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P. Jones

Hi-Fi WORLD

FEBRUARY 1995 £2.00

SCOOP!

**TDL'S NEW RTL4
TRANSMISSION LINE
LOUDSPEAKERS**

**5 PAGE BARGAIN
USED HI-FI SECTION**

**COMPETITION
ARCAM CD PLAYERS
WORTH £2250**

SCOOP!

HDCD

**PINK TRIANGLE
LEAD THE WAY**

**SUPPLEMENT NO. 13
banded to this issue**

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dpa Digital Ltd., 7&8 Willowbrook Lab Units, Crickhowell Rd., St Mellons, Cardiff, Wales CF3 0EF
Tel: (01222) 795621 Fax: (01222) 794267

Funny things are happening in the marketplace. Prerecorded cassette sales have gone into steep decline, CD player sales are looking shaky and vinyl's making a minor comeback! The world has gone mad - or so it appears.

It looks to me as if some of the trends appearing in Britain, revealed in the BPI's fascinating 1994 Yearbook (end of '94, so it isn't out of date yet) are merely reflections of those already identified in other wealthy economies, especially the U.S.A. and Japan.

First, the figures. Last year the BPI took a long term view, publishing figures stretching from 1972 to 1993 in graphical form for all music formats. You can see how LP sales peaked at 91.6 million in 1975. They started to decline thereafter and it's interesting to see that there was no change in this trend once it had set in, apart from a rally in 1978, which seems to be an anomaly. The curve plunges more steeply in the bad times, like the early eighties, than through the good times, notably the go-go late eighties when, despite the presence of CD whose sales were climbing steeply, sales of LP seemed almost to stabilise. Then as the most recent recession commenced, sales again plunged inexorably downward.

There's an interesting message here: once the rot sets in, it stays. That's a useful predictive rule. Marketing men talk about 'bell curves' depicting the behaviour of a product in a market. Sales start slowly, rise steeply after a few years, then flatten out and, in the end, go into a similarly shaped decline. That appears to tie in with the sales pattern followed by the LP over the years. We can't see the start of the curve, the left hand side of the bell as it were, but the right side follows this pattern reasonably well.

Why am I interested? Because trends can be used to predict, to some degree, what will happen to other media in the future - at

least, the major ones. I've never liked the view that once the LP went into decline, the trend was irreversible, but it does seem to be borne out by these figures. Even before CD came along, sales were in significant decline, so we can't accuse the music business of engineering the effect, by refusing to stock LP for example, to suit its own ends.

Did cassette kill off LP because of its robustness and convenient size? It was up and running well before CD, but when prerecorded sales started to rocket



Reflections from Noel Keywood

kaleidoscope

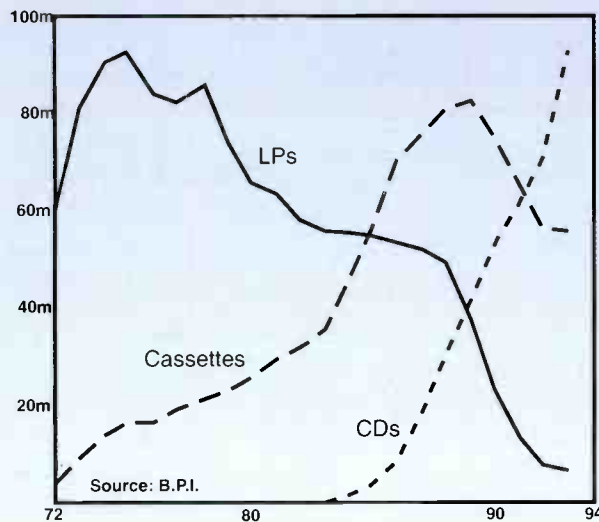
upward in 1983, those of the LP didn't decline commensurately more steeply. Quite the reverse, they benefited from the same improved economic

promotion can reverse the trend. One implication, which will understandably infuriate many vinyl lovers, is that the LP died of natural causes; it wasn't killed off.

newsagents. Philips on the other hand seems more intent on pushing CD-I at present, and I can understand why. The future of hi-fi looks shaky.

As we report on our news pages, CD player sales are starting to decline. Hi-fi in the form of separates is in decline generally in Britain, down 10% according to the BPI, whilst audio (midi, etc.) systems are up 10%. This is where some of the fall comes from - but not all. Could it be that CD hardware is about to hit the top of the bell curve, software following in a few years time? It would be easy to think that their marketing men are already seeing that the end for conventional CD is in sight, simply because the bell curve says so. Is this why alternatives like HDCD are being lined up?

In a bizarrely fragmenting market, hi-fi may well become a niche lifestyle accessory in future, where there's as much attraction in playing LPs as playing those funny eighties things known as CDs. Just wind up the wax cylinder Mabel ●



conditions, so both were victim to outside circumstance. If cassette was responsible for the demise of LP then as its sales increased, the decline of LP should have steepened, but it didn't.

So it seems to be a brutal fact that products have a 'lifetime' and that once they go into decline no amount of

Now it's the turn of the cassette. Having hit a peak in 1989, aided by the recession, sales have gone into steep decline. That's why Philips decided to launch Digital Compact Cassette (DCC) and Sony went for Mini-Disc (MD). Both are after the global cassette market, which is enormous.



Cover Photograph by
Paul Hartley Studio 071- 482 3768

THIS MONTH'S REVIEWS

AMPLIFIERS

QUAD 77 29
An integrated amplifier with modern styling and remote control marks a new departure for Quad. Eric Braithwaite puts the 77 through its paces.



CARY 300B SE 33
Can Cary's 300B single-ended amplifiers deliver the famed sweet and open triode sound? Eric Braithwaite listens to these glowing wonders from the States.

PRO-JECT 7 58
Integrated amps with phono stages are becoming increasingly hard to find. David Price finds that Pro-ject's new £259 model works beautifully.

COMPACT DISC

PINK TRIANGLE CARDINAL TRANSPORT & DA CAPO HDCD CONVERTOR 13
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PIONEER PD-103 56
Pioneer's budget £160 PD-103 shows that you don't have to spend a fortune to get reasonable sound from CD. Dominic Baker investigates.

TEAC VRDS-TI 65
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LOUDSPEAKERS

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Finished in solid walnut and with an affordable £450 price tag, UKD's Opera Primas could be a winner. Dominic Baker listens to these Italian miniatures.

THOMAS TRANSDUCERS BRIO 36
One of the largest loudspeakers we've ever reviewed, the Brio goes loud with little power. Dominic Baker finds out whether quantity and quality can be combined.



TDL RTL-4 52
Noel Keywood listens to the latest addition to TDL's critically acclaimed RTL range, the floorstanding RTL-4s.

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THORENS TD180 21
This unusual new turntable from Thorens plays 78s. Who better than analogue aficionado Eric Braithwaite to test its abilities?

CASSETTE

AIWA AD-S950 44
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With a pretty face and RDS, this new Yamaha tuner is aimed foursquare at the super-competitive sub-£200 sector. David Price takes a good long listen.



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SENNHEISER HE60/V70 50
Dominic Todd enjoys his time with these Class A powered electrostatic headphones from Sennheiser, finding they're a reference by which loudspeakers can be judged.

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and
CANADIAN
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Whether the turntable has gone out of tune again or the amplifier has spontaneously combusted, the World team offer help and guidance.

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Essential for those with an interest in 'previously owned' equipment, this is the definitive place to find classic audio components.

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FEATURES

HDCD 19

The lowdown on one of the major CD developments of recent years, the Pacific Microsonics' HDCD system.

DIY SUPPLEMENT

Headlining this month's supplement is an all new design for a super audiophile parallel-single-ended valve amplifier using the reliable 5881 beam tetrode. There's also a test on IMP, an affordable loudspeaker measurement system, along with book reviews, Q&A, kit news, etc.

MUSIC

Our guide to some of the best new releases.

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Pearl Jam: Vitalogy

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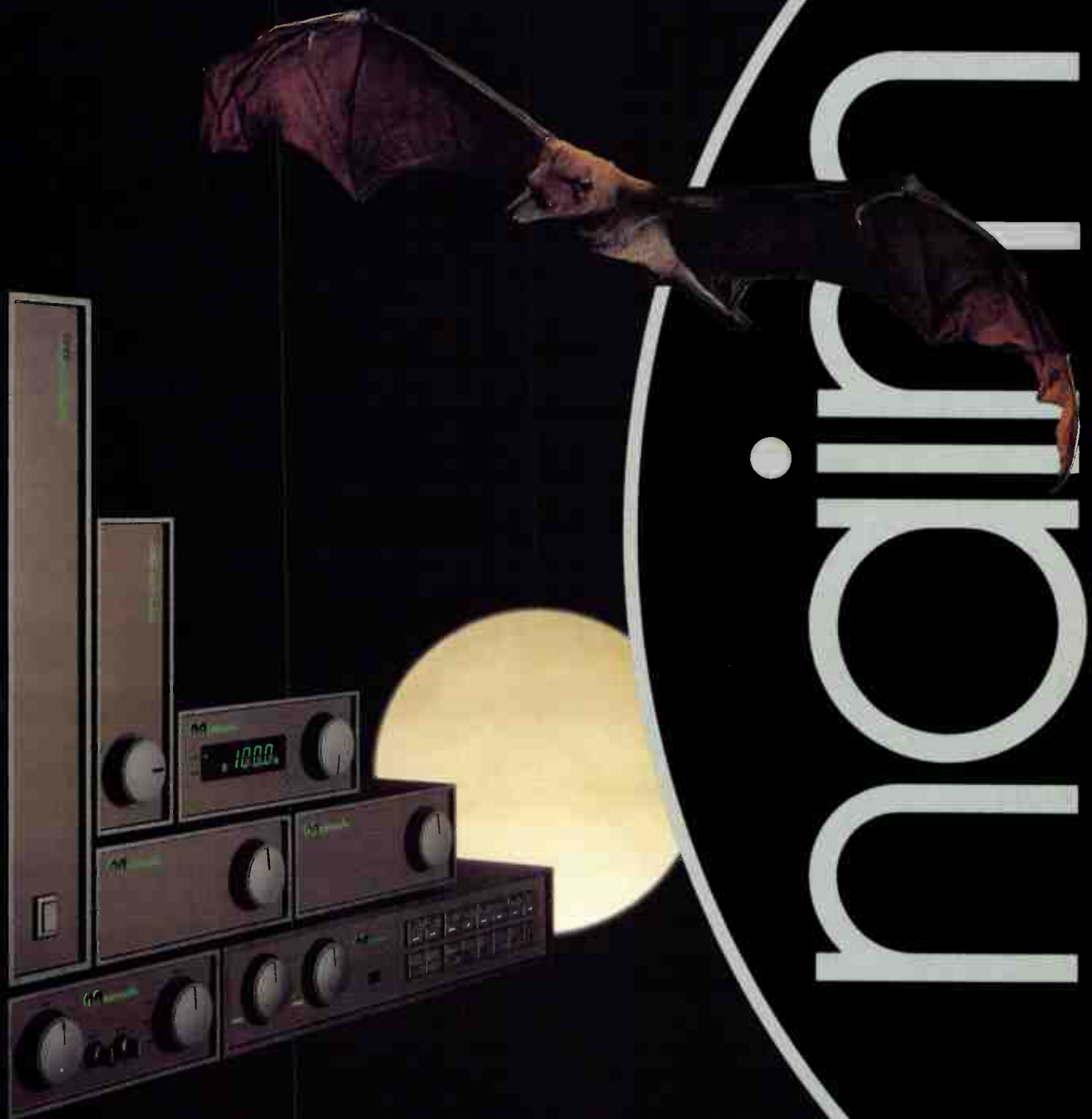
COMPETITION

