriage' with our own significant expertise spanning over 30 years." Dr. Jaffa previously worked on various research and development projects, both in this country and abroad, and, more recently, worked for Newway Fisheries in Selby as Farm Development Manager.

Dr. Jaffa will report directly to **Gordon Holmes**, Technical Director.

For further information, please contact: **Bob Rushton**, 01-404 5575 or **Keith Barraclough** (0274) 576241.



T.F.H. Expansion

As announced in last month's **Product Round-up**, T.F.H. have moved to new premises. The move has been brought about by "rapidly increasing sales in all areas of the business" and took effect as from 1 September.

The full details of the new offices are: **T.F.H. Publications Ltd., Cliveden House, Priors Way, Bray, Maidenhead, Berks. SL6 2HP. Tel. Maidenhead (0628) 771944. Fax: Maidenhead (0628) 770902, Telex: 848794.**



Left, top, summer '85 — Culpeper Garden Members start off on their daunting task. (Photograph: Don Forrest)

Left, above, summer '86 — the liner is fitted into the re-designed and re-constructed pond. (Photograph: Don Forrest)

Above, The end result. (Photograph: Don Forrest)

The Culpeper Comm

(The Community Service by Offenders Scheme in Action)

Community Service carried out by offenders, based on the philosophy of "putting something back" into society, can produce exceptionally successful results, as Islington, in London, has recently witnessed with its Culpeper Community Garden scheme.

The third-of-an-acre site of the Culpeper Community Gardens occupies part of the once famous White Conduit Gardens and fields which were taken over for Metropolitan Development (Building) about 1849. Just over a hundred years later, a large proportion of the area lay as waste land, the buildings having been demolished for further development.

After many years, the Council settled on plans to re-establish the area and suggestions were

put forward to turn one small corner into a Community Garden. The Council responded most favourably, giving the responsibility of the undertaking to the **White Lion Free School** who, in turn, gave the supervision of the development to **Ross Dunwell**, chairman of the **Culpeper Community Committee**. Islington Council's **Partnership Programme** provided the funds and the Garden was opened in June 1984.

Don Forrest's particular interest in the garden settled upon giving other forms of life, such as birds and fish, a chance, and this led him to become interested in establishing a pond.

The original pond was made of puddling clay and, like most ponds of this type, was prone to leakage. This created quite a problem since it was causing subsidence of part of the banks and, in places, there was little over one inch of water. The only solution to this problem, if they were to have a pond at all, was to sink concrete and rubble walls deep into the sub-soil around the whole of the area of the pond and create a new pond inside the walls, with a liner to stop any water seepage.

It was estimated that this would cost £2000 if they undertook the task themselves, and, once the decision had been made to go ahead, the **Culpeper Garden Committee** granted the project £1000, with

Islington Council's **Community Chest** providing a further £1000. "I am pleased to say that the project is still within budget and, according to one pond expert, we have accomplished something that would otherwise have cost anything up to £18,000", claims **Don Forrest**, the project Supervisor.

"The work so far has taken just on two years. It all began one sunny Sunday in the summer of 1985, when garden members of all shapes and sizes set to work with shovel and spade, fork and pickaxe, and, at times, bare hands. Although spirits were high, with every spadeful of earth and clay, it soon became apparent that the task was too daunting and work petered out after several weeks of very genuine hard work."

"On the suggestion of **Mary Turner**, a garden member, we approached the **Community Service by Offenders Scheme** in Islington to see if they could provide us with a labour force. Their response was instant, and, within two weeks, we had regular groups of willing and, at times, not so willing, helpers sent to us every Saturday, up to the present day."

"When work started on the pond, it was little more than a large hole in the middle of the garden. The "labour force" have brought it, by a lot of hard work, to what it is today. The finished pond looks quite simple, but, if you consider that under the paths around its



The Duchess of Gloucester, standing beside Culpeper's Community Chairman, Ross Dunwell (with the beard), admires the end product of two years' worth of dedicated effort. (Photograph: Don Forrest)

Community Garden Pond

perimeter are concrete and rubble walls that go down six feet into the subsoil and are two-foot thick, and that all the bricks had to be collected from local building sites and the mason's yard by wheelbarrow, not to mention all the concrete and cement that had to be mixed mainly by hand, plus the digging... it has proved to be an excellent job well done."

The only condition under which the Community Service would send a labour force was the provision of a supervisor by the Community Garden. This role fell to Don Forrest, since he had instigated the proposals to rebuild the pond and had outlined the plans. "To be perfectly honest, I took on the job with some trepidation, but, fortunately, the Community Service Office were very tactful and only sent me one or two

boys to begin with. As I became more confident, I asked for more helpers, and, at most times, we have had between five and ten each Saturday — holidays, of course, being the exception."

The pond project was even-

tually completed and was officially opened in May of this year. Despite everyone's best efforts, though, the pond was vandalised that same evening and required a great deal of work to put things right again. Nevertheless, this was done

and, by the time the Community Garden received its Royal visit, courtesy of the Duchess of Gloucester (whose husband is Patron of the Probation Service) on 3 July everything was back in place and flourishing.

A great deal has gone into the project... and a great deal has been learned by all who have become involved with it. To quote Don Forrest once more: "This has been an experience that could not have been ordained. I have learned enormously about the problems that this section of society have to sustain, and I am happy to say that I have made some very good friends, not only among the Community Service Officers, but also among my group of helpers."

For further details, contact **Don Forrest, Culpeper Community Garden Pond Supervisor, 18 Cloudesley Place, Islington, London N1 0JA. Tel. 01-278 1014.**



LONDON ZOO AQUARIUM

Aquarium day at the Zoo

Sunday, 13 December is a very special day for fish hobbyists — it's the first ever **Aquarium Day** at London Zoo. A full programme of events has been organised for the whole family in the Meeting Rooms at the Zoo, followed by a private tour of the world-famous Aquarium.

Tickets for Aquarium Day are available from the **Press Office, London Zoo, Regent's Park, London NW1 4RY.** (Tel: 01-722 3333). The cost is a mere £4.00 for adults and £2.00 for under 16's. Children under five are free. Since this ticket price includes admission to the Zoo, it's a great opportunity for a family day-out. Please make cheques pay-

PROGRAMME

11.00 a.m.	Arrive, coffee
11.30-12.30	Illustrated lecture by Dr David Ford of 'Aquarian' — <i>Fishkeeping around the World</i> . Surprise 'fishy' film.
12.30-13.00	Surprise 'fishy' film.
13.00-14.00	Break for lunch (own arrangements).
14.00-15.00	Illustrated lecture by Dr David Pool of 'Tetra' — <i>Keeping your fish healthy</i> .
15.00-15.30	Illustrated talk by Dr Chris Andrews of London Zoo — <i>The Zoo and its Aquarium</i> .
15.30-16.15	Coffee and informal discussions.
16.15-17.30	Private visit to the Aquarium, including a look behind-the-scenes.
17.30	Aquarium closes.

able to 'London Zoo' and enclose an s.a.e.

Other attractions include a free raffle in which you can win a complete set of **Fishkeeper's Guides** from Salamander Books.

Further information: **Dr Chris Andrews, Assistant Curator (Aquarium), 01-722 3333 Ext 480.** **Julie Fitzherbert-Brockholes, Public Relations Officer, 01-722 3333. Ext. 233.**

Diary dates

Catfish Association of Great Britain

The Catfish Association of Great Britain annual Convention will be held on **Sunday 29 November 1987** at Amersham Community Centre, Amersham-on-the-Hill, Bucks. Speakers will be **Dr. K. Banister** talking about **Fishes of Korea** and **John Dawes** talking about an **Amazon Trip**. The third speaker has yet to be confirmed. Further details can be obtained from **Mr. M. Goss (Secretary), CAGB, 25 The Gowers, Chestnut Lane, Amersham, Bucks.**

Whatever happened to summer?"

That's a question we all ask ourselves at some time, particularly when we realise that the nights are drawing in and there is a 'Backendish' bite in the air and the time has come to prepare our pools for the coming of winter.

Everyone has his/her own pet theory on how to approach the many pre-winter tasks which need to be done if our fish are going to survive in top notch condition, and I am no exception, the only difference being that my system does seem to work.

While it is not unknown for the inhabitants of the UK to enjoy several sunny days in November and December, it would be a very unwise Koi-keeper who delayed making a start in the hope of working in optimum conditions, so we grit our teeth and get on with it.

If you have not already divided and 'culled' any plant life within your pool, for goodness sake make this the first job, as there is bound to be much disturbance of soil and sediment resulting from lifting and replacing baskets, containers etc. I always make a point of attending to these jobs and then allowing the water to settle for a couple of days before giving the pool its last good clean of the year.

You should not need reminding that all fallen leaves, dead water plants, etc, must be removed as these will decompose with amazing rapidity, resulting in the release of highly toxic gases capable of decimating your fish population literally overnight.

Having hopefully completed the 'gardening', one's attention can be turned to the pool cleaning operation. How you go about this, of course, depends upon the type of pool you have. If you are fortunate enough to have a concrete pool like me, it's a doddle, involving the attachment of a scraper plate to the end of my vacuum pipe and running this over the bottom of the pool thus removing the remains of algae and leaving a nice clean pool floor. (The walls are left undisturbed as the layer of algae and blanket weed provides a marvellous 'larder' for winter feeding).

Should your pool be of the Butyl-lined variety, the use of a scraper is, obviously, not possible owing to the risk of tearing, so cleaning must be limited to simple vacuuming of loose material, but do leave the walls alone. One can always resort to the use of chemical means as an aid to pre-winter cleansing but you **MUST** remove all traces of dead growth for the reason already stated. Personally, I prefer not to disturb the pool ecology in this way but, there again, my views on chemicals are well known.

If your filter system has been working properly all through the year and has been properly maintained, there is absolutely no point in disturbing it, so **LEAVE WELL ALONE!** The bacterial colony will survive the winter and give you a headstart next spring over those people who insist on a complete strip-down and wash-through each autumn.

Of course, if you are one who shuts down the whole system for the winter, you will



Provided all the necessary autumn pool maintenance tasks have been carried out, Koi should be able to survive conditions such as these without too much trouble.

WHATEVER HAPPENED TO 'SUMMER'?

Winter is round the corner and preparations should be well underway already. **John Cuvellier** offers expert pre-winter advice

need to clean your filter out. In that case, I can only advise you to think again and leave everything running. Certainly, with the system running throughout the winter, the risk of a solidly frozen pool will be greatly reduced and the water will definitely stay in better condition than if allowed to stagnate.

Many Koi-keepers do not yet realise that in a body of stagnant water, ammonia and similar toxins sink to the bottom, creating an area which is utterly deadly to fish, and that keeping the water moving around the system limits this accumulation of poisons. A daily brief pulling of bottom drains will reduce the risk even further, but it must be brief to avoid drastic alteration of the temperature in the lower regions, remembering that below four feet of depth, temperature variations are insignificant, however much the surface temperature may fluctuate. We all know that Koi can withstand quite low temperatures, but they do not like 'ups and downs', so easy does it.

After a hard season's effort, your pumps are bound to be feeling a little sick, so a quick overhaul is in order. Whether your pump is an externally mounted type, or a submersible, the drill is the same, simply a matter of getting at the impeller and removing any detritus which may have lodged in the vanes. In my own case the culprits are strands of blanket weed and microscopic shells. Following removal of this rubbish, the improvement in output needs to be seen to be believed. In the case of the larger type of submersible pump, the only maintenance required is that of cleaning the inlet screen. **DO NOT ATTEMPT TO DISMANTLE PUMPS ANY**

FURTHER as there are no user-serviceable parts. Should there be signs of perishing or damage to the supply cable, contact your supplier regarding repair or replacement.

If your pool was not provided with some kind of underwater refuge for your fish in the design and construction stages, you boomed, didn't you? Don't say we didn't warn you in earlier editions! Do the next best thing and float a sheet of polystyrene on the surface, but do not anchor it against removal by winter gales. When you see your fish sheltering gratefully under this cover the wisdom will be apparent. Those of you whose pools are very exposed to howling frosty winds should also invest in one of the pool heaters available from various advertisers in this magazine. Their modest cost and low running expenses will more than repay their outlay in preventing an 'iceover'. Any mention of treatment for disease or injury to Koi has deliberately been omitted because that should have been attended to weeks ago and by the time you read this, any 'in-pool' treatment would be almost pointless as pool medications are of little or no use below a water temperature of about 60°F (15.5°C). If you do have a sick fish at this time of year get it into a hospital tank pronto, otherwise you will surely lose it. One final word on winter feeding: **DON'T**, with the proviso that a minute amount of sinking wheat germ might be beneficial during a mild spell. Please don't overdo it since, should the weather suddenly turn again, undigested food in the stomach of a Koi could be fatal. Me, I leave them to feed on the naturally available fodder in the pool and they flourish. Have a good winter.

OUT AND ABOUT

with John Dawes

Water World's Fascinating World of Water

There's nothing quite like being stuck up the Amazon with someone, when you're suffering from a severe bout of Montezuma's Revenge, to discover whether you like that person or not!

An unlikely scenario, perhaps, but one that, I assure you, is perfectly accurate. That's precisely how Eddie Pillinger (owner of Water World) and I became friends — two of a party of 29 O.F.I. members ... every single one of us nuts about fish and anything else aquatic (see my articles in January and March, 1987, for a report of the trip).

At the time, I hadn't visited Water World but, come the end of our Amazonian trip, I felt I knew the place like the back of my hand. I also felt that, if the reality was anything like my mental picture, then Water World was something special. Well, I was wrong ... it's better!

If you want anything to do with anything aquatic, you are likely to find it at Water World. This is no ordinary retail outlet ... it is a complete world of water, spread out over an area of six acres in South Wirral, in which you can find everything from the smallest tub of flake food to the largest pre-fabricated pond, plus everything else in between (and some more besides).

When I visited Water World, there were hundreds of people there, a figure that rose to well over one thousand as the day wore on ... and you still had ample space to move about freely in search of whatever you were after. And that was in the middle of the week. Weekends are even busier; yet, you are never hurried or pushed for space, and there's always someone on hand to serve and give expert advice.

Everywhere you look, you find signs of Eddie Pillinger's observant and caring touch, from the simple ramps and the absence of steps, specifically designed to take whole parties of wheelchair-bound aquarists, to the spotlessly clean and wel-



coming cafeteria and the highly individual and striking pagodas housing the coldwater, tropical and marine aquarium stocks.

If you want to buy a water lily, you have numerous varieties to choose from ... each and every one propagated and grown by Water World; if you want pond "furniture", it's there; if you want a pet (other than fish) you can select one ... and so on.

Water World is a place that has grown out of one man's love for aquatics, allied to a highly creative approach to the business of product presentation and marketing.

Eddie Pillinger's "pedigree" goes back a long way to the days when, as a schoolboy, he used to aerate his tanks by controlling the release of air

from a football bladder which needed pumping up several times a day. This was the time when a Neon could cost you 75/- (£3.75 in today's currency).

Even the conversion of three basement rooms and garden into a Public Aquarium (between 1959-64) which was known as Greenfield Aquatics and was open to the public seven days a week (in the evenings), was not enough to satisfy an ever-expanding need to learn more and become in-

involved in ever-more-exciting projects. In 1964 came the first shop, Merseyside Aquaria Co., followed, in 1968, by a second one.

It was at this stage that the name Water World was born. A thorough search at the Registrar of Business Names in London led to the discovery that there was no company using the term "World" in its name at the time. In fact, even Disney World was known as Disney Land in those days.

The combination of the two words was therefore registered under the name Water World in 1968 — a step which gave the company a unique name and served notice of Eddie's longterm aims.

It is particularly impressive to see just how well these aims have been put into practice. Equally impressive is the way ideas are constantly being explored to improve and develop things further. No question here of resting on one's laurels, considerable though these laurels are.

If you want to find out more about this very special aquatic centre, contact Eddie Pillinger at Water World, Chester High Rd, Burton, South Wirral L64 8TC. Tels. (051) 336 7718 or (051) 336 3616.



PRODUCT ROUND-UP

by Dick Mills

THE PET TRADE AND INDUSTRY EXHIBITION AT ALEXANDRA PALACE

PART I (Part II to follow next month)

PENN-PLAX

The name of **PENN-PLAX** will jog memories of readers familiar with long-since published American aquatic magazines. Their products are gaining prominence over here now and company Vice-President Terry Goldman took time out to show some of them off to me.

The **UNDERCURRENT UNDERGRAVEL FILTER** has many innovative features — no unsightly lift-tubes for a start, the air supply is fed to a horizontally-mounted, tubular diffuser made from **POLY-CYL**, another **PENN-PLAX** developed product (available in several sizes as separate **BUBBLE WALL** diffusers.) The diffuser is situated within a 10" Bubble Wall lift chamber. This lidded rectangular boxed-off area not only prevents gravel from encroaching but also contains two additional filter cartridges, one holding carbon, the other zeolite. Changing these cartridges is simplicity itself — hinge back the lid (which also acts as a fish-guard), lift out the old and insert the new. The emerging bubbles from the dif-

Interpet Battery Operated Air pump — ideal for live bait and show fish — a handy standby if all else fails!

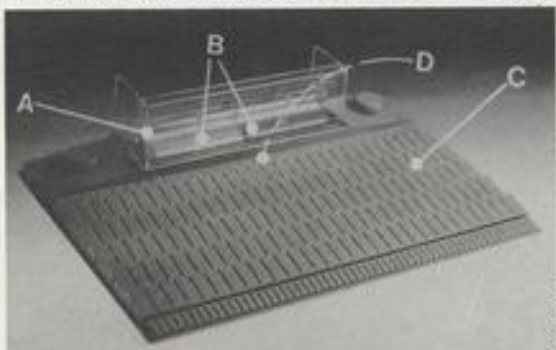
INTERPET LTD



fuser not only give ample evidence of the filter's uniform water flow rate (equal to 10 airstones) but also provides a backdrop of decorative bubbles. Although designed to work with airpumps, provision has been made for the insertion of two

independent lift tubes for use with powerheads if so desired. The filter comes in eight sizes, allowing a wide range of applications from 5.5-135 gallon tanks.

A triangular-sectioned, internal **CLEAR-FREE CORNER**



The Penn-Plax undercurrent u/g filter: A — Bubble wall air diffuser. B — Carbon and zeolite cartridges. C — Even flow filter plate. D — Fishguard gridded surface.



The Lincoln — a 54" member of the County Collection from Aqua Joinery.

FILTER (available in two sizes, for tanks up to 30 gallons) is so simple that you wonder why it hadn't been invented sooner. The airstone providing the water flow remains clipped in place in a holder held by suction-pads to the aquarium sides. Unclipping the self-draining filter body (when the viewing window shows that the filter medium is dirty) allows filter medium changing to be done without any mess or disturbance to airline connections. The supplied, preformed filter pad contains floss, carbon and a foam insert for multi-function filtering.

TOP-SET VALVES are air control valves with a difference. They are designed to be mounted on the top edge of the tank by means of an adjustable hanger to fit any tank size. It has a clear hinged plastic lid to protect valves from condensation damage and mineral build-up (and perhaps unauthorised interference) and the high-quality brass valves themselves have easy-to-get-to, easy-to-see levers to adjust the air flow, not screw-down clamps or needles. Available in 2, 3, 4 or 5-ganged sets, each set has an extra bleeder valve.

All these **PENN-PLAX** products can be recommended for their ease of use and Nick Lushchan's heart (**Helping Hand** author) will be gladdened.

Penn-Plax, 2A Post Office Avenue, Southport, Merseyside (Tel: 0704 44662)

INTERPET

Still with filters, the **WHISPER POWER FILTER** from **INTERPET** is another filter with many advantageous features. A mere cupped handful (or filter lidful) of water is enough to set this self-starting system going, flow rate

PRODUCT ROUND-UP

is easily regulated by a top-mounted control knob and the lift-out filter cartridge (of floss and carbon) makes for simple replacement. Again, being situated at top tank height, handicapped hobbyists will have no problems in operating or servicing this filter.

At a more simple, but equally effective level, the new AIR-STREAM SPONGE FILTER is capable of extra-fine filtration for crystal clear water. The return flow pipe is not only multi-positional but adjustable to give quiet operation. Ideal for fry-raising and Killifish tanks the filter retails for £1.35.

Transporting live fish on long journeys or hot days (we should be so lucky!) can bring oxygen-deficiency problems. Whether the fish in question are show specimens or even live bait for a fishing trip, INTERPET'S new BATTERY-OPERATED AIR PUMP will give your fish much-needed relief. Running on two R.20 1.5 volt batteries, the pump's piston-mechanism makes for longer, quieter and more efficient operation, getting air down to 18" in the aquarium. Power cuts or diaphragm failures need no longer make your fish come up for air, and £7.46 is a small price to pay for this peace-of-mind standby.