Three superb CD players from Arcam worth £2250. One of them could be yours for the cost of a stamp. 1st Prize: Arcam Delta 250 transport and Black Box 500 convertor. 2nd Prize: Arcam Black Box 50 convertor. 3rd Prize: Arcam Alpha One CD player. 66



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Trust your instincts.



 naim audio
FOR NATURAL LISTENERS

HI-FI CD PLAYERS AMPLIFIERS
TUNERS TONEARMS LOUDSPEAKERS

FOR FURTHER INFORMATION, A COLOUR BROCHURE OR THE NAME OF YOUR NEAREST STOCKIST PLEASE RING 01722 332266.
NAIM AUDIO LTD, SOUTHAMPTON ROAD, SALISBURY SP1 2LN.

World Radio History

B&W P SERIES

Unveiled at Live '94, B&W's three new P series loudspeakers are now available nationally.

The flagship P6 uses a 165mm Kevlar driver for the majority of the midrange, with a 165mm Cobex bass unit filling in the lowest octaves. The tweeter is a 25mm metal dome, sited on top of the cabinet, which B&W claim, gives "a spaciousness of image usually only found in recording studios and Penthouse suites". The bi-wireable P6 (right) costs £999.

The £799 P5 shares the same driver line up with big brother, but in a smaller cabinet and without the top mounted tweeter. It was the pretty £599 P4s that caught our eye at Live '94. These two-way floorstanders employ a Kevlar bass/mid unit and B&W's folded pipe reflex port, claimed to give deep and clear bass - all will be revealed in March's Hi-Fi World.



B&W Loudspeakers
Meadow Rd,
Worthing, BN11 2RX
Tel: 0903 820415

RETAILERS FIND A MESSAGE IN THE MEDIUM

Whilst their advertisements on Jazz FM were proclaiming "vinyl is dead", we discovered Tower Records were doing very nicely selling LPs from a recently relaunched store in Kingston, Surrey.

Chris Tuft, manager of the Kingston store, told Hi-Fi World they were doing "absolutely fantastic, unbelievable" business, selling everything from 99p deletions to full price triple albums. The demand started from the desire of acid-jazz fans to purchase their favourite music on the format beloved by many jazz musicians. Soon, they were stocking more and more LPs, so the store was relaunched last October with an entire sales floor devoted to vinyl.

Asked why Tower's advertisements were misleading and apparently contrary to their commercial outlook, Chris called the mix-up "a blip", and said they were "happy to be at the forefront of reintroducing vinyl". Chris confessed to being astounded with the enthusiasm surrounding Tower Europe's decision to 'experiment' with LPs after it had declared the format to be dead several years ago.

But it's not just Tower who are tapping into increasing demand. Graham Walker, manager of the HMV Megastore, Oxford Circus, told Hi-Fi World that the LP version of the Beatles' newly released "Live at the BBC" album actually comprised 24% of all sales, making it the second most sought after format. HMV told us that during the store's quarterly vinyl promotions, "people were literally buying basketfuls "of vinyl". It looks like the humble vinyl LP just won't die after all.

Tower Records Kingston
Tel: 081 546 2500

HMV Oxford Circus
Tel: 071 631 3423



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the Colour Pink
The shape Triangle
The music Projects
the Competitors Limited
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DESIGNERS

made in britain made in

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THE BASEMENT, CAMBERWELL BUSINESS CENTRE
LOMOND GROVE, CAMBERWELL, LONDON. SE5 7HN.
TEL: 0171 703 5498 FAX: 0171 252 6746

PRODUCT
PARAPHERNALIA

KEF LAUNCH RAYMOND COOKE SERIES

Loudspeaker specialist KEF has been busy developing three special edition high-end models honouring KEF's founder, Raymond Cooke O.B.E

Ranging from the evergreen LS3/5s up to the towering 107/2 floorstander, the Raymond Cooke Series carry gold plated plaques to mark their rightful place in loudspeaker history and indicate their special edition status.

The LS3/5as start at £599 a pair. The 104/2 is a floorstander boasting a high 92dB sensitivity, from £1799. The 107/2 comes in two finishes - Santos Rosewood at £3,999 and Piano Black for £4,999.

KEF Audio
 Eccleston Rd, Tovil, Maidstone, Kent. ME15 6QP
 Tel: 0622 672261



CASTLE MARCH FORWARD

Castle are on the march again with a new floorstanding loudspeaker, the Severn.

With a sensitivity of 87dB the Severn is the first to benefit from a new range of drive units Castle are currently developing. The bass/mid unit uses a 130mm injection-moulded cone on a die-cast chassis and features a long throw voice coil. The tweeter is a soft 25mm polyamide dome to which Castle fit their own face plate. This is horn loaded to improve sensitivity.

The 2' 6" high cabinets that grace the Severns are available in nine wood veneer finishes. In standard finishes the Severn costs £499, or £569.90 in Rosewood or Yew.

Castle Acoustics
 Park Mill, Shortbank Rd, Skipton, N. Yorks.
 BD23 2TT Tel: 0756 795333

CD PLAYER SALES GO INTO DECLINE

Recent BPI figures haven't brought much in the way of Christmas cheer to British specialist manufacturers, showing that sales of hi-fi compact disc players are going into decline. Against a backdrop of a slightly expanding audio hardware market, their sales fell by 13.4% compared to a fall of just 6.4% for turntables.

It seems that nearly half of Britain's households own a CD player, an impressive penetration considering the figure stood at just 14% at the beginning of the decade. These days, however, most of them come with midi systems or personal stereos.

The British Phonographic Industry Ltd.,
 25 Saville Row, London W1X 1AA.
 Tel: 071 287 4422

300B MANIA AT AUDIO NOTE

Brighton-based Audio Note has three new amplifiers on the market.

Using 300B directly heated triodes in single-ended mode, the P3 (£1,950) is a stereo power amplifier producing 9watts. Its bigger brother is the P4, which comes as a pair of 17watt monoblocks for £3,799. Both have output taps for 4Ω and 8Ω loudspeakers, allowing them to be load matched for best results.

Elsewhere, Audio Note has launched the Meishu phono/line integrated. Again the 300B valve puts in an appearance in single-ended mode in both versions. The Meishu (line) is priced £2,450 and the phono integrated, which has line facilities too, costs £2,950. Single-ended output is 9watts.



Audio Note UK
 Unit 1, Block C, Hove Business centre, Fonthill Rd,
 Hove, E. Sussex. BN3 6HA Tel: 0273 220511

A new floorstanding loudspeaker from Cambridgeshire firm, Meridian Audio, is now available across UK dealerships.

Completing Meridian's 500 series, the new A500 is said to have a high sensitivity of 90dB. Finished in Black Ash or Rosewood, the cabinet houses two 6.5" drivers for mid-range and bass and a 1" soft dome silk tweeter.

Weighing in at £695 for Rosewood and £745 for Black Ash, the A500 spans 40Hz to 20kHz with a suggested amplifier requirement of 20-100 watts.

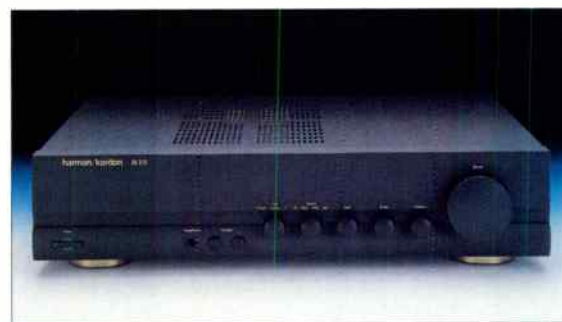
Meridian Audio
 14 Clifton Road, Huntingdon, Cambs. PE18 7EJ
 Tel: 0480 52144

HARMAN'S NEW RANGE

Six new integrated amplifiers have appeared from Harman Audio, joined by a cassette deck and a tuner.