INTERPET remedies have been re-packaged into EASI-DOSE containers for maximum ease of usage, with dosages being accurately dispensed every time, again an asset for aquarists with limited physical capabilities.

Interpet Ltd, Vincent Lane, Dorking, Surrey RH4 3YX (Tel: 0306 881033)

KING BRITISH

A new line from KING BRITISH is three-dimensional decorative backgrounds for mounting on the rear of the tank. When viewed from the front they give an added illusion of rearward 'depth' (holographic) to the aquarium. Various scenes are available (the marine scene features a Shark) and come in two sizes, 2ft and 3ft with a maximum height of 18" which can, of course, be physically trimmed down to suit your requirements. Suggested prices are around £10 and £12 respectively.

The KING BRITISH range of water treatments has just been expanded to include (for use in aquaria): Iron Fertiliser,

Green Algae Control, Rio Negro-Jungle Water Tonic and Plant Food. On the pond front, there are: Green Algae Control, Pond Fertiliser and Environmental Stabiliser, a brand-new product designed to combat atmospheric pollution such as acid rain, exhaust fumes and air-borne fertilisers (a most welcome and "current" or "topical" addition to the KB range).

King British Aquarium Accessories Ltd, Hayfield Mills, Haycliffe Lane, Bradford, West Yorkshire BD5 9ET (Tel: 0274 573551, 576241)

NORFINE

Tired of straining newly-hatched Brine Shrimp through an old cloth or handkerchief? NORFINE NETS have just the answer — a HATCHING BRINE SHRIMP net (2HBS). Mounted on a poly-coated 3" x 4" frame, the very fine mesh traps the tiny shrimps perfectly, although show-minded hobbyists will quickly seize on another use — removing suspended matter from their show tank water once the fishes have been benched! At the other end of the scale, the 12" ROUND POND NET (10RP) is now available bound on plastic. If you have capturing problems, somewhere among the 50 or so nets NORFINE produce there's sure to be one for you.

Norfine Nets, 17 Wells Road, Fakenham, Norfolk NR21 9EG (Tel: 0328 4959)

TAHITI AND AQUA JOINERY

One advantage of the all-glass aquarium is that it can be incorporated into a piece of furniture much more aesthetically than could its angle-iron predecessor. Companies have realised this potential and were exhibiting such new products.

TAHITI AQUARIUMS have evolved their MARINA CONCEPT as an ongoing development from their popular smaller aquarium range. Three, as yet to be formally named, ranges will be available — the BASIC (24"-48" in six sizes, £78.40-£129.50), STANDARD (30"-48" in five sizes, £122.50-£171.50) and DELUXE (36"-72" in twelve sizes, £149.60-£294.00). The Basic range comprises a tank mounted on a simple carved stand, the

STANDARD has a central storage cabinet, while the DELUXE has two storage cabinets. The larger sizes in the two bottom ranges and the majority of DELUXE aquariums are subject to order and 2 weeks delivery.

Tahiti Aquariums, 60 Stockport Road, Ardwick, Manchester M12 6AL

A new company, AQUA JOINERY LTD has already decided on the names for its COUNTY COLLECTION of twelve magnificently furnished tanks. Ranging from the 19" eight-sided KENT, through the 21" cube-shaped DEVON, the 36" L-shaped HAMPSHIRE, to the 48" bow-front SURREY and beyond to the ultimate 54" BERKSHIRE, CORNWALL, LINCOLN or DERBY, the beneath-tank storage space is available in various wood trims and, depending on model, hinged or sliding doors. Tank finishes are to match and come complete with hinged hood and sliding cover-glasses. Full details and prices from:

Aqua Joinery Ltd, 8 Boulton Road, Reading, Berkshire RG2 0NH (Tel: 0734 312077)

HAGEN

ROLF C. HAGEN had several new products on view: new models of the AQUA CLEAR range of power filters (Mini, 150, 200 and 300 series). These have easily replaceable carbon and foam filter cartridges. The THERMAL COMPACT PRE-SET aquarium heater/thermostat is a very smart-looking combination unit, available in 50, 100, 150 and 200 watt sizes and retailing at around £12.99 RRP. If you have Turtles and Terrapins, then how about keeping them comfortable in the new TURTLE HOME, a lidded circular, dual level, furnished portable tank? You can also treat them to a comprehensive range of new freeze-dried foods (available in many various ingredients for fishes too). If you're too generous with the food, you can do with the efficient GRAVEL CLEANER now re-packaged.

Rolf C. Hagen (UK) Ltd, 275 Kirkstall Road, Leeds, West Yorkshire LS4 2BZ (Tel: 0532 796566)

NEWS

Four new video tapes will enable you to sample the excitement of coral reef scuba-diving from the comfort of your own armchair, without all the inconveniences of air fares, airport delays, blazing hot sunshine and foreign foods.

Available from Kingfisheries Ltd, 308 Croydon Road, Beckenham, Kent BR3 4HR (Tel:

01-650 3716), they detail dives around the Puerto Galera area of Mindoro Island in the Philippines and include such highlights as the savage Clownfishes, death-defying taxi rides and the threat of a typhoon! Tapes can either be purchased outright at £20.00 each or may be hired for £5.00 per week each (with £20.00 deposit).

The One That Got Away!

September's Regional Focus feature on Yorkshire somehow omitted to mention one of the long-established manufacturers/wholesaling/retailing outfits in the county — B. T. Foden Aquarist. The business started life as a result of the present proprietor's father taking up fishkeeping as a hobby in 1945. By 1948-49 this had blossomed into a full time business which has grown ever since.

In addition to its retail premises, B. T. Foden now supplies over 200 shops nationwide, with a turnover of around £250,000 per year. The well-known and now-established Aquarium Air Supply Blower

is also a B. T. Foden creation with sales in other countries besides the UK (eg. 100% of all blower sales in Malta). The company's most recent venture is in shopfitting, carried out by its own team of shopfitters or by D.I.Y. units.

Alongside all these activities, there is also a free advisory service on all aspects of the aquatic retailing business.

Having slipped through our net once, we are delighted to have "recaptured" this information.

B. T. Foden — Aquarist, 93 Thornhill Road, Longwood, Huddersfield, West Yorkshire (Tel: 0434 655445)

Books

A Practical Guide to Keeping FRESHWATER AQUARIUM FISHES

By John A. Dawes
Published by: Hamlyn
ISBN: 0-600 55183-0
Price: £8.95

John Dawes begins his new work with some provoking thoughts on the make-up of the freshwater aquarium hobby; just what constitutes thoughts on the make-up of the freshwater aquarium hobby; just what constitutes 'tropical' or 'coldwater' species and where, if necessary, would you draw the dividing line and how definite should it be? Before you get too adamant about your own views try answering this — how would you describe fishkeeping within a tropical country where the ambient water temperature suits both tropical and coldwater species alike? So, the book gets you off to a good start and tunes up your mental processes for the remainder.

The work is divided into three main parts, the first covering Fish Biology and the Aquarist in which Anatomy of a Fish, Fish Nutrition, Fish Health (note the author's preference for a positive view rather than the more usual negative Fish Diseases approach) and Fish Reproduction. Each subject is dealt with clearly and includes easy-to-read instructional steps or tabular information.

The second part considers The Aquarium, together with its associated equipment, furnishings, setting up and subsequent maintenance. The concluding section on aquarium plants may not be copiously illustrated,

but it contains much information on the necessity for plants and how to cultivate them, including the important factors such as light, extra carbon dioxide supplies and minerals, trace elements, salts and vitamins. Growth media, the effect of undergravel filtration on growth and the successful growing of plants under more difficult conditions (in the presence of foraging or digging fishes) are yet more plant management tips revealed within the excellent chapter.

Naturally, the third section, The Fish, is the largest and describes 150 species, most of the more popular having the descriptive text accompanied by a colour photograph. Related, often kept, other species are tabulated at the end of each family group. Perhaps revealing his predilection for live-bearing fishes, the author describes these species first: Four Eyes, One-Sided Live-bearer, Poeciliids (or normal livebearers), Goodeids and Halfbeaks. Moving on to the egg-laying genera, the list is just as comprehensive: Characins, Headstanders, Distichodids, Hemiodontids, Pencilfishes, Carps (including Goldfish and Koi), Minnows, Danios, 'Sharks', Barbs, Rasboras and other Cyprinids. Cichlids, Labyrinthfishes, Leaf-fishes, Catfishes, Killifishes, Ricefish, Loaches, Rainbowfishes, Hatchetfishes, Glassfishes, Gobies, Spiny Eels, Pirate Perch, Sunfish and Mud Minnows.

Following the family introduction, each species is described under set headings: Common Name, Scientific Name, Synonyms (if any), Designation (tropical or coldwater), Geographical Distribution, Size, Water Preferences, Diet, Breeding, Additional Information.

Now for the good, the bad and the not-so-sure impressions: the merits are undoubtedly the excellent presentation coupled with very authoritative text and worthwhile practical information. Unfortunately, some misspellings have crept in (along with an inspired



guess?) at one particular scientific name; one incorrect picture and one upside down — all during the later stages of production and, thus, out of the control of the author.

Although in itself the book was a pleasure to read, I found myself trying to discover some rule of order in the presentation of species; they were neither 'evolutionary' nor alphabetical (either under common or scientific names). In the end, I tried popularity order and this seemed to work quite satisfactorily (for instance, Characins began with the Neon Tetra, Cichlids with the Angelfish), perhaps coincidentally telling you more about the author than the fish. Upon further reflection, I felt that this endeavouring to understand the planning of the book did not actually matter too much after all; experienced aquarists being quite capable of finding any desired information, and beginners not worrying at all about the niceties of taxonomic classification; any 'disorder' was quite in keeping with the book's introductory remarks about the ineffectiveness of erecting rigid barriers between groups of fishes! Finally, I just sat back and enjoyed the book for itself — something I tend to do with fish all the time — the imparted knowledge being far more important (and useful) than mere presentation details.