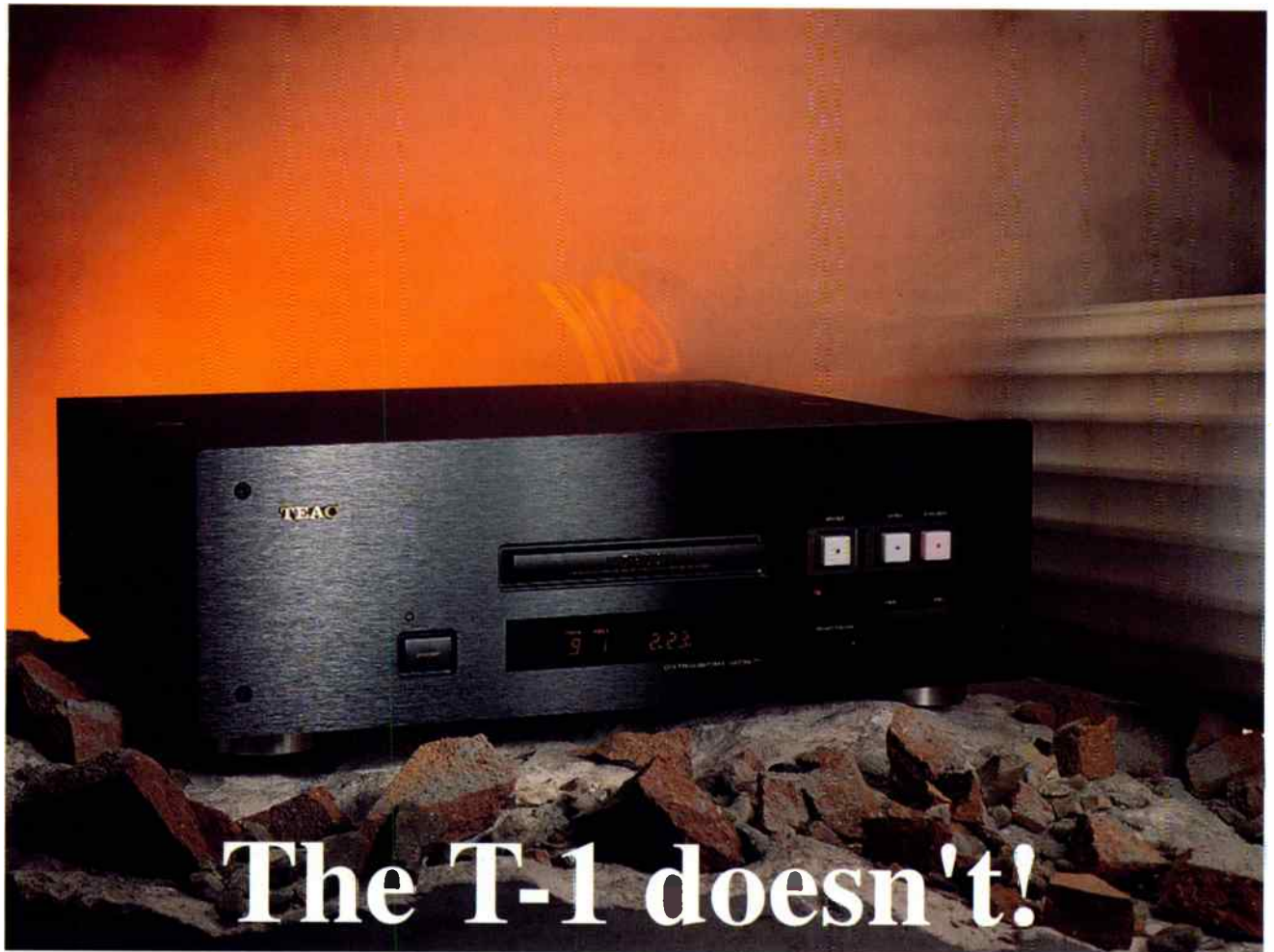
The new range of amplifiers have all benefited from improved circuit design, with reduced open loop distortion allowing feedback to be reduced. The new range comprises: hk610 (£189.99), hk620 (£269.99), hk640 (£399.99), hk660 (£599.99), hk680 (£799.99) and optional add-on PH600 phono-stage, £29.99.

Complementing the new amplifier range, are the TD420 cassette deck and TU930 tuner. The £279.99 TD420's features include Dolby B, C and HX-Pro, bias fine trim, record mute, auto tape selection and MPX filter. The £179 TU930 can store up to 30 AM and FM pre-set frequencies.



Harman Audio
 Unit 2, Borehamwood Ind Pk, Rowley Lane, Borehamwood,
 Herts. WD6 5PZ Tel: 081 207 5050

POMPEII ROCKS



The T-1 doesn't!

Even in the shaky surroundings of old Pompeii the New TEAC T-1 CD Transport would still have delivered the goods.

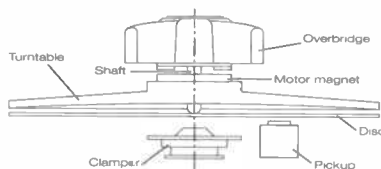
The T-1 places the acclaimed vibration-free VRDS mechanism within reach of those looking for the cost effective path to CD upgrades.

What sets the VRDS mechanism apart from standard CD players is its ability to reduce the vibration induced in the spinning disc.

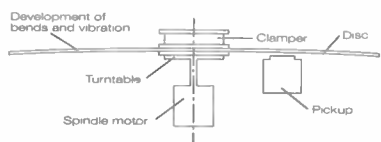
As the diagram on the right shows, a normal CD transport of the type used in budget and high end players alike, only clamps the CD at its centre.

As the disc itself is rotating at high speed it oscillates and vibrates making it difficult for the the pickup lens to track the minute pits on the CD surface with the necessary accuracy.

VRDS Mechanism



Standard CD Mechanism



Much of the information available may be read incorrectly or in a corrupt form, contributing greatly to distortion within the signal that is fed to the DAC. The VRDS mechanism significantly reduces this effect by clamping the whole width of the disc thus reducing the vibration that causes jitter.

This all adds up to a Transport that does the job of retrieving information better than any other comparable drive on the market, providing your DAC with the most accurate signal possible.

Because the T-1 does give you one of the best mechanisms in the world, you can buy in confidence knowing that you have the perfect source for any DAC upgrade, now or in the future.

If it was available to the ancient Romans they would probably still be using it now - in spite of earthquakes!

TEAC

VRDS

Please send me information on the TEAC VRDS range

Name _____

Address _____

Postcode _____

TEAC 5 Marlin House, The Croxley Centre, Watford, Herts
WD1 8YA TEL: 0923 819630 FAX: 0923 236290

World Radio History

DENON IMPROVE SOUND FROM CD

Denon announce Alpha Processing conversion technology made affordable with the arrival of the new DCD-1015 CD player, priced at £349.99. This was first available inside the £6,500 DA-SI DAC.

Creating an analogue replay signal of near 20-bit quality from a 16-bit original, Alpha processing produces improved low level resolution, working through an 'intelligent' digital filter.

Hayden Labs
Chiltern Hill,
Chalfont St Peter,
Gerrards Cross,
Bucks. SL9 9UG
Tel: 0753 888447

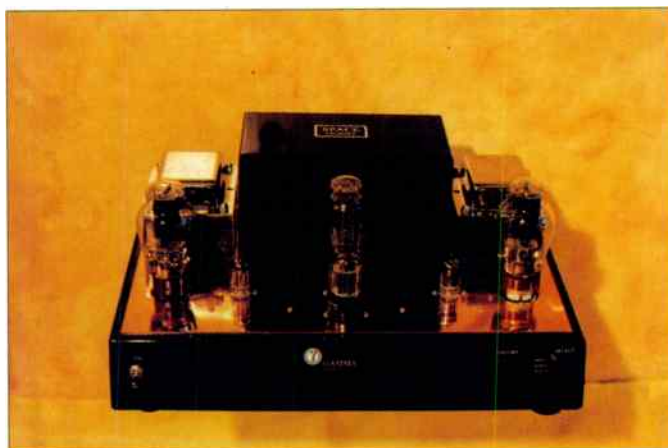


TEN OUT OF TEN FOR GAMMA

Berkshire-based Gamma Acoustics has launched no less than ten new products for the valve enthusiast.

First up is the ERA Standard, a full function valve phono pre-amp priced at £999. An improved version, the ERA, with a substantial power supply, retails for £2499. Top of the range of pre-amps is the ERA Reference, which Gamma describe as a "state-of-the-art unit of true pedigree". The price: £3,999.

The Space Reference is a line level integrated amplifier, using the 300B power triode in single-ended mode. Silver-wired, sporting silver caps and copper casework construction, this arrangement delivers 18watts with zero feedback and costs £3,999. Another integrated amplifier at a more affordable level is the £699 Gemini. This uses single-ended triodes to produce 12watts - plenty if you have sensitive loudspeakers.



A NEW AXIS FROM DOWN UNDER

Axis loudspeakers are now to be introduced into the UK by Kronos Distribution. The range will consist of the stand-mounting LS28, which retails between £699-£750 depending on finish; a floorstander, the LS33, retailing between £1199 and £1299, and a high end floorstander which will cost £2,599. Three wood finishes are on offer: Mahogany, Beech and an Australian wood, Babinga.

Kronos Distribution

35, Farlough Road, Newmills,
Dungannon, N. Ireland. BT 71 4DU
Tel: 01868 748632

TWO AMPLIFIERS IN ONE

Kilmarnock-based Quantum Audio has unveiled a 20 or 30 watt - depending on your valve choice - amplifier dubbed the Minstrel. A hybrid of solid-state power supply and pre-amp and valve output stage, the Minstrel will produce 30 watts into 8ohms with military specification 5881 valves, or 20 watts with 6L6 valves, claim Quantum.

Quantum Audio,

PO Box 26, Oliphant Drive, Kilmarnock.,
Scotland KA3 7JA Tel: 01563 71122.

Freshly updated and with an improved power supply the £11,999 Aeon 30watt single-ended mono-block power amplifiers use the 211 power triode. But Gamma's final word on valve amplification, must rest with its Aeon Signature. For £78,600 you get 90watts (they claim) of pure single-ended power.

If that wasn't enough, Gamma also have a new loudspeaker, the Epoch Reference Fives. Using Kevlar drive units, silver wired and in a heavily braced cabinet, they are available in either oak or piano black, priced at £1999 and £2499 respectively.

Gamma Acoustics

Ivy Lodge, 81 Sussex Place, Slough, Berkshire.
SL1 1NN Tel: 0753 526939

NEWS IN BRIEF

SOUND-BITES

Dealer activity continues apace - Leicester's Classique Sounds believes it has made a first with a commitment to same-day rebuilds for most vintage valve power amps. Prices begin at £120. The store is also offering the same rapid response on full Garrard 301/401 servicing. Talk to Paul Greenfield on: 0533 835821.

The Audio File in Bishop's Stortford, meanwhile has expanded and now occupies 25-27 Hockerill Street. Its new premises are purpose-built, incorporating four dem. rooms, two for home cinema and two for top-end hi-fi including active systems from Linn and Naim.

Musical Images in London's Covent Garden has hit the ripe old age of ten and marks the event with a face-lift and three new

dem. rooms at its newest outlet. "Neighbours say they hardly recognise the place", store manager Rahul Haira said. Musical Images now has three shops and recently raised over £13,000 for Save The Children.

INDUSTRIOUS SPEAKERS

Two leading loudspeaker companies have scooped industry awards. Harbeth has been awarded Japanese magazine Stereo Sound's Component of the Year '94 award for its HL Compact 7. The Compact 7's predecessor, the HL Compact also won this top Japanese title.

Mission, meanwhile, has picked up Commerce Magazine's Company of the Year Award for East Anglia, and Manufacturer of the Year sponsored by publishers Morgan-Grampian.

spendor

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years
in the
service
of
sound

MASTERING THE ART

Clear, naturally detailed sound with outstanding dynamics from superbly styled cabinets. These exceptional floor standing loudspeakers continue Spendor's adherence to neutrality - our hallmark for 25 years.



spendor

For further information on the range of Spendor loudspeaker systems, contact our UK distributor:
Michael Stevens & Partners Ltd,
Invicta Works, Elliot Road, Bromley,
Kent BR2 9NT
Tel 0181-460 7299 Fax 0181-460 0499

HDCD™

HIGH DEFINITION COMPATIBLE DIGITAL™

MORE THAN A BIT BETTER

From the U.S.A. comes a radical improvement in CD sound quality - HDCD.

David Price and Noel Keywood test the first system to become available in Britain.

After a long and arduous journey, the first HDCD system to be available in Britain has finally arrived. The system, which was developed by the U.S. company, is a radical improvement on the standard CD format. It offers a much wider frequency response and a much greater dynamic range. The result is a sound that is more natural and more detailed than that of a standard CD. The system is available in two versions: a full system and a portable version. The full system includes a CD player, a DAC, and a pair of speakers. The portable version includes a CD player and a DAC. The system is available from the U.S. company.

There have been several other attempts to improve the CD format, but none have been as successful as HDCD. The reason for this is that HDCD is a true digital format, not a hybrid like SACD. This means that HDCD offers a much greater dynamic range and a much wider frequency response than SACD. The result is a sound that is more natural and more detailed than that of a standard CD. The system is available in two versions: a full system and a portable version. The full system includes a CD player, a DAC, and a pair of speakers. The portable version includes a CD player and a DAC. The system is available from the U.S. company.

Doug Brady Hi-Fi



Pink Triangle da Capo on permanent demonstration at Brady's, along with Michell ISO, Denon, DPA Renaissance, Mission, Rel. Harbeth, Project, Ortofon, NAD, Nakamichi and many more!!

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CARDINAL TRANSPORT

The style of the Pink Triangle Cardinal CD transport will be instantly familiar to Da Capo users: it's long - perhaps too long at 452mm - slim, and unusually styled. Seemingly well put together, it



nevertheless fails to convey that hewn-from-stone feel that expensive Japanese top-end transports exude. The disc tray moves in and out smoothly enough but doesn't appear particularly robust in location, and the front panel buttons aren't terribly positive in feel.

The facilities on the transport itself are modest, but adequate. Aside from the usual track selection, fast search, play, pause, stop and drawer-open controls, there's only a small, meekly lit display with track number, time and 'music calendar' information. All the usual CD programming facilities are only available from the remote control.

Moving to the rear of the unit, the Cardinal supports BNC-type digital output and clock in connectors, and a standard IEC mains socket.

In keeping with Pink's desire to 'future-proof' their products as much as possible, the Cardinal isn't just a transport though. For £1440 it comes with their DAC-7 Ordinal convertor fitted internally, with either 18 or 20-bit filters to produce a high performance one box player. There's also a more affordable CD player version of the Cardinal on the horizon, details are sketchy at the moment, but it's likely to use Philips' 7350 chipset and retail for £998.

In use the Cardinal is commendably silent and whilst not the quickest in terms of track access times, is fairly satisfying to live with on a day-to-day basis. Auditioned as a transport in its own right, connected to a standard Da Capo, fitted with a Philips 1307 digital filter - our preference - it turned in an excellent performance, sounding as good as anything we've heard to date. Indeed, the Cardinal soon found itself acting as a reference transport used to compare DACs. On Heidi Berry's "Washington Square" the Cardinal/standard Da Capo produced a pleasing enough sound with a large, confident soundstage and voluminous bass. Rhythms were well conveyed and the song's percussive intricacies were not lost.

Connecting the Cardinal to the HDCD Da Capo (but retaining the non-HDCD Heidi Berry disc), taking advantage

of the clock sync facility, things got even better. The song assumed a sense of coherence previously not heard, with percussive instruments such as tom toms and triangles assuming a new importance in the mix, sounding tighter and more finely etched. The sumptuous analogue synth was located more precisely at the back of the mix, and to the front, Heidi and Christopher Berry's acoustic guitars took on a rhythm of their own. The combination of the two new Pink products proved quite formidable on a wide range of music, and that was before its HDCD facility was tried. Broadly speaking, the dedicated HDCD filter gives a warmer and smoother sound than Philips 1307. Little did we know, but the Pink duo had even more up its sleeve with HDCD discs.

HDCD SOUND QUALITY

To play HDCD, a CD player must come fitted with a dedicated HDCD digital filter. Since this influences sound quality with normal CD, we listened to HDCD Da Capo with normal discs and HDCD discs, comparing it with another Da Capo fitted with a conventional Philips 1307 digital filter - our reference convertor in fact.

At the time of writing HDCD discs are thin on the ground. I had visions of scratching around - aurally that is - trying to perceive subtle differences in presentation on unfamiliar source material. I shouldn't have worried. The opening bar of Dick Hyman's "From the Age of Swing" said it all. Immediately, there was a consummate sense of the recorded acoustic; I could 'hear' the environment in which the music was being played.

This was impressive. Compact Disc has great problems with capturing important subtleties like this - something that sets it behind high-end vinyl replay. CD rarely

seems able to impart a sense of 'being there', due to its apparent failure to capture and recreate low level information. HDCD seems to side-step this and approach, if not equal vinyl on this count.

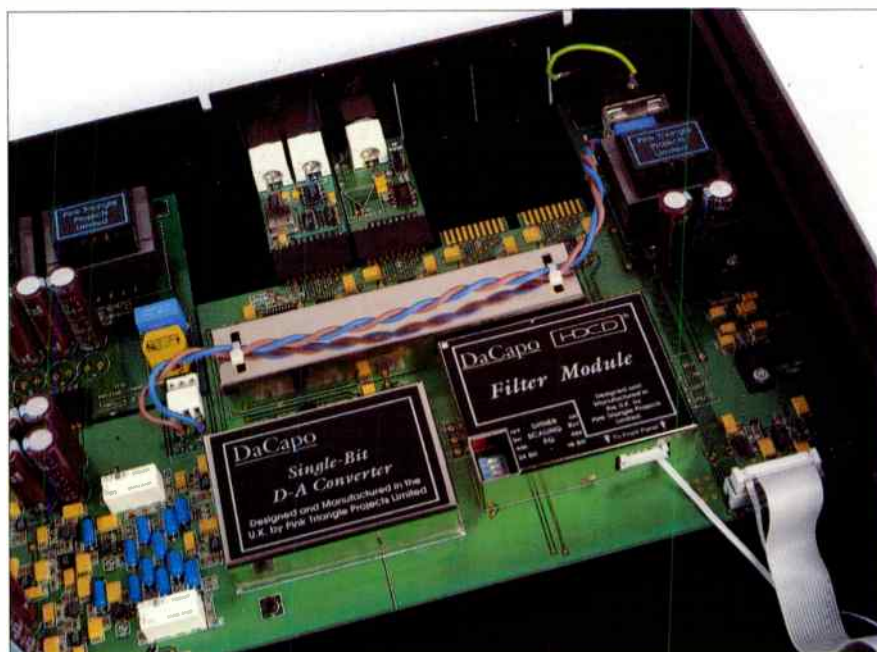
I was also impressed by the dynamic grip displayed by the system. Alto and baritone saxophones emoted forcefully - you could readily hear the way the musicians invested their playing with real feeling. The drum kit had a tight, fast delivery; the sound of the snare reverberating around the room was a revelation, and rim shots came across with disarming clarity.

Unlike many detailed sounding conventional CD players, the sound avoided glassiness or brightness in the upper midrange, allowing instruments across the frequency range to find their natural balance.

Indeed, the double bass imaged completely out of the speakers, going down so low with such weight and slam I could not believe I was listening to a five-inch silver disc. The subtlest of fingering work was easy to make out, giving a sense of the musician grappling with the heavy strings of the double bass. Against this it seemed to me that most CD players don't have real bass; some are quite good in the lower regions but this was something else altogether - truly in the wall cracking, glass shattering league.

Most impressive was the way these dynamic improvements worked in conjunction with the way rhythm was handled. This meant that notes started, stopped and got louder and quieter with great speed, making the music exciting to listen to but not, as is often the case, a result of added distortion or hardness.

Despite displaying heart-stopping speed and impact, the Cardinal transport and Da Capo HDCD convertor never sounded tiring. And although they never



The HDCD filter simply plugs in, like the conventional filters.

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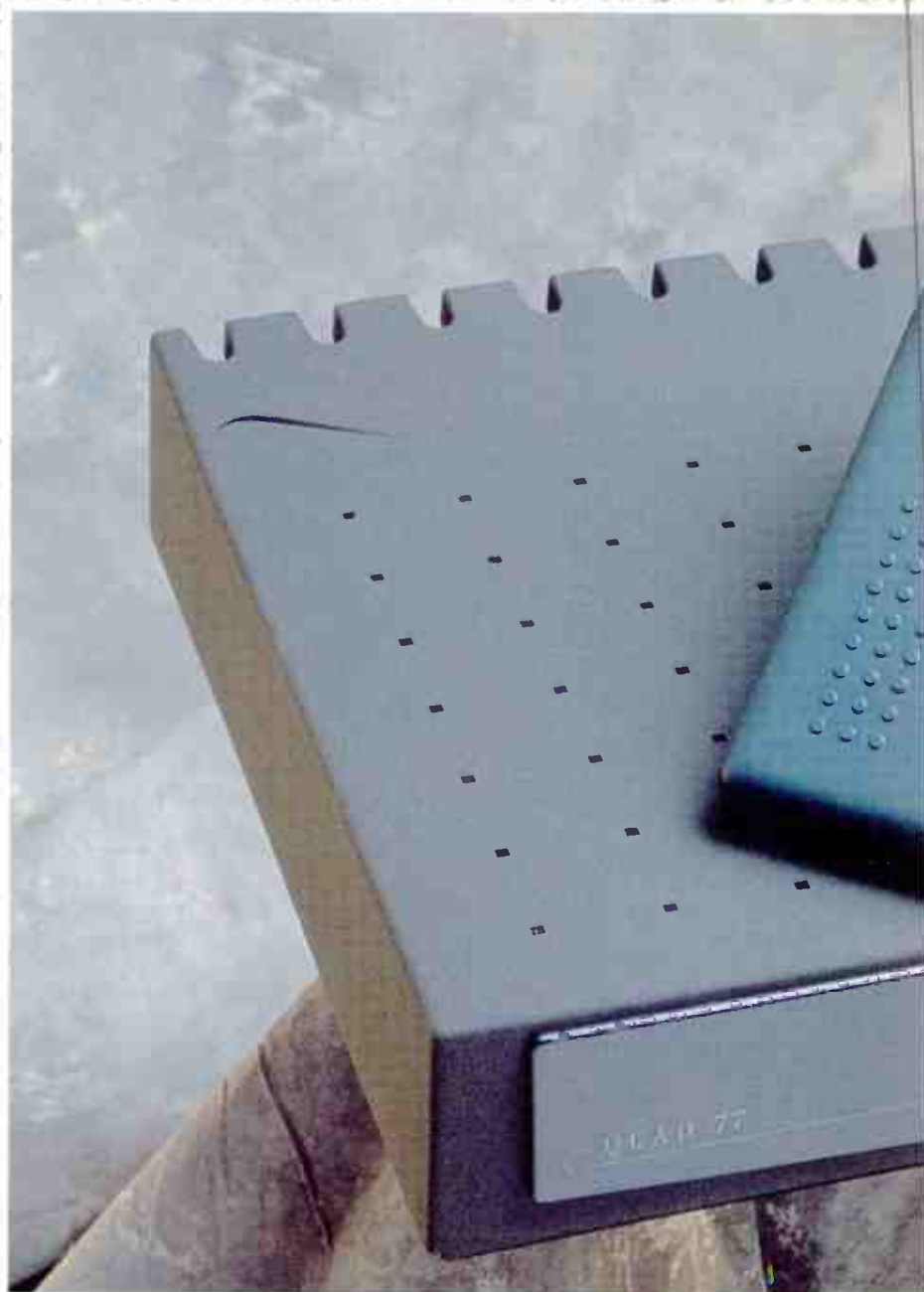
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failed to sound thoroughly musical, I couldn't help but be impressed by a wide range of HDCD's individual properties, such as a much expanded soundstage with clear front-to-back and left-right imaging, as well as heightened dynamic range, all of which thoroughly outclassed standard Compact Discs.