Dick Mills

LMB/Aquatop Competition Winners

Thank you, yet again, for a tremendous crop of entries. The six lucky winners are:

First Prize: Cabinet, tank and equipment worth £270
Robert Stevenson,
98 Chadderton Drive,
Thornaby,
Cleveland, TS17 9QB

Second Prize: Stand, tank and equipment worth £220
Margaret Louise Marshall,
8 Harlow Road,
Ll. Eversden,
Cambridge, CB3 7HB

Third Prize: As first, but worth £200
Mrs D. Thomas,
23 High Street,
Ellington,
Huntingdon,
Cambs. PE18 0AB

Fourth Prize: As first, but worth £170
N. McAndrew,
32 Azland Road,
Bridgend,
Mid. Glamorgan CF31 1TF

Fifth Prize: As second, but worth £160
J. I. Surridge,
12 Netherfields,
Leigh,
Lancs. WN7 5LD

Sixth Prize: As fourth, but worth £100
D. Stokes,
Pt. 3, 69 Moorland Road,
Weston-super-Mare,
Avon, BS23 4HS

Congratulations to all our winners and sincere thanks to LMB Aquatics/Aquatop Ltd. for their generous sponsorship.

NEXT MONTH

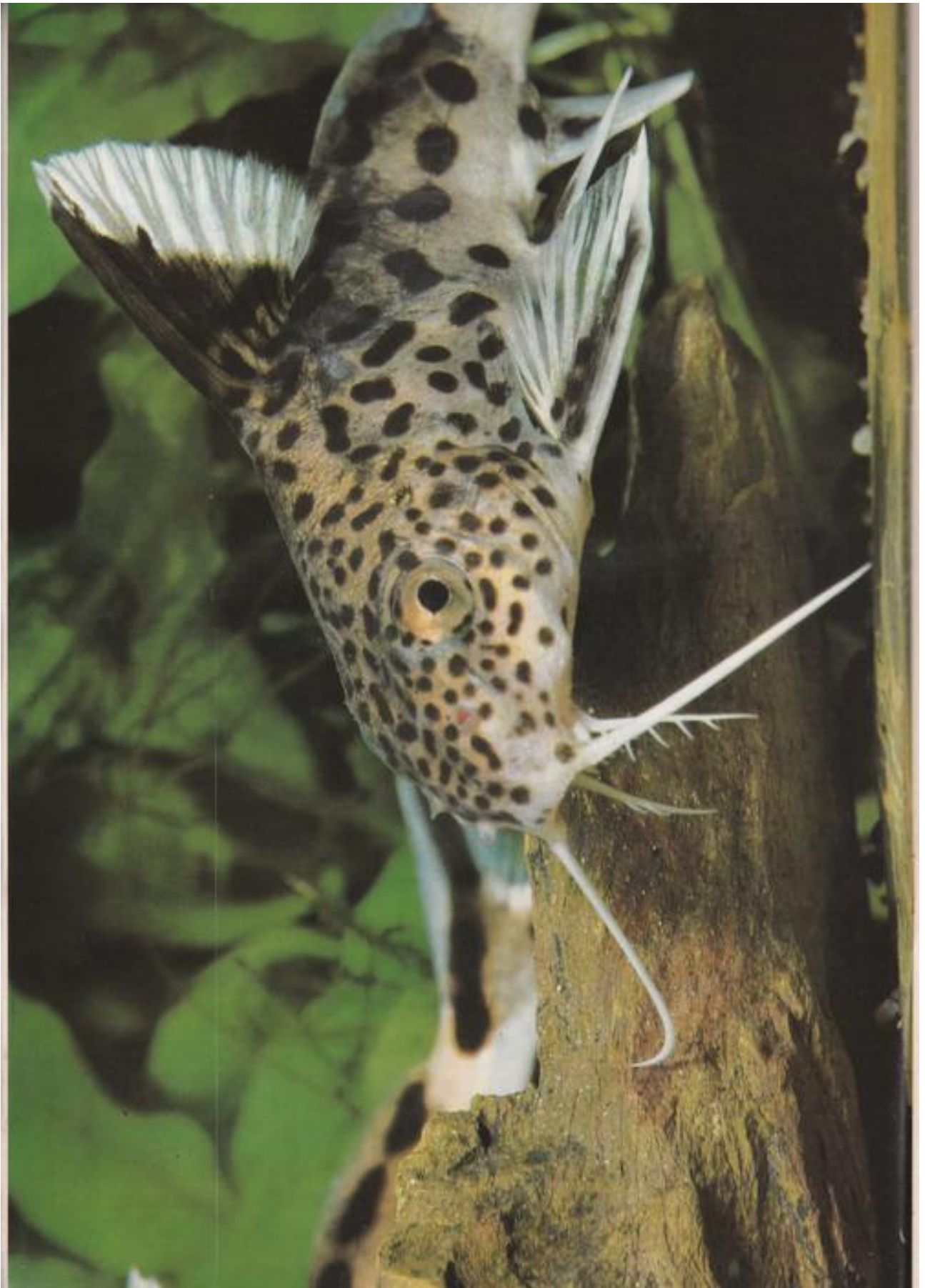
December beckons and with it comes the end of a highly successful year for A & P — a year that has seen quite a few significant developments in the hobby.

We've therefore invited three famous Davids: David Sands (Dee Bee Books), David Ford (Aquarian) and David Pool (Tetra), to give us their thoughts on 1987 and their hopes for 1988. Their individual, and very different, contributions, are not only interesting, but also highly informative and thought-provoking.

David Sands pops up again with a fascinating insight into the life of one of the rarer mouthbrooders in a special Spotlight feature.

For a report on a fish show with a difference, don't miss John Dawes' colourful account of his latest trip to Singapore where he came across a fish that had never before been seen in the country.

Koi, coldwater fish and marines all get their fair share in our packed December issue which is also packed with specially commissioned Christmas features, competitions, book ideas and news of some of our exciting plans for 1988.



SYNODONTIS MULTIPUNCTATUS

Synodontis multipunctatus is an African Catfish with rather unusual cuckoo-like breeding habits, as David Sands explains. Photograph by Arend van den Nieuwenhuizen

Some of the most attractive *Synodontis* are found in Lake Tanganyika, in Tanzania, a country that borders Zaire. This 250-mile long lake is home to some of the most outstanding species (at least in shape and colour patterns) of all catfishes known.

Synodontis multipunctatus, has a beige body, splashed with chocolate-brown spots; no two specimens are alike in colour pattern. The largest specimen ever examined measured 275mm total length (11 inches!) but captured fish for export have never been this large. With Steve Pritchard, I looked at the preserved material in the British Museum in 1979 and there was some confusion among specimens of *Synodontis pericolor* Matthes, 1959 which, although much smaller as an adult (101mm-finch total length), carries a remarkably similar colour pattern (see my colour article on Tanganyika *Synodontis* in *AGP* May, 1985) and confuses most fishkeepers and photographers.

Habitat

S. multipunctatus lives in large shoals that swim across the sand beds and in among the lakeside rubble. At 150-175mm (six or seven inches) long there is no other species of catfish, from the 5000 to 6000 believed, by some, to exist (but estimates vary widely) which can rival the 'Many-Spotted' *Synodontis* for beauty.

The water conditions are hard and alkaline and this should be reproduced in the aquarium, with a pH range of 7.5 to 8.1 and hard water with a temperature range of 75F-79°F (24-26°C).

Mystery

In Rift-lake aquaria, this catfish has proved something of an enigma — in that it would appear to 'cuckoo' spawn with *Pseudotropheus*, a Lake Malawi cichlid. Pierre Brichard, a life-long collector of fishes from

the lake, explained to the fishkeeping world that he had often found young *Synodontis* in the mouths of Lake Tanganyikan cichlids. Had they slipped into the open mouth of the sleeping cichlids during a typical catfish night-time forage, or had they been inadvertently collected up by the mouthbrooding cichlid in mistake for their own eggs or fry?

Strangely, the cichlids mentioned by Brichard are an unusual lot, *Cyphotilapia frontosa*, the Striped Hump-head, *Cyathopharynx furcifer* and *Ophthalmotilapia nasutus*. In one case a *Tropheus duboisi* was thought to have simply eaten the *Synodontis multipunctatus* egg by mistake.

Research in 1985 on Lake Tanganyika by Japanese scientist Tetsu Sato on brood parasitism showed, among 512 cichlid broods, an 8% incident of catfish fry in among *Simochromis*, *Tropheus* etc.

How this applies or effects the other *Synodontis* species in Lake Tanganyika that are closely related is not clear.

Aquarium information, from cichlid breeders, suggests that the 'sneaky little catfish' are stealing cichlid eggs while releasing in a few of their own for good measure. This clever strategy still needs to be the subject of an extensive research, but failing that, it should be considered a bonus that these catfish provide an interesting side-line in reproduction.

Aquarium Conditions

Due to the high alkaline and hardwater conditions of Lake Tanganyika, it is essential to keep *Synodontis multipunctatus* in a pH range of 7.4 to 8.0 and a hardness of 20-30 degrees. They can be placed in neutral water but, should the pH lower (increased organic material in the water/high stocking levels), they will become extremely listless and slow to feed.

A suitable aquascape for lake *Synodontis* would consist of plenty of large and smooth water-worn rounded boulders, some placed

on top of each other to create cracks and spaces in which catfish can secrete themselves. The type of rocky set-up that would suit African Rift Lake cichlids is ideal. If rounded boulders are not available, a good effect can be achieved using clean limestone pieces. Once a healthy growth of green algae has formed on these white rocks, catfish and cichlids will graze across it, especially as flake food and shrimp are caught up in the tufts of green.

Lake *Synodontis*, as mentioned in the opening paragraphs, are found in great shoals and, as such, should be kept in reasonable numbers if the aquarium is from four-foot upwards.

Solitary specimens are better than two in that a pecking order will soon be established and one against one will create an on-going bullying situation. Three specimens kept together will thrive and interact with each other, chasing, feeding and hopefully (based on the cuckoo principle) breeding in the aquarium.

There are few better aquarium sights than a group of *Synodontis multipunctatus* cruising across the open-spaced foreground of a well laid-out 'rocky aquascaped' aquarium.

Aquarium diet

Feeding *Synodontis* is not a fine art. Lake forms are small eaters; therefore it is advisable to offer a high percentage of crustacean food in the diet. All *Synodontis* should also be offered flake and pellet food, earthworms, bloodworms, shrimp and finely chopped spinach.

References

- Sands, D. D., *Catfishes of The World, Volume Two, Mochokidae*, 1983, and supplements, 1984.
- Sato, Tetsu, *Brood Parasitism in Fish, Nature, Volume 323 No. 6083, 4-10 September 1986.*

WHAT IS A CATFISH?