To put this into perspective I decided to listen to vinyl, as well as Super Bit Mapped (SBM) Compact Disc via the same CD player, to see how each compared. It wasn't possible to directly compare the same piece of music, so observations are those of the 'general' variety.

Switching from the HDCD recording to the SBM pressing of Dave Brubeck's "Take Five" was interesting, to say the least. SBM CDs do sound good. Most apparent is their more expansive soundstage and deeper, more powerful bass compared to standard CDs.

However, HDCD wasn't going to be having any of this and comprehensively bettered SBM. The alto saxophones on Dick Hyman's "You're Driving Me Crazy" came across with all the force and power of the SBM CD, but without the hardness. To ensure that the Brubeck recording itself wasn't the culprit, I dug up an original vinyl pressing of "Take Five" and duly pressed our Gamard/SME/Ortofon MC30 Supreme into service. Suddenly, the sax was devoid of hardness, and to top it all the turntable managed to convey timbre and rhythmic inflections better than either of the digital carriers. Vinyl also delivered the deepest, tightest and weightiest bass, pipping (if you'll excuse the pun) the Pink Triangle to the post in this department, albeit by a narrow margin.

After hours of intense listening I was still surprised by HDCD. It tackles CD's sonic nasties head on and brings the

medium closer, in a sense, to analogue, as promised. But don't confuse this with it sounding like LP - it doesn't. HDCD still sounds super clean but I'd swear there's a tiny amount of hardness present. Most significantly, it lacks the euphony of top class vinyl. If you can live with this, you'll be profoundly impressed with the system.

SECOND OPINION

The first surprise was that there wasn't a surprise; HDCD didn't jump out of the speakers at me. Half expecting a vivid sound with thunderous dynamics, viciously incisive transients and, I suppose, just more of everything, the first restrained bars of Trittico glid smoothly by with graceful ease. But then, isn't it the intrinsic sharpness of CD compared to LP - and even real life - that we complain about?

Our first long exposure to HDCD was at the Scottish Hi-Fi Show held by Hi-Fi Corner in Edinburgh. The great feature of this venue was its size: we had a huge room which allowed an expansive sound to develop, with extended bass uncoloured by room resonances. Orchestral recordings came across beautifully, the power and dynamics of the orchestra being given a greater range of expression than is common on CD. There was never any glare, only silky smooth strings and horns, pleasantly airy chorals and massive, resonant explosions from kettle drum strikes (mandatory!).

Even with normal discs the HDCD digital filter gives a smooth, warm sound. When HDCD decoding comes on though, there's no doubt that the system opens out, becoming relaxing, yet expressive, with a fine sense of space around instruments and a pleasingly natural atmosphere. HDCD is a great improvement upon conventional Compact Disc. **NK**

HDCDs from REFERENCE RECORDINGS



Mike Garson: A Gershwin Fantasia (RR-54CD)

Mike Garson: The Oxnard Sessions, Vol.2 (RR-53CD)

Frederick Fennell & Dallas Wind Symphony: Trittico (RR-52CD)

Frederick Fennell, Dallas Wind Symphony & Paul Riedo: Pomp and Pipes! (RR-58CD)

John Rutter: Requiem, Five Anthems (RR-57CD)

Dick Hyman: From the Age of Swing (RR-59CD)

John Bruce Yeh: Ebony Concerto (RR-55CD)

Dallas Wind Symphony, Turtle Creek Corale Testament (RR-49CD)

HDCD Sampler (RR-S3CD)

HDCD Sampler (RR-S4CD)

(further releases are coming soon)

MEASURED PERFORMANCE

Our frequency response analysis shows a slow roll down above 5kHz (at right in the trace), level measuring -0.5dB at 21kHz. This sort of characteristic in conjunction with very low distortion and absence of spurious outputs ensures a smooth sound.

There was no detectable distortion at normal music levels and only the usual quantisation noise products at -60dB and lower. Even these were less than usual though, distortion measuring 0.5% at -60dB for example, compared to 1% or so generally. Our unit had a small amount of extra noise on one channel, not audible, but enough to worsen measured results slightly, if not enough to put HDCD Da Capo below the competition, such is its advantage.

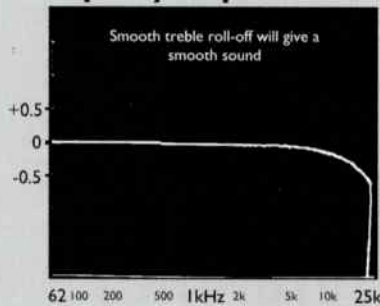
All other parameters measured well, except output was half normal at just 1V. Philips standard calls for 2V and most players deliver more, up to 3V in fact. The HDCD Da Capo measured unusually well in most respects, the only peculiarity being low output. **N.K.**

TEST RESULTS

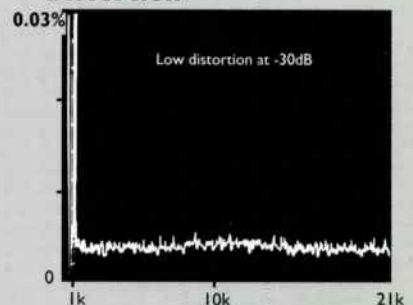
Frequency response(-dB)	4Hz-21.2kHz	
Distortion (%)		
-6dB	0.005	0.005
-30dB	0.01	0.006
-60dB	0.7	0.47
-90	36	28
-90dB dithered	11	5

Separation (dB)	left	right
	116	100
20kHz	106	97
Noise	-106dB	
with emphasis	-106dB	
Dynamic range	108dB	
Output	1.04V	

Frequency Response



Distortion



WHAT IS HDCD?

The arrival of HDCD from two directions at once - from the USA and from Philips in Holland - has confused some observers. The system reviewed here is High Definition Compatible Digital from Pacific Microsonics of the USA. The other system, which is quite different in basic principle, is High Definition Compact Disc, from Holland (and elsewhere). I'll quickly explain how they differ.

In Mike Ritter's words (President of Pacific Microsonics) his system is 'holistic' - a major differentiating feature from Philips HDCD system. In other words, it embraces the entire recording and reproduction chain, as our diagrams illustrate. HDCD applies very high

resolution analogue-to-digital coding of music during the recording process, and uses similar digital-to-analogue decoding in the domestic CD player when the music is reconstructed; the disc stays the same.

Philips' HDCD system is primarily a hardware development that increases disc storage capacity, making only indirect reference (at present) to the way music is recorded; the disc specification is altered. This form of HDCD isn't dedicated to carrying music and isn't likely to appear for the next year or so at least, it seems.

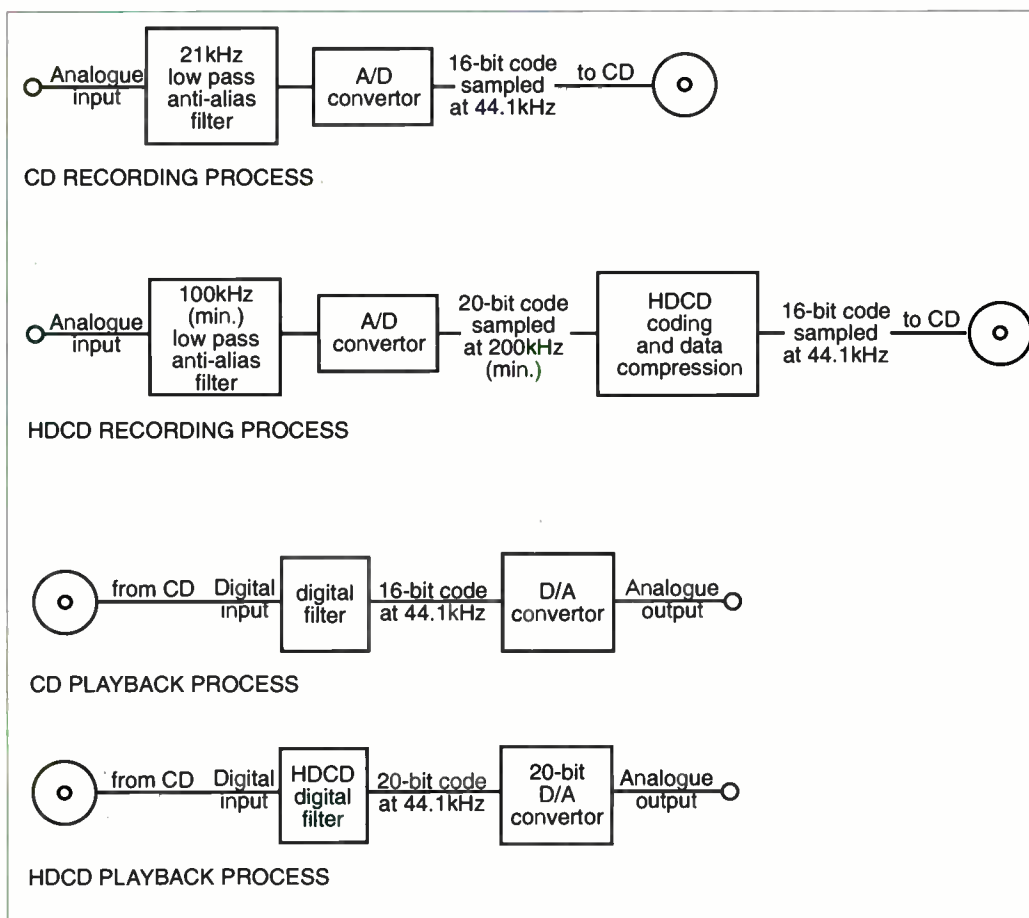
In contrast, Pacific Microsonics HDCD is exclusively a music recording system dedicated to CD as it stands; the hardware for it will become available shortly.