The question is simple — the answer certainly isn't, as Dr. David Pool of the Tetra Information Centre, clearly shows

Catfishes form a very diverse group of fish. You only have to glance through an aquarium text, or look in your local aquatic shop to see the numerous different sizes, shapes, colours and behaviours. In fact, there are about 2,500 different species (but see Spotlight in this issue), with more being discovered each and every year. Catfish are found throughout the world, with representatives originating from Africa, America, Asia, Australia and Europe. There are even true catfishes in the marine environment!

With such an incredible range of distribution, form and behaviour, what is it that makes a catfish a catfish?

The scientists' viewpoint

For the ichthyologist, identifying a catfish is relatively straightforward. The 30 or so different families of catfishes are all grouped together in the suborder Siluriformes, which, together with the suborder Cypriniformes (carps) forms the order Ostariophysi.

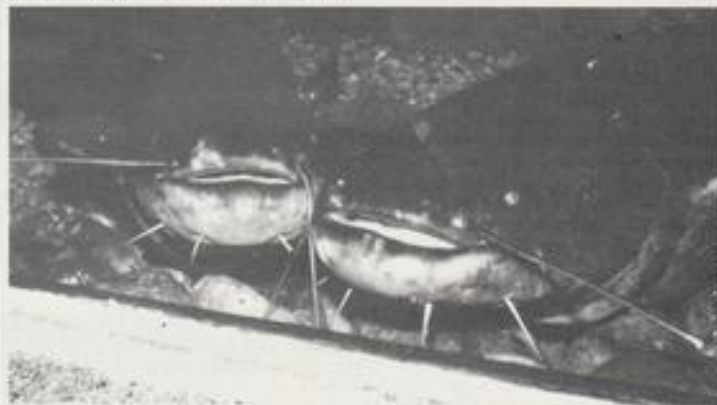
The Ostariophysi can be distinguished from all other fishes by the presence of the Weberian apparatus, a chain of bones linking the ear of the fish with its swimbladder. The Weberian apparatus greatly improves the sensitivity of a fish's pressure and sound detection. If a catfish had to detect vibrations using its tiny inner ear it would miss many of the soft or low frequency vibrations. However, by joining the inner ear to the swimbladder, any vibrations affecting the much larger swimbladder will be passed



Another well-known type of catfish is the 'Pleco' with its superb set of scraping teeth.



Corydoras catfish (these are *C. adolfoi* — smaller fish — and *C. imitator*) have, for many people, the "classic" catfish shape.



Silurus glanis, the European Wels, is far too large for most aquaria.

Catfish Families

The 2,500, or so (see Spotlight feature in this issue), different species of catfishes form the suborder Siluriformes. This suborder is divided into the following

Ageneiosidae — Bottlenose/Barbelless catfishes
 Amblycipitidae (including Akysidae) — Stream/Torrent catfishes
 Amphiliidae — Loach catfishes
 Ariidae — Sea catfishes
 Aspredinidae — Banjo catfishes
 Astroblepidae — (no common name)
 Auchenipteridae — Driftwood catfishes
 Bagridae — Naked catfish
 Callichthyidae — Armoured catfishes
 Catostidae — Whale-like catfishes
 Chacidae — Frogmouth catfishes
 Clariidae — Airbreathing catfishes
 Diplomystidae — Diplomystid catfishes
 Doradidae — Thorny catfishes

families, many of which are familiar to the aquarist, and some of which are the subjects of debate between various authorities.

Helogenidae — Bullet nosed catfishes
 Heteropneustidae — Airsac catfishes
 Hypophthalmidae — Loweye catfishes
 Ictaluridae — Bullhead catfishes
 Loricariidae — Whiptailed/Sucker-mouth catfishes
 Malapteruridae — Electric catfishes
 Mochokidae — Scaleless Upside-down catfishes
 Olyridae — (No common name)
 Pangasiidae — Asian catfishes
 Pimelodidae — Naked catfishes
 Plotosidae — Eel-tail catfishes
 Schilbeidae — Glass catfishes
 Siluridae — True catfishes
 Sisoridae — Sisorid catfishes
 Trichomycteridae — Parasitic catfishes

FOCUS ON CATFISH

along the Weberian apparatus and picked up by the ear. Consequently, catfishes and carps can detect vibrations more accurately than other fish — an obvious advantage as vibrations often mean danger or food!

The catfishes and carps are, in turn, differentiated by means of several identifying features. The catfishes have, for example, a different structure to the skull, some of the bones in the Weberian apparatus are fused, and the swimbladder is divided into 2 sections (not constricted as in the carps). More obvious from the outside, is the fact that the skin is naked (as in the Wels catfish *Silurus glanis*) or is covered in bony plates (as in the *Corydoras*). In some species there are small pointed scales, but never the smooth round scales found on, for example, a Goldfish.

The fishkeepers' view

For the majority of fishkeepers, such a careful examination would be impossible and, yet, for the majority of fishes it is possible to say at a glance if the fish is, or is not, a catfish.

Barbels

The first and most obvious indication are the barbels or feelers. In *Synodontis* and *Silurus* these are long and resemble cat's whiskers (hence the name catfish), whereas in *Hypostomus* species, such as the popular 'Plec' they are small and often difficult to see. The barbels have a number of sensory functions, including touch, taste and smell. They are used to locate food items and aid manoeuvrability in murky waters or at night time. As you might expect, their actual function varies from species to species. In *Synodontis* for example, they act as a sort of radar to detect and trap food items at night. *Corydoras*, on the other hand, push their shorter, stockier barbels into the substrate where they feel, smell and taste any food.

Body shape

The overall shape of the fish also gives a clue to its associations. Catfish in general are deepest and widest just behind the head, before gradually thinning towards the tail. Again, the shape of the fish is often adapted



Another rarity is *Synodontis granulatus*, one of the most sought-after members of this genus. This specimen was photographed at LMB Aquatics.



Despite the popularity that catfish enjoy, some species still remain rare within the hobby. This is *Euchlichthys guntheri*, one such rarity, photographed at Reflections Aquatic Centre.

to its environment. So, for example, *Brochis splendens* is very rounded, a shape that is ideal in slow flowing waters where it can bulldoze its way through algae and silt, but one that would be totally unsuitable in fast flowing water. Here, a more elongate, streamlined shape is preferable, such as in *Hypostomus* or *Bogarius*.

The skin

A third factor to consider is the skin of the fish. The vast majority of fish have scales covering the skin, whereas in the catfishes, the skin is usually naked or covered in large plates.

The advantages of having no scales are difficult to judge (one could speculate that it is easier to squeeze under stones and logs without having scales), but those of having plates are obvious to anyone who has poked up an armoured catfish. They are solid, and it would take considerable force on the part of a predator to bite through or crush the armour-plating. Add to this the spiked fin rays and the toxins exuded by many catfish, and you have a thoroughly distasteful mouthful.

Each of the above external characteristics suggests that a fish might be a catfish, but none on its own proves it beyond doubt. Take the barbels for example. Certainly, all catfish have barbels of one size or another, but so do many other fish. A carp isn't a catfish, nor is a Clown Loach or a Zebra Danio, and yet all have barbels.

And what about the lack of scales? Some fish don't have scales, such as a Mirror Carp, whereas others, such as eels and loaches have very small scales that are covered in mucus, making the fish appear scaleless.

The large variation in shape and form of the catfishes makes it impossible to give a list of features that will describe all members of the group. Such a large group of fishes, living in a very wide range of habitats, have obviously evolved to cope with their different living conditions. Through the long process of evolution, the external features of the catfish have altered dramatically, and it is only by looking internally that it is possible to say for certain that a fish is a catfish.

For the fishkeeper, there are short cuts. The best one is experience. Excellent photographs are found in books and magazines illustrating the various catfish groups. By comparing a new fish with these pictures it is possible to say with reasonable certainty that a fish is, or is not, a catfish and which family it is in. But what about a new species, from a previously unknown family? Enter the Weberian apparatus!

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CORYDORAS

(PART I)

(SUITABLE FOR BEGINNERS)

Dutch aquarist and photographer Arend van den Nieuwenhuizen, has spent many years collecting and keeping a very wide variety of fish. In this, the first part of a two-part feature, he introduces some of his personal thoughts on keeping *Corydoras*. (Photographs by the author).

Nowadays we divide the *Corydoras* into different groups:

Aeneus group — with *Corydoras aeneus*, *C. arcuatus*, *C. axelrodi*, *C. bonali* (with two sub-groups), *C. griseus*, *C. melini*, *C. metae*, *C. panda*, *C. robustus* and, in addition, quite a few others.

Acutus group — with *C. blochi*, *C. stenocephalus* and many more, including the unknown *C. ireitini*.

Barbatus group — with *C. barbatus*, *C. erhardti*, *C. macropterus*, *C. nattereri*, *C. paleatus* and some others.

Elegans group — with *C. elegans* (also known as *C. microps*, which are synonyms for *C. napaensis*), *C. hastatus*, *C. pygmaeus*.

Punctatus group — with *C. agassizi*, *C. ambacus*, *C. leopardus*, *C. leucomelas*, *C. melanistius*, *C. osteocaris*, *C. pulcher*, *C. reticulatus*, *C. sodalis*, *C. schwartzi*, *C. surinamensis*, *C. trilineatus* (offered nearly always as *C. julii* — according to Nijssen and Isbrücker, not known as an aquarium fish).

Corydoras punctatus, chosen by Nijssen and Isbrücker as a neotype, with which all the other species of *Corydoras* are to be compared, was found in Compagnie Creek in Dutch Guyana, a creek that crosses the way from Paramaribo to the Browns Mountain or Brokopondo lake. When we visited this area, the water was flowing — despite the dry period — quite fast and was, in certain places, 90cm (35 inches) deep. The water was less than 2 degrees dGH in hardness, with a temperature of 24°C (75°F).

C. punctatus, with its great variety of

Right, above, *C. panda*, which has a length of up to 4cm, had been caught by Foersch and Hanrieder in a mountain brook at the side of the Rio Lullapichis (Ucayali/Peru). The data of the water were: 3.1 degrees dGH; pH 7.7; the day temperature was 23.5°C (74.3°F); the night-temperature 22.2°C (72°F). On a warm day the water temperature in the shallow water of the mouth of the brook in full sunlight was 28°C (82°F) during the dry period.