A question mark hangs only over

software availability and price. Mike Ritter told us that HDCD discs in the U.S. carry little or no price premium at all.

Getting music companies to record popular material using HDCD processing may be an altogether more difficult task. Of material already recorded, only that on analogue master tapes is worth using. Mike Ritter told me they expected a major U.S. artist, known to dislike digital sound, to record using the system soon; it could just be that others will follow. At present though, the only HDCD material available on CD comes from a little known American audiophile label, Reference Recordings recordings. Their current list of titles is given elsewhere in this report.

HOW HDCD WORKS



RECORDING TO CD

As our diagram shows, with Pacific Microsonics HDCD system music is sampled at around 200kHz when recording (Pacific Microsonics are not specific about this, using the phrase "several thousand kilohertz", which means not less than 200kHz). That's no less than five times the current 44.1kHz sampling rate for CD, giving a bandwidth of 100kHz, against 21kHz at present. Since Pacific Microsonics quote U.S. Army research on psycho-acoustics that identifies parts of the inner ear capable of

detecting signals at 80kHz, the justification for such a high upper limit becomes apparent.

Whilst 20-bit coding gives 220 resolution (968,576), compared to 65,536 for 16-bit - or one helluva lot more - not all data above 20kHz is used. The data is processed to preserve aural cues vital for accurate perception of the original signal, but information not required is discarded.

The processed signal is then re-coded into a normal sixteen-bit word by no fewer than eleven Motorola 56000 CPUs

(Central Processing Units), running at 150 mips (million instructions per second) - a vast amount of processing power. It may seem like getting a quart into a pint pot, but use is made of a buried control code and, I'd guess, some data re-arrangement by over-sampling may be introduced, possibly like that used in SBM. Precisely what techniques are used here will only become clear when Pacific Microsonics divulge them but, whatever, the main signal must (and does) remain compatible with ordinary players, free from anomalies on replay.

PLAYBACK FROM CD

HDCD players automatically detect an HDCD disc, lighting a front panel beacon. On the Da Capo a small red front panel LED lights. Full decoding of the signal takes place, relying on

extra information contained within control code to provide a full 20-bit output from the proprietary Pacific Microsonics HDCD digital filter. This is fed to a twenty-bit digital-to-analogue converter, of any manufacture, yielding a very high quality audio output signal. Pacific Microsonics claim that up to 24-bit code is possible, but no D/A converters with such resolution yet exist.

With normal discs the HDCD decoder acts as a normal digital filter, albeit one of high resolution ●

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What the Thorens TD180 provides is a compromise, but a handy one for those who are not ultra-serious collectors. (A serious collector of 78s is liable to spend, like a young customer of mine in my retail days, £2000 or more on a vintage horn gramophone). The heart of it is the Stanton 500 cartridge, supplied with a plug-in stylus for 78s. This has the advantage of not having to fiddle about changing the cartridge for 78 listening, since by-and-large the same tracking weight can be used for both LP and 78. The groove pitch, warps or

wear on some, however, will mean some alterations: one of mine needed 3gm tracking dialled up. A trifle excessive, but then, some of these 78s were played on gramophones with tonearms like bathroom accessories and playing weights

end is somewhat curtailed, but clean nonetheless. Saxophone sounded better than some digital players I've heard. Shock! Horror!

There are one or two limitations, however, for this is a budget deck. Plug in the LP stylus and the Stanton shows its age. It's been around for some time and the reason it is frequently seen in disco decks becomes a little obvious. It has good driving capabilities; there's not much wrong with its tracking, although it tends not to subdue surface noise as much as more modern designs.

While tonally there is little to complain of, it does little more than present the skeleton of the music rather than add flesh to the bones. Tonally accurate, it produces little in the way of dynamic shading and tends to be badly thrown by reverberant recordings, which sound rather lacklustre. Nonetheless, it made a pretty good stab at melodic lines and rhythms on Ian McNabb's *Truth and Beauty* and put together an adequate recording perspective on the classic Barbirolli 'Cockaigne Overture', with commendable detail.

Experimentally, a Goldring 1022GX was wired into the fixed headshell; even though this is nearly half the price of the turntable, both arm and deck coped with it admirably. Suddenly, those audiophile giveaways - air, space and a better sense of dimensions of instruments and players - became an order of magnitude better. The bass was bigger, drier, and better controlled. Treble was also much more extended, with the

earlier slight softness clearly attributable to the Stanton rather than the arm or deck.

At even this low price, there are a couple of turntables with higher audiophile pretensions. Come what may, the TD180 has a fundamentally more laid-back character than some might like. But it has a very good balance of virtues and it doesn't disgrace a well-set up and quality system. There's only one snag: the auto-lift off at end of the side is certainly convenient, but on 78, the arm is hurled back to the arm rest with the speed of a caber being tossed by Arnold Schwarzenegger. But, dammit, that's the only disconcerting thing about it. A good, basic, budget bargain ●

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Thorens the turntable manufacturer is almost as old as the 78 shellac record - both are heading fast for a century. It shouldn't be surprising therefore that the company still makes turntables that play 78s. What is a surprise is that it

now makes the TD180, an automatic three-speed deck, fits a 78-capable Stanton cartridge and offers it up at £180. Why, you may ask?

Those readers who think this is merely an exercise in nostalgia irrelevant in this digital age should think again and carry on reading, please. For one thing, it's only 30 years since EMI stopped pressing popular releases on 78. For another, collectors who are fascinated by the recordings of opera singers, blues singers or jazzmen of the first three or four decades of this century have nothing else but the 78 to fall back on. Yes, there have been transfers, but many in the early years of LP - and since - have been dire-sounding copies transcribed off worn 78s. It's only recently that EMI have been digitally rescuing some of theirs, but it leaves an awful lot behind.

Way back, when I managed a collectors' record shop, I supplied several hundred 78s to a TV producer, who wanted to mark the supremacy of CD by smashing them on the studio floor. This wanton vandalism barely diminished the total. Please note, I didn't supply Elvis on the Sun label, or any of the great jazz that appeared on labels like Vogue. But believe me, there are still hundreds of thousands of copies of Ernest Lough singing 'Oh for the Wings of a Dove' left over and enough foxtrots to keep hunt saboteurs

“ Good 78s, you see, can produce a holistic fore and aft image with instruments of a realistic mix and apparent shape in an acoustic that is perfectly credible. The TD180 did exactly that. ”

measured in ounces.

Some 78s can come as a revelation, though newcomers need to be warned that a 78 ought to look as glossy as an LP for best results. Those that look matt - or worse, white - will generally be so worn they will sound of little but distortion. But at best, like a late-ish Philips disc of Duke Ellington's 'Skin Deep', which has a splendid drum solo, a well-recorded 78 can produce surprisingly high quality sound.

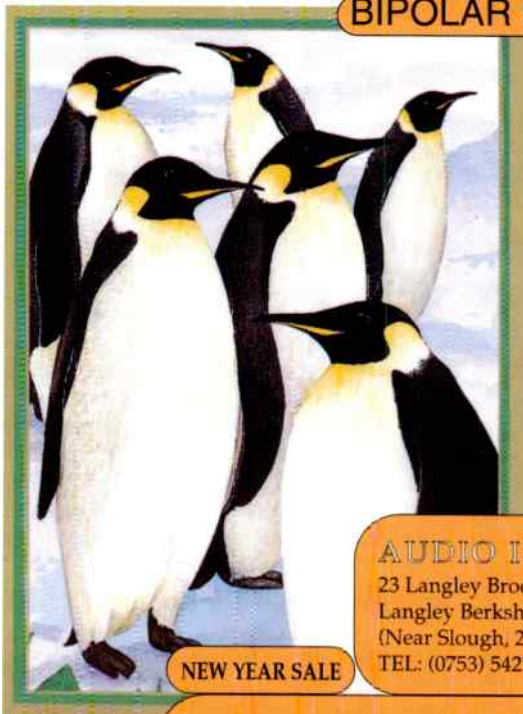
Mono? Who cares? The definition of stick, the sound of the skin, the whole drum kit was superb, well equivalent to LP standard (this 78 was contemporaneous) and better than many standard LPs from the fifties. Good 78s, you see, can produce a holistic fore and aft image with instruments of a realistic mix and apparent shape in an acoustic that is perfectly credible. The TD180 did exactly that.

American Vogue recordings are particularly good at that realistic image and, to boot, well separated instruments and good dynamics. Admittedly the top-

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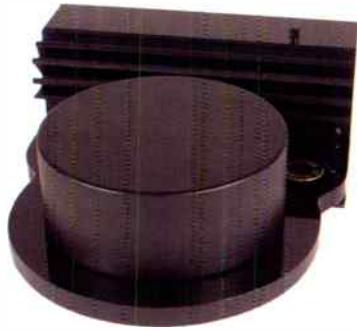
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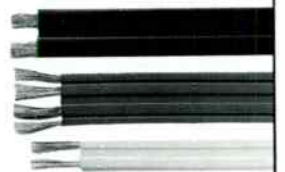
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Do these entry-level
minimizers have a
performance as much as
exotic looks? **Review: Bowers
Speakers by Matt & Opus Prima.**



PRIMA DONNAS

review

The Italians have a love of solid walnut. With Sonus Faber, Chario and UKD all using such cabinets, you have to ask whether environmental issues are relevant in Italy. Or perhaps it's commercially grown, much like wood pulp for paper.

Whatever, the Opera Primas do look rather special. The miniature cabinets, with inch-thick solid walnut walls, have an incredibly solid feel to them. The walnut smells gorgeous too, having a delightful oily fragrance and feel to it; these cabinets are wonderfully stylish. Even the binding posts on the back are thick, heavily engineered and generously finished in gold, although there is only a single pair, ruling out bi-wiring.

The Primas use a 4.5inch polypropylene bass unit and a 25mm soft dome tweeter, both of Italian manufacture. The bass unit is loaded by a rear-firing bass reflex port, so although small, the Primas are not ideally suited to shelf mounting. A foam bung may be successful here if you really are stuck for space.

Instantly, the most impressive aspect of the Opera Primas is the admirably open and clear delivery they have with vocals and lead instruments. Dave Gilmour's guitar echoed out with a light, airy character on Pink Floyd's A Great Day For Freedom, from their recent Division Bell album. The sax intro to the following track took on similar character, floating out across the room. As a broadcast monitor, with a high level of

intelligibility, the Opera Primas would beat the BBC LS3/5as hands down, and the latter are highly regarded in this area.

In fact, I was so impressed by this area of their performance that it was some while before I took notice of the other areas of the Opera's presentation. Their overall presentation is an interesting one, one uncommon from a miniature. To start with, there's the surprising clarity in their mid-range, which traditionally would be more reserved, in order to place

the range. Surprisingly, Inspiral Carpets' Saturn 5 showed that the Operas are capable of producing deep bass, a soft rumble low down from the rolling bass drums coming as a bit of a surprise. It wasn't powerful, and there could usefully have been a little more upper-bass attack, but deep bass certainly was there.

Above all this lies the treble, and not exactly inconspicuously. Again, listening to Saturn 5, the tweeter fired cymbals at me. The Operas started out with a bright presentation but either I got used to it, or they softened up with use. They remained bright, even after several days but, like the ProAc Studio 100s, it came from raised treble energy, rather than distortion or a sharp response peak. Whilst the 'speaker's couldn't be described as sharp or harsh, they're blessed with more than their fair share of treble energy.

Helped by compact dimensions, the Primas manage to produce quite a convincing image, placing Suzanne Vega well in front of her simple backing guitar and out into the room. The sound-stage this image sits within is wide and spacious too, the Primas filling the room with their light and delicate sound.

Overall, I enjoyed the openness and clarity of the Opera Primas. They are best used in small rooms, but smuggle a REL Strata subwoofer under a coffee table and you have two superb, solid walnut miniatures on display creating a spacious sound, lightly hanging in the room and a subtle, but taut and tuneful bass. Sounds attractive, doesn't it?

“ Instantly, the most impressive aspect of the Opera Primas is the admirably open and clear delivery they have with vocals and lead instruments. Dave Gilmour's guitar echoed out with a light, airy character on Pink Floyd's A Great Day For Freedom ”

emphasis on bass. Consequently, their bass seems drier and lighter than that of most miniatures, but not to the extent of unbalancing the sound - but bass freaks won't be especially impressed.

The bass the Operas do have is fast, agile and truthful, though with a delightfully unrestrained quality. Obviously, this area of performance will vary greatly from room to room, but I'd suggest that if your room is much larger than 16x14ft or has especially high ceilings, then you should look at the larger models higher up

MEASURED PERFORMANCE

Although the Opera Prima is a miniature, using a 4.5inch bass unit, sensitivity measured a respectable 86.5dB, which was a good start. It is often the case that sensitivity is sacrificed by designers to gain a little extra bass extension with miniatures; the Opera Prima appears to combine reasonable sensitivity with good bass, which will make them easier to drive than most of their competitors.

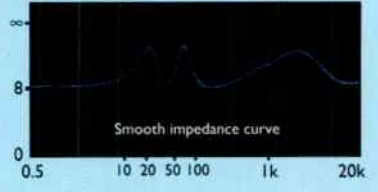
The impedance curve is high and smooth too, never dipping below 8Ω which means that they won't demand much current either. Overall, impedance measured 12.5Ω. The smoothness of the impedance curve could make the Opera Primas a candidate for low or zero feedback amplification.

The frequency response of the UKD Opera Prima is not the smoothest though. The peak around 1kHz in the lower midrange may well add emphasis to notes in this region, and the rising treble will give the Operas a brightness to their sound. To what extent though, can only be assessed in a listening test. **DB**

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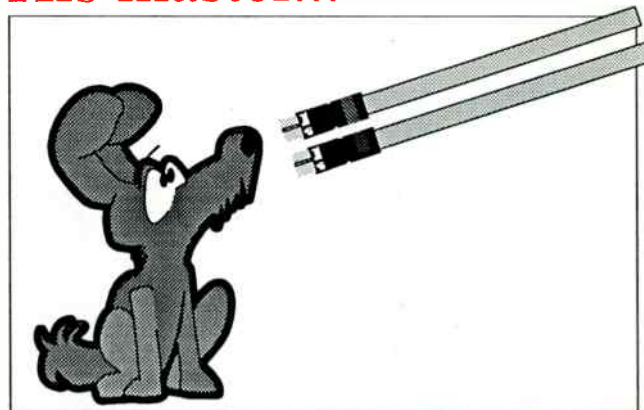
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Sound Engineering for the Future



Ghost In The Machine

Does Quad's new 77 integrated amplifier herald the introduction of 'intelligence' to hi-fi ?

Eric Braithwaite checks its IQ.

Quad have innovated themselves into the 21st century with their first integrated amplifier, the 77. It's an entirely new design, from a new design team backed by an investment of half a million pounds on research, development and production.

Fully remote controllable, this new amplifier forms the heart of an 'intelligent' interlinked system, a CD player and AM/FM/RDS tuner being due early in 1995. Quad's new strategy will effectively spell the demise of signal cables, since linking will take place through their own fully balanced multi-connector interlinks which, they claim, sound better than the usual unbalanced links.

Ironically, in the meantime, the 77 is

revealing enough of cables (it has two normal inputs) to demand caution: I used Sugden silver and horribly expensive XLO Type 6 'speaker cables - which cost as much as the amp - and Kimber and van den Hul The First and Second interconnects.

Briefly, the components will interconnect with a SCSI-type cable, the 'Quadlink' bus carrying power, balanced signal and control instructions from the 77 amplifier to and from all future components. The software is said to be capable of handling up to 256 extra items, if you can imagine that (multi-room: Quad throughout Buck House, maybe?). But this is not like other remote control systems. The £250 controller interrogates each

component via the amplifier, it talks back and enables the remote to display all the possible user options.

For the amplifier, this is balance, volume, source selection and choice of tape input sensitivity. In future, the same buttons will acquire 'labels' from each component and control all normal CD player and tuner functions, Dolby Surround and Pro-Logic set-up and recording and monitoring. Fully future-proof, the remote will simply copy all instructions from the component when it is prompted to talk back in response to an identifying request. If we end up with some new recording format after DCC and MD, then the operational systems will be embodied in the equipment and transmitted to the remote's memory, via the 77 amplifier. It's the end of remotes with forty buttons, since Quad use a menu based command system that is 'intelligent' in that when CD is selected, for example, the remote is then programmed with CD functions, making it look like a CD player. With this system, the 77 remote has just six buttons and a rotating knob.

This is visual GUI (Graphical User Interface) technology applied to hi-fi for the Nintendo and computer generation. The remote even looks a bit like a Gameboy. It's also the end of messy displays on CD players or tuners that can't be read from more than a few feet away; the remote will show information on its own LCD panel. It can even be recharged from a socket in the back of the 77 amplifier.

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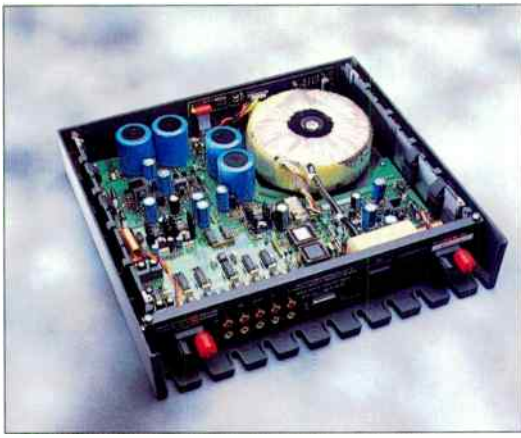
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Sugden Stemfoort SF60, say, produces.

Combining the 77 with KEF Reference Series 2 'speakers reiterated the 77's vocal clarity, remarkably clean and probably least susceptible to sibilance of any around. Guitars on Rod Stewart's Unplugged album, in common with other acoustic instruments, were vividly lifelike, especially in fingering. Better still, from the point of view of listening to music rather than inspecting its technical quality, although the concert-ambience

was less clear than is possible, the 77 concentrated on a 'big' performance, usefully filling out and beefing-up the dynamics, diminishing the worst effects of the compression in this recording.

While Quad has a reputation for being classical-orientated, like the 606, the 77 can rock when it needs to. It also possesses those traditional Quad characteristics of precise and stable imagery and fidelity to tonality.

'The closest approach to the original sound'? Almost. The only aspect you

usually have to pay much more for, excepting the remarkable but fewer-featured Sugden or Stemfoort designs, is that elusive 3-D walk-around-through-the-whole-frequency-range solidity of individual bodies - both people and instruments. That's what made Miles Davies' trumpet a bit less moodily plangent than is perfect, although the acoustic 'area' around the drummer and guitarist, recorded in sound booths, was reasonably well defined.

But this amplifier is going to be a classic choice, well worth the relatively low price of entry into an entirely new, infinitely expandable, 21st century kind of hi-fi - one with no signal leads. It's a Quad world!

77 Integrated Amplifier £595
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not only in the new-style perfectly finished casing, slightly wider than Quad's previous midi-size. Since a few thousand Quad owners will very likely sign up for a 77 before it even hits the shops, a quick cross-check was made with my very own 34 pre-amplifier and 306 power amplifier, wired up, initially, to ESL-63s.

The new 77 has more in common with the crisp, beefy character of the Quad 67 CD player (surprise, surprise, since they have a designer in common) and the upgraded 606 power amp. The 34/306 tends to take a rather cool, clinical look at life, and with a rather large proportion of dynamic 'speakers can sound macro-dynamically restrained.

The 77 is subjectively much more powerful. While it shares finesse of vocal and instrumental detail with the last-but-one generation, the brass sections of the LSO on Tchaikovsky's Marche Slave or Capriccio Italien blared forth with a much larger scale. Turn the wick up to around 26 (out of 32 on the numerical volume display) with the volume Up/Down buttons and through my 63s it was almost too forceful. At this level, the chorus in the Sixteen's Bach B Minor Mass coarsened slightly, with the band brought rather more forward and depth perspective somewhat lessened. But, like the brass-voracious Tchaikovsky, the impact was pile-driver tough.