Right, *C. trilineatus* (synonym *C. julii*) is one of the well-known *Corydoras*, but has not been bred.

colours, also occurs in other creeks of the Surinam rivers, as for example in the Witte Creek near Browns Mountain, which, in some areas, has a stony or sandy bed. The samples from the Marowijne Creek show very clearly a stronger pigmentation than those from other parts. We noticed that in this part, the bed was very dark. According to Nijssen and Isbrücker, the typical large, dark spots on the dorsal fin and the numerous spots on the head and body, as well as the stripes on the tail fin are decisive, when forming a shoal. The importance of these marks becomes

even more obvious when comparing the different patterns of colour of *C. punctatus* with the four other species of this area (*C. aeneus*, *C. boesemani*, *C. nanus*, *C. octocirrus*).

Substratum and Background are important

In the aquarium we should take the pigmentation of the fish into consideration, as well as the colour of the original stream bed. We would be well advised to keep the species *C. melanistius*, with their clearly dark pigmentation, on a mixed substrate of light and dark sand or fine gravel. We



should also do this with *C. schwarzi* (Brazil), *C. surinamensis* (Surinam, syn. *C. schwarzi surinamensis*), *C. panda* (Peru), *C. axelrodi* (Colombia), *C. bondi coppenamensis* (Surinam), *C. barbatus* (Brazil) and *C. pulcher* (Brazil), as well as others. In the aquarium you can very plainly see that the basic colour of these species, over long periods, changes, depending on whether a light or darker bed is used. For this reason we should avoid keeping together species of opposite colour types, which means, for example, not keeping together the silver-white *C. zychri* with *C. schwarzi* or *C. bondi coppenamensis*.

Groups are also important

Corydoras live together in both large rivers and small streams. You can find them almost everywhere, in more or less strongly running water. Their environment consists of fine-to-rough sand where, with their two long pairs of barbels (one of each on the upper and lower jaw, crossing one another in the corner of the mouth) and one short pair on the lower lip, they look for their food. These barbels are not only tasting organs, but also play a part in reproduction.

Corydoras can easily be seen in their natural environment gathering together in not only small groups, but in large ones as well. For instance, my friend Prof. Dr. Geisler watched groups like this gathering to find food near sand banks at night. According to his observations they also retained their groups in the aquarium,

FOCUS ON CATFISH



P. Compagnie-Creek is Surinam, home of *Corydoras punctatus*.

where some animals swim on the substrate, while others swim directly above them in mid-water, swimming exactly like *C. pygmaeus*, i.e. on the spot. As far as I have been able to see, *Corydoras* prefer to be in open spaces, among plants, and away from the front swimming area, because it is far too busy for them there.

Among the small *Corydoras*, *C. pygmaeus* belongs to the free-swimming shoal formers, while *C. habronus* nearly always lives on the bottom. Although both species are suited to small aquaria because of their small size, you will enjoy them more by keeping them together with other peaceful fish in a large aquarium like, for example, *Nannostomus*, which prefer areas of subdued light.

C. napeensis (syn. *elegans*) sometimes likes to swim in the middle layers of the water, hunting about among the plants, and obviously feeling better in subdued rather than in bright light, a fact resulting from their natural dark colouring and nocturnal habits. It is not only *C. amblyacis*, *C. leucomelas* or *C. reticulatus* that prefer to live among spacious plants, but also *C. aeneus* and *C. paleatus*, as well as others.

Within a shoal you can often observe the reaction of the whole group to that of a single individual. If one animal swims up to the surface to breathe, some others will follow; sometimes even all of them. You can also observe, in larger tanks, where you may be keeping one or more species of *Corydoras*, how the whole shoal follows one escaping animal, should there be a disturbance. This happens especially in peaceful conditions.



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CORYDORAS

Nanus	Macrocheilus	Caudimaculatus
Polystictus	Leopardus	Haraldschultzei
Guspiere	Gardneri	Aeneus
Panda	Prionurus	Sterbai
Zygenus	Bloch-Bloch	Reticulatus
Barbatus	Atropkinsonatus	

SYNODONTIS

Nummifer	Nyasa	Nigrita
Alberti	Multipunctatus	Brachyramdia SPs
Caudalis	Longirostris	Sorubimichthys Planiceps
Angelicus	Pleuraps	Freshwater Stingray
Acanthomas	Batesi	Gold Bagrid
Waterloti	Soloni	Tetraodon Fahlkei
Noratus	Nigriventris	Albino Lung Fish
Rochardi	Decorus	Nonohemphus Liemii
Roberti		

CICHLASOMAS

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COSTA RICA — CROSSROADS TO A FISH COLLECTING PARADISE



Rick Gibson, owner of The Fish World in Tampa, Florida, found Costa Rica even more exciting than the Amazon during his recent trip to this fascinating country — one of the world's oldest democracies.

Having just finished a great collecting trip last October with *A&P* editor, John Dawes (see *A&P* Jan & Mar '87), I wanted a vacation trip away from the fish business. Little did I know I would be travelling to an area that produces more exciting fish collecting than the Amazon.

I had told my travel agent I wanted to go somewhere different and cheap. She found a package deal to Costa Rica. Costa Rica? I had to look it up on a map. It seemed dangerously close to Nicaragua and the fighting. So I did some research.

Costa Rica is a neutral country with one of the oldest democracies in the Western Hemisphere, lasting over 150 years. The government is so stable that its army was abolished in 1949. Costa Rica is a small country about the size of Austria. The Pacific Ocean is on one side and the Atlantic is on the other side. Volcanos are found in the middle of the country. Everything, geographically and politically, looks good, so I chose Costa Rica for my vacation.

I did not even get off the plane before I encountered my first tropical fish. A local Costa Rican newspaper had been passed around the plane while in flight. On the front page of the "Sports" section was a picture of a large *Cichlasoma doriai*, the Dow

Left, above, the river Reventazón, home of numerous cichlid species, some being colour variants of those found in the still waters of the crater lakes.

Left, *Brachyrhaphis rhabdophora* — a beautiful livebearer from Costa Rica.

Left, below, *Neetroplus nematopus* is quite common in the crater lakes and their offshoots.



ROCK GIBSON



ROCK GIBSON

Just off this beach on Tortugas Island, I saw a dazzling display of tropical marine fish. If only I had had a net . . . !

This large and impressive *Cichlasoma dovii* came from one of the crater lakes.

Cichlid. It weighed 6 pounds (2.7 kg) and was caught during the annual Lake Arenal Amateur Fishing Contest. The caption read: "one of the world's most beautiful, tastiest, and hardest fighting freshwater game fish."¹

The day after arriving in Costa Rica, I took a trip to see the volcanos and their crater lakes. Nestled in the clouds, surrounded by tropical rain forest, these lakes are teeming with Mesoamerican cichlids. The fish range in size from the dwarf cichlid, *Cichlasoma sajica* (False Convict Cichlid), 10 cm, to the giant cichlid *Cichlasoma dovii*, 70 cm.² Most interestingly, the crater lakes are almost identical to the African Great Lakes. The water is hard and alkaline. The shores are rocky. Thus its not surprising to find the Costa Rican cichlid *Neotroplus nematopus* has similar body shape and mouth placement as the African rock-scraping cichlids *Tropheus*, *Pseudotropheus*, and *Steatocranus*.³

The run-off streams and rivers from the crater lakes have the same cichlids, only in different colour forms.⁴ On the third day I followed one of the streams down to the Atlantic. I took Costa Rica's famous Jungle Train. It went around Irazu Volcano, down gorges of the Reventazón River, through jungles and banana plantations, to the Atlantic coast.

Two more fish habitats are found on the Atlantic side. First, the rivers flow into brackish water marshes and mangroves. Here, the fish range from small livebearers and gobies to the larger game fish of trout

and tarpon. The second habitat, further down the coast, is the Caribbean coral reef. There are very few towns, and just one road goes to the Atlantic, in Costa Rica. The area is undeveloped. The only commercial use of fish is sport-fishing. Many of the tropical game fish can be caught — Marlin, Sailfish, Snook, Spanish Mackerel, and Corvina are plentiful.

The other coast, the Pacific, is more developed. Costa Ricans prefer the higher surf and easier accessibility of the Pacific beaches. I spent four days exploring these beaches.

For my first day on the Pacific side, I took a boat trip to an island called Tortugas or "Turtle Island". It was beautiful, with palm trees and white sand, just like the South Pacific islands you see in the movies. Underwater was even more spectacular with brightly coloured saltwater tropical fish darting in and out of the rocks. I saw many large Angelfish, Damselfish, and Wrasses. If only I had brought a net with me . . .

During my last three days on the mainland, I explored the Pacific coast around Jaco Beach. I found the water was too rough at most of the beaches. Only beaches sheltered by a cove or a bay were calm enough for snorkeling or collecting. As with the Atlantic side, the commercial collecting or fishing on the Pacific is limited to food and game fish. It is only a small industry supplying the local people.

Most Costa Ricans (85%) live in the

interior Central Valley and do not have much call for fish. Their main industries are coffee, beef, and fruits grown in the valley. The more technical or mechanised industries have not yet developed in Costa Rica.

A new industry, now developing, is tourism. The most noteworthy is the Ox-cart Factory — the small town of Sacchi takes great national pride in their hand-painted carts. The rest of the tourist industry relies on Costa Rica's natural beauty. There are many National Parks (2nd largest amount in the world)⁵ covering volcanic peaks to oceanside jungles. All the parks are within half a day's travelling distance from the Capital city of San José. With the scenic diversity and ease of excursion, Costa Rica is an ideal vacation spot.

It is a shame that the fish industry has not been developed. Currently there are no tropical fish exporters in Costa Rica.⁶

There are definite advantages to collecting in Costa Rica over the Amazon. For one, Costa Rica is closer to the United States and European markets than the Amazon. Second, in the Amazon River, all the tropical fish are freshwater. In Costa Rica, not only can you collect from the rivers, but you can also collect from crater lakes, brackish water, or saltwater from two different oceans. Finally, collecting sites in the Amazon are spread out over thousands of miles. In Costa Rica collecting sites are concentrated in the small country, all within easy reach.

Costa Rica, in general, needs more development . . . or does it? I came to Costa Rica for a vacation and discovered it has a richer variety of fish habitats than the Amazon. I would therefore hate to see development occurring similar to the Amazon. More forests do not need to be cut down in Costa Rica. Pollution, from more industry, does not need to come to Costa Rica.

Maybe Costa Rica should remain, undeveloped crossroads to a fish collecting paradise — a great place to visit with all its natural beauty, unspoiled.

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A HAT-TRICK AT Y.A.F.

A report on the Yorkshire Aquarist Festival, 12 and 13 September by Dr David Ford of 'Aquarian'.

The Yorkshire Aquarist Festival achieved a "first" this year — its very first show at Queens Hall in Leeds City Centre. Since 1985 the Y.A.F. Committee have been looking for a new home from their traditional, but restricted area, venue of the Doncaster Racecourse. They found it in the Leeds Exhibition Centre in Queens Hall. Although less light and airy than the Racecourse every stand and tableau can be housed in

The winning tableau from H.C.A.G. brought an early taste of Christmas to Yorkshire.



the one hall, making it simpler and easier for the visitor to wander around, and with no less than 65 classes there was plenty to see.

The black ceiling and dark floor gives Queens Hall a cavernous look, but this served to enhance the brilliance of the tanks of fish. The tableaux were also brighter, from the flashing white lighthouse of Y.D.A.S. to the flashing blue light of the Merseyside Police box (no, it wasn't a Tardis!)

The largest tableau was by Bradford and D.A.S., a life-size Hill Billy House complete with moving life-size models. The smallest was SLAG's Sputnik. The best was the Hobbies Centre Aquarist Group's Christmas scene. This was a giant Christmas tree resplendent with flashing light decorations and a giant Santa Claus who moved to and fro to the sound of Christmas carols

(which sounded most odd in September). The tableau (brainchild of Jenny and Bob Lack) was judged a clean first with 263 points, undoubtedly due to the clever use of piles of Christmas-wrapped parcels full of living fish.

There were 20 tableaux for visitors to view, many new to the annual fish-show circuit. They ranged from boxes of chocolates to a "Phantom of the Opera" organ, from a giant

draughts game to a living room scene with three superb marine set-ups.

Four specialist societies had stands at the show: the West Yorkshire Marine Aquarist Group (with their magnificent saltwater tanks), the Catfish Association of Great Britain, SLAG (UK) and the British Cichlid Association. The YAAS Yorkshire Association Information stand was busy all weekend.

Mr and Mrs Baldwin of Sandgrounders A.S. achieved the unique distinction of winning the Fish of the Year award for the third year in a row. Their fish is the Doradid Catfish, *Liosomadoras ovinus* which obtained 80% points. Congratulations!

Mr & Mrs Baldwin's *Liosomadoras ovinus* won its proud owners the Fish of the Year award for the third year running.



From researching nature

DoroMin foodsticks

Less waste... more natural goodness

Here's a naturally better fishfood that's unique to Tetra — floating foodsticks which absorb water quickly to become digestible almost immediately, but continue to float for ages! It's another clever idea resulting from extensive research at Tetra's West Aquarium — Europe's largest fish breeding centre. DoroMin foodsticks are made by a special extrusion process — to a formulation researched to provide a complete, perfectly balanced diet. And your fish will love them because they contain only the foods the fish would eat in their true natural environment.

Rich in protein, DoroMin foodsticks are ideal for larger fish such as cichlids, catfish, barbs, and sharks. And they're economical, with minimal wastage which also solves the problem of water pollution caused by uneaten fragments of conventional food.

Tetra



Tetra Fish Care, Mitchell House, Southampton Road, Eastleigh, Hants., SO5 5RY

Fish of the Year

First: Mr and Mrs Baldwin, (Sandgrounders), with a *Lisomadoras ocninus*.

Second: Mr and Mrs Carey, (York), with an *Ophiocephalus obscurus*.

Third: K. Lawson, (Wyke), with a *Tilapia zohra*.

Fourth: N. Yeates, (Bridlington), with a Common Goldfish.

Fifth: J. T. Graham, (Workington), with a *Cichlasoma umbriferum*.

Trade stands outnumbered the tableaux — there were 28. These included the ever-helpful 'Aquarian' Advisory Service and the usual neat and tidy stands of King British, Hagen, Tetra, 'Atlantis' and Promin. Non-aquatic exhibitors in attendance were Dry-Shine (polish your glass tank), Engravers (cups for your club), Countryside Confectionery (home-made fudge) and Floral displays (plus cuddly toys).

Many trade stands included tanks of fish for sale or display. 'Aquarian' had a pedestal unit with a very active display of two dozen African and South American Cichlids. Tetra had an Italian black furniture display of Tropicals. J.M.C. (with their International Aquatic Centre) had 40 tanks of Tropical and Coldwater species, including the rare (but cheap at 65p) Gelius Barbs from Sri Lanka. They were also selling the Florida Gar Fish at £17 (buyer beware ... these grow to

giants!) L.M.B. had 29 tanks of Tropicals and Marines. Their stocks included 10-inch Clown Loaches (at £35). Stephen H. Smith's Waterscape included three large marine set-ups complete with invertebrates. 'Atlantis' had three tanks bristling with pumps, filters, heaters and spray bars to illustrate their function. There was no room for any fish!

The most unusual display tank was a 4-foot by 2½-foot containing (approximately) 500,000 Brine Shrimp nauplii by Yorkshire Brine Shrimp Suppliers.

Belton Fish Farm had their usual display unit of 60 tanks packed with almost every species of Tropical fish.

Northern Discus were selling 100 large Discus in 7 varieties, with competition from Quality European Discus. Essington Aquatics had 22 tanks of Tropicals including a huge Giraffe Cat (at £75) *Auchenoglanis occidentalis*.

Results

Tableaux

1st HCAG — 263 points
2nd Bradford — 256 points
3rd Castleford — 229 points

Best Fish in Show

Synodontis waterloti, T. and D. Cruickshank, (NASTIES).

Best Exhibit

Aphyosemion bivittatum, P. Baker (Castleford).

Highest Pointed Tableau

SLAG — 33 points.

Highest Pointed Exhibitors

Des and Becky Penny — 24 points.

Aquatic Paintings

M. Moore, (SLAG) (11 to 16 years).

Mrs M. Whitaker, (Rothwell and Wakefield) (over 16 years).

Aquatic Photographs

D. Haagenen, (Hull).

Aquatic Handicrafts

Steven Haagenen, (Hull) (5 to 14 years).

Julia Williamson,

(Sandgrounders) (over 14 years).

Again this year, the South Yorkshire section of BKKS held their Annual Show with the Y.A.F. 18 huge (Japanese, of course) vats were placed at one end of Queens Hall to house the Koi for judging. The Grand Champion was a Size 6 (over 22in) Sanke by Gregory Peck. Many Koi Trade Stands

were at the show, including In-Filtration with their Gulliver-size gadgets for pond maintenance.

An unusual stand was a table sporting the American flag manned by Dennis Connelly from Miami, Florida. He was taking orders for American fish, such as Darters, Shiners, Sun-fishes, Madtoms and Killies. Dennis planned several tanks of these interesting American species, but the Customs at Miami Airport thought otherwise. Let's hope he gets them sorted out in time for BAF.

Well done the YAAS Show Committee. The silver and gold rosettes looked better than anything at Cruft's. Well done to 15 YAAS judges. Your choice of Best Fish in Show was correct. At 81 points, the fish was the *Synodontis waterloti* by Terry and Doris Cruickshank of the North and South Travelling Ichthyological Exhibitors' Society (or NASTIES for short!)

**FURTHER
RESULTS
NEXT MONTH**

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TetraRuby

Enhances the colours of your fish... nature's way

Tropical fish in aquaria tend to lose the brilliance of their colours because essential naturally-occurring substances are absent from their diet. But TetraRuby actually contains those natural pigment-enhancers, and puts the colour back! Its regular use will restore and intensify the vibrant natural colours of your fish. TetraRuby is a complete diet too — based only on foods found in their normal habitat to provide all the vitamins and trace elements vital to keep your fish active and healthy.

It's yet another example of the intensive Tetra research and development programme that is unsurpassed in the world.

For further information, or assistance with any fishkeeping problems, contact the Tetra Information Centre, Mitchell House, Southampton Road, Eastleigh, Hants., SO5 5RY.

Always ahead with the best ideas... naturally.



Coldwater jottings



Stephen J. Smith

In the heart of the country

A quiet village in the heart of Northamptonshire is perhaps the last place you might have expected to find one of the country's leading suppliers of ornamental fish.

In little over a year, the partnership of three enthusiastic hobbyists — John Tice, Dave Tuckley and Pete Roberts — who make up Oranda Imports, has resulted in an establishment which does credit to the aquatic industry.

Although Oranda Imports also supplies marine and tropical fish to retailers and wholesalers throughout the country, my attention was naturally drawn towards the company's considerable coldwater establishment.

During my visit, the beginnings of a third polythene tunnel were taking shape with the construction of an ingenious filter system, similar examples of which were in use in the first two tunnels.

Approximately a dozen large rectangular vats are situated on top of each filter, which consists of a butyl-lined breeze-block trench filled with lytag.

Each vat overflows into the trench, where the water is filtered through the lytag before being pumped back into the tanks.

So simple. "No need for settlement chambers or brushes!" exclaimed John Tice.

"The water quality is first class."

Breeding and Show-fish are of no interest to the company. As John explained, "The average coldwater fishkeeper is not that interested in high-quality Show-class specimens, which are beyond his/her pocket. (S)he merely wants one or two healthy examples of some of the popular Fancy Goldfish to keep in the living-room or garden pond — without breaking the bank."

Winter draws on . . .

Not that we had much of a summer, but winter is almost upon us. Have you made adequate preparations in your pond? Can you be sure that your pond fish will survive the rigours we are about to endure in the form of short days, long nights, sub-zero temperatures and, of course, the odd few inches (or feet) of snow thrown in?

One of the most popular suggestions on how to protect your pond during the winter is summed up in a letter from J. Morris of Ross-on-Wye in Herefordshire, who writes: "I use a pond heater in series with a central heating system 'frost-stat' set at one or two degrees above freezing point. Thus I have no problems throughout

the winter as regards freezing of my pools."

Many readers use pond covers of various types, including greenhouse polythene on wooden frames. This is the method I have used for my own ponds for several years and I have found it extremely effective.

An extension of this is to place branches and bundles of brush or ferns over the covers. Although I am sure this would be an effective heat insulator this method would, unfortunately, cut out any light completely. Fish need light, and even during a cold spell the temperature of a pond can be increased a little as a result of the "greenhouse effect" created by the polythene.

Of major importance, though, in ensuring your pond fish will survive even the harshest winter, is to ensure that the pond is clean.

It is not so much the cold which kills fish: the toxic gases which are released by decaying vegetation and detritus and which become trapped beneath the layer of ice are responsible for a great majority of fish losses during the winter months.

So, I'm afraid there is really no alternative but to arm yourself with Wellington boots and a scrubbing brush and getting

stuck in!

Before cleaning the pond, carefully remove the fish to prepared aquariums, another pond, or even an old bath. But beware of using buckets which have been used with cleaning agents.

Take out any plants in their containers (if this is done before removing the fish, it makes catching them easier . . .) and cut off any dead or dying leaves. I also use this opportunity to re-pot, and always end up with more plants than I started with.

Having pumped or siphoned the pond water out to waste I then remove every last trace of gravel, mud, and other objects, using a dustpan and brush if necessary.

Using a couple of bucketfuls of clean water from the tap, the pond is then rinsed and brushed and the water removed. Finally, I fill the pond with clean tap-water and return the repotted plants. At this stage many fishkeepers return the fish straight-away, but I would suggest that it would be prudent to let the pond settle for a day or two.

Go and have a well-deserved bath instead and reflect on the fact that for this winter at least, your fish have been well-prepared to withstand even the worst of what Mother Nature has in store for us.

A fine selection of Bubble-eye Goldfish (together with some very attractive Koi) pictured at Oranda Imports, who have quickly become established as one of the country's leading suppliers of commercial-grade fish to wholesalers and retailers.



STEPHEN SMITH

A simple filter arrangement under construction at Oranda Imports. Water is pumped back to each stock tank from a sump at one end of the trough, before it overflows out of each tank and back through lytag.



STEPHEN SMITH

SPECIAL PROMOTION



TetraRuby Flakes being mixed and graded.

TETRA TABIMIN: Bottom dwelling fish, such as catfish and loaches, are better fed on tablet foods than flake. As they are highly compressed and will not disintegrate in the water, this makes them ideal for many invertebrates, such as anemones, crabs and prawns.

DOROMIN FLOATING FOODSTICKS: These are made by a special extrusion process to a formulation researched to provide a complete balanced diet. Rich in protein, **DoroMin** foodsticks are ideal for all larger fish such as sharks, barbs and cichlids. Importantly, they minimise the danger of water pollution caused by uneaten fragments, which is a problem when feeding large fish on conventional foods.

TETRARUBY: Tropical fish, particularly those of red and yellow hue, tend to lose the brilliance of their colours in an aquarium because essential naturally occurring substances are absent from their diet. **TetraRuby** contains these natural pigment enhancers, and regular use will greatly improve the natural colours of tropical fish. This product is very valuable for those preparing their fish for shows.

TETRA CONDITIONING FOOD: This flaked food has been specially developed to improve the overall condition of aquarium fish. It is an excellent food to add additional variety to the diet of tropical and coldwater fish. Due to its particular formula it is also highly recommended as the regular diet for herbivorous (plant-eating) fish.

TETRA FD TIPS: This is a freeze dried tablet food based on shrimps, bloodworms, and larvae, Tubifex worms and finely processed **TetraMin** flakes. The tablets press onto the inside of aquarium glass so that you can closely observe your fish feeding on them.

TETRAFIN FLAKED FOOD: Goldfish too have precise nutritional needs and really do require the right balanced diet to keep them at their best. **TetraFin** Flake Food is the result of extensive research and all coldwater fish will thrive on this as their regular diet.

TETRAPOND FLOATING FOODSTICKS: Floating Foodsticks have been specially developed by Tetra to give pond fish a complete balanced diet — all in an easy-to-handle form which creates less mess and minimises the risk of water pollution. A new variety has also been added to the range to meet the exact dietary requirements of Koi kept in our colder climate. It contains higher protein and a natural colour enhancer to keep Koi as colourful as nature intended.

TETRAMARIN: This is an ideal staple diet for marine fish, based only on natural ingredients of marine origin. A choice of standard or large flakes will tempt many species to feed from your fingers.



One of the huge Tetra flakes being produced.

These are only some of the many foods within the **Tetra** range. If you would like a copy of their special leaflet, *Correct Feeding*, please write to the **Tetra Information Centre**, Mitchell House, Eastleigh, Hants SO5 5RY.

THE COMPETITION

All you have to do is use your skill and judgement to match what you consider to be the most ideal regular diet of **Tetra** fish food to the relevant species shown in the photographs. For instance, if you think fish 1 is best fed on food C write IC. Finally, complete the tie-breaker shown below.

HOW TO ENTER

1. List your answers clearly on a sheet of paper.
2. Complete the following sentence in not more than 10 extra words.

TETRAMIN IS THE MOST POPULAR FLAKE FOOD IN THE WORLD BECAUSE

3. Send your completed entry to *Aquarist and Pondkeeper*, Tetra Competition, 58 Fleet Street, London EC4Y 1JU. Closing date for entries is 30 November, 1987.
4. Make sure you write your full name and address at the top of the paper in **BLOCK CAPITALS**. If possible, add your telephone number.

RULES

1. The competition is open to all residents of the UK, other than employees (and their families) of Tetra, any person connected with the Pet Industry or anyone connected with this competition.
2. Proof of Posting will not be accepted as proof of delivery. Responsibility cannot be accepted for entries lost or delayed in the post or offered for delivery insufficiently stamped. Damaged, defaced or illegible entries will be disqualified.
3. Prizes will be awarded in order of merit. In the event of a tie the best caption, in the opinion of the judges, will decide the winner.
4. The judges decision as to the winners shall be final.
5. Entries will not be returnable; they, and the copyright in them, will become the property of Tetra.
6. It is a condition of entry that the rules of the competition are accepted as final and the competitors agree to abide by the rules.
7. No correspondence will be entered into.
8. All prize winners will be notified by post.
9. Entries must be received by 1 December, 1987.
10. The winning solution and the names of the prize winners will be made available after 11 December, 1987 to anyone applying to the competition address and enclosing a stamped self-addressed envelope marked 'results'.
11. Parent's or Guardian's signature must be obtained by all entrants under 18 years of age.
12. Weekend Holiday must be taken by 30 April, 1988.
13. Prizes must be accepted as offered.

Tomorrow's aquarist

By Alan Balfe

Tyro's Diary

The tank had been set up for about twelve hours as I came down the next morning. The stick-on digital thermometer was finally showing a reading, 78°F, or about 25°C, and the heater had switched itself off. The fish had all survived which surprised me considerably as I was under the impression that the temperature for them was very critical. Therefore I assume that tropical fish can and will survive fluctuating temperatures, providing they are given time to adjust to them slowly.

Anyway, the Catfish hangs on the side of the tank like a

semi-deflated blimp; it is dark grey in colour overlaid with a soot-black mottling. Jim does not know what species it is so I'll have to go to the library and try to find a book which will identify it for me. The surviving Zebra is racing around the tank like a diminutive striped speedster, while the two Sucking Loaches scootle (a cross between scuttle and scoot which I think perfectly describes their actions) across the glass like a pair of energetic "aunts" who are busily cleaning the house for shortly-to-arrive visitors. The Neons are swimming serenely in a small shoal... all three of them.

The tank looks exceedingly barren and the multi-coloured gravel throws back a lot of glare from the lighting. I'll have to get some plants, real ones, to try and reduce it a bit. Must get some new fish as well.

"How many fish can I keep in this tank?" I asked Jim.

"About thirty inches," Was the reply. "At least that's what I was told. So you can have about another fifteen inches yet."

"Oh," I had never thought of fish in inches before; it seemed an odd way of looking at them. Jim offered to drive me to Beaumont Leys to see if there is a fish shop there.

When we got there we discovered a small pet shop suppliers — no fish but they did have various bits and pieces. I

got some flake food, it cost £2.48 for a 48 gm tub, because Jim said that it was the best food for the fish. Also got a set of 'cards' by Interpet about fishkeeping. They're basic, as you'd expect for only 50p, but very good as they give quite a lot of background information and various ideas about for keeping the tank in good order. As a brief and informative introduction at low cost they are very good value.

When we got back I spent hours just sitting and watching the fish. They're utterly fascinating. Jim left to return to Skegness, leaving me with sole possession of the tank, wondering what to do next and planning what additions I was going to make.

Next time: Tyro visits an Aquatic shop.



"The Tropical Aquarium", together with some of its contemporaries — still excellent value for money.

Book review

Title: *The Interpet Guide to the Tropical Aquarium*
Author: Dick Mills
Publisher: Salamander
(Distributed by Interpet)
Price: £4.95.

A pocket-sized book (22.6cm x 12 cm) with hard durable covers, this is an ideal introduction for absolute beginners. Dick Mills' writing style is light and informative, without being too scientific, making the book easy to read and equally easy to understand. Although published some time ago the book is still up-to-date and full of useful basic information.

Divided into sensible chapters, *The Tropical Aquarium*

covers a wide range of subjects from Tank Selection through the various elements of a set-up, including a very informative chapter on Water, to Breeding and Disease. On top of all that there are more than 50 full-colour photographs of fish suitable for a community tank, complete with captions, and including brief descriptions. My only complaint is that these give the scientific names, whereas all the shops that I've visited so far label their tanks with the common names.

The illustrations are superb, the colours being true and life-like. As an introductory overview the book is to be highly recommended, well worth the price.



Tyro's Plant Competition (Sponsored by Amphill Aquatics)

Last month I asked you to identify some fish, so this time it's the turn of the plants. What are the common names for the following eight plants?

Vesicularia dubyana; *Egeria densa*; *Eleocharis acicularis*; *Hygrophila difformis*; *Samolus parviflorus*; *Microsorium pteropus*; *Echinodorus paniculatus*; *Crinum thalium*.

Send your answers, on a postcard only, to Tyro's Plant Competition, (Tomorrow's Aquarist), Aquarist and Pond-keeper, 58 Fleet Street, London EC4Y 1JU. The closing date is 25 November and the first 10 correct entries pulled from the hat will receive this month's prize which consists of a complete Potting Kit (containing 10 plant pots, 10 fibre planting blocks and 10 Plant Treats — tablet fertiliser), an extra packet of 25 Plant Treats, plus a selection of aquarium plants, courtesy of Amphill Aquatics Ltd, Abridge Road, Theydon Bois, Essex.