Down a few dB, however, brought perspectives back, although with just a trace less of the St Augustine's Kilburn acoustic than through the 306. A definite advantage here, however, was the tonal quality of James Bowman's counter-tenor. From sounding a trace feminine, the 77 clarified those vocal nuances like only the high-end normally manages, or I have heard through the 306 driven by a £1000-plus Argo HR pre-amplifier.

The bass goes a few Hertz deeper and with more strength too, in the fashion of the revised 606. While the timpani on Barbirolli's recording of Cockaigne were much clearer and more defined than usual, except through very high-end amplification, double-basses on Ten Years After or some jazz recordings had some timing uncertainty or 'smearing' as it's known in some quarters. Not noticeably slow, not making the beat or rhythm falter, certainly strong, but with less of the clear-cut 'shape' to bass notes that the

MEASURED PERFORMANCE

Substantially Class B, with limited standing current and not too much feedback, we were told by Quad, the new 77 amplifier measured much as theory would predict, exhibiting more distortion at low levels than at high ones. The products were odd order in nature (see our analysis), suggesting a little possible roughness, but only if the low amount of 0.02% could be detected. Much below 0.1% and this is open to argument; as always, listening tests are best used. In the mid-band, distortion remained low - around 0.004% - at all signal levels. So the new Quad 77 is a low distortion amplifier.

In spite of its small size, it is also a high power amplifier, producing 84watts into 8ohms and no less than 144watts into 4ohms, albeit for a short period of about one second only, before protection circuits cut in. So the 77 will pass short term musical peaks into low loads, but it is likely to object to being driven hard into them. Users are best to beware of using 6 or 4ohm loudspeakers that dip down to 3ohms or so; we've measured some real nasties like this recently. Our 'speaker reviews always carry such information.

Bandwidth measured 8Hz-34kHz, wide enough yet also subject to some sensible limiting. Sensitivity was around average at 320mV through Source 1 & 2, a figure just adequate for some low output budget cassette decks and tuners (300mV). To cover this eventuality - and Leak Troughlines! - a sensitivity of 200mV or so is more common nowadays, but the 77 is really meant to partner Quad items. Why? Well, apart from the remote bus and balanced signal links, the solid-state switches used impose an input overload

ceiling of 2.7V, insufficient to avoid possible overload with CD players from Pink Triangle and various others who are approaching 3V outputs.

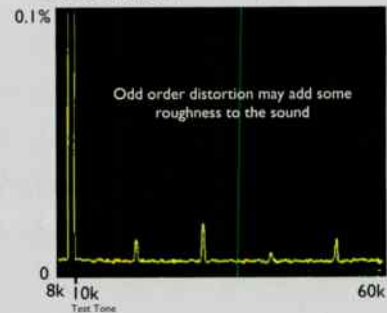
So the 77 is best partnered with a Quad CD player as intended. Let's hope the CD player designed to match this amplifier will sound as good as the Crystal chip-based Quad 67.

The Quad 77 measures well, if not quite as well as some earlier Quad amplifiers. It is powerful and the power supply, with its huge toroidal, has excellent regulation. **NK**

TEST RESULTS

Power	84watts
CD/tuner/aux.	
Frequency response	8Hz-34kHz
Separation	90dB
Noise	-97dB
Distortion	0.004%
Sensitivity	320mV
dc offset	12/32mV

Distortion

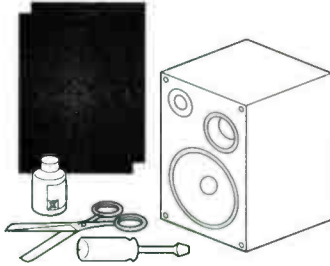




SPECTRA
Dynamics

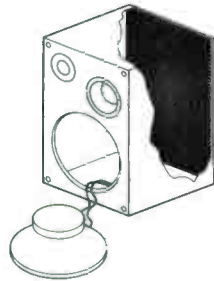
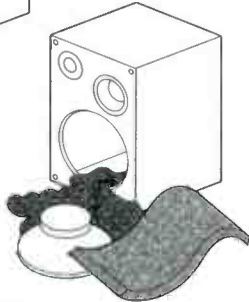
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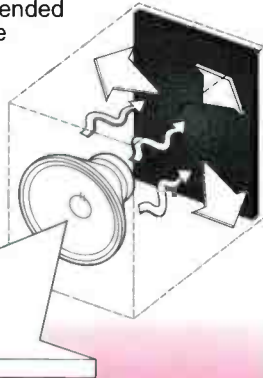
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Sound Quality
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SOUTHERN BELLS

Eric Braithwaite glows over these seductive 300B single-ended valve amplifiers from Cary, USA.



Somehow, single-ended and 300B have become this decade's buzzwords. There is not so much a valve revival as an explosion, particularly Stateside, associated with a re-evaluation of what valve amplification means. And mostly, it means amplification that produces more musical music - and that's not a tautology. Talk to almost any of the designers - like Lew Johnson or Bill Conrad, the conrad-johnson duo, for example - and the conversation almost inevitably turns to musical 'naturalness'. Dennis Had of Cary is no different in believing that musical fulfilment in hi-fi means valves as much as beanz meanz Heinz.

In the case of Cary, named, by the way, after a Carolina town, not a person, 300B fervour has surfaced in the form of the 300SE monoblock power amplifiers. Weighty affairs, thanks to the transformers, and a trifle heavy on the purse at £3795 a pair, what they lack in wattage, they certainly make up for in sound quality. Producing only about eight watts, they are tricky to partner. Speaker efficiency is the name of the game, but 'speaker quality' even more so. The distributor recommends ProAc - not entirely surprising, as ProAc designs are highly rated in the US among valve aficionados - though they were tried in my flat with Heybrook Quartets and ESL-63s, which they drove with surprising adeptness if not with the kind of volume

that would threaten Jericho's building plans. Rather, indeed, than the Pye Mozart turned out way back.

Allied with the monoblocks is the SLP90 valve pre-amplifier, a chunky little piece of engineering, with one of the best feeling stepped volume controls my fingers have been in touch with for quite a while. If bought with an onboard moving magnet phono-stage, the British wallet would be slimmer by £2890. Having been nappily watching the Bard on the Box while this review was in progress, there, as he would say, lies the nub. At getting on for seven grand, this is hardly an impulse purchase, nor the obvious value-for-money it represents in the US where it sits more in the Mercedes bracket than the Silver Shadow.

What does make the two worth considering, even if, unlike me, you are not going to be the one in 14 million who is going to win the lottery jackpot, is its American high-end sound. Fronted by a Michell Argo HR and a Meridian 500/563, a dab hand at depth, both bass and stage-wise (you see we automatically lapse into transatlanticisms) the power amp pair took the Heybrook Quartet boxes right out of the room. Victoria's Requiem was superbly numinous and 'churchy', with

that extraordinary fluidity of vocal line that turns some listeners into valve die-hards as quickly as Gold Blend granules dissolve sexual inhibitions, if you believe the ads. The 'speakers dissolved as the choir hung in the air between them.

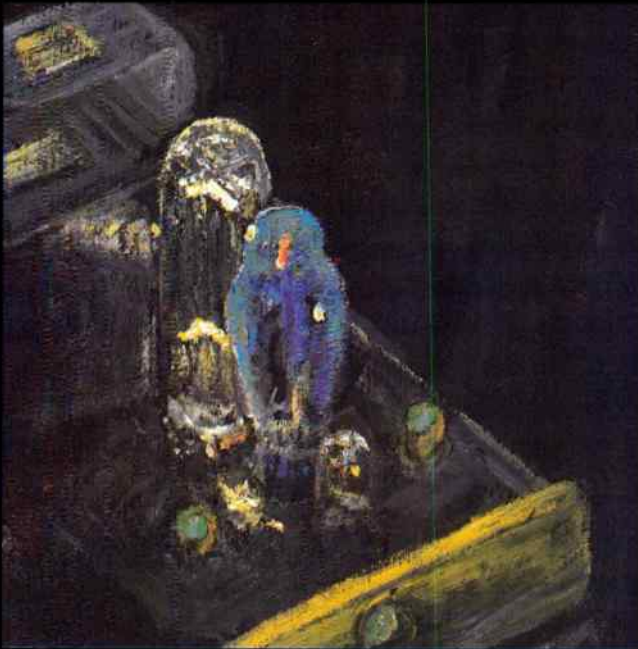
Not that this means the 300SEs are unfocused. They are as good at individual precision images as any high-calibre transistor effort, though without that sharp-edged cut-out effect. Here taste comes into play, for the picture is impressionist rather than cubist. Seek for a studio control-room array of performers blocked into separate boxes and you will have to seek elsewhere. In the Cary scheme of things, you are placed in front of a concert-hall ambience, an orchestra or band filling all the nooks and crannies of space with a fully homogenous, integrated sound. The word for it, and it's in Webster's as well as Chambers', is deliquescent.

However, the Cary set-up is not just for the dewy-eyed musical mystic. There's a richness and sweetness of string timbre that reproduced the equal richness of du Pré's cello in the Elgar Concerto, complete with the serious finess that has the jaw dropping at this superbly emotional recording.

While the lower limits of bass are perhaps not explored as much as rap or reggae lovers might like, it is well-controlled and just enough on the dry side of warm not to sound woolly.

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hard. As long as it's the melody that matters for you, rather than voluntary evisceration, the melody lingers on.

At first, in fact, it tends to disguise the fact that the Cary amps are timbrally spot-on. Having listened for anomalies (really a waste of time with a good 300B design) one ends up with very few niggles. It's only the shortage of power - barely enough to light up

the inside of a fridge - that subdues dynamics. I would have wished for the additional oomph that would extend the forcefulness of a full symphony orchestra, which sounded a trifle reined in. It should be said that the pre-amplifier, while being

fully the equivalent of the power amplifiers in transparency and delicacy, sharpened up the act in the upper registers, putting a little bite into top notes and adding crispness, albeit at the expense of reducing the lateral image spread marginally.

Cary have arrived at a winning - and, I hate the word - a synergistic combination which is one of the most glowing (ahem!) exemplars of the best of 300B sound. Going back to the Gold Blend, this is one worth going to bed with: not perhaps for the athletics, but for wrap-around cosiness and musical companionship. But take care with the 'speakers: you will need to shop around and be prepared for a fair proportion of what's on the market not to do the Cary's justice

Perhaps, in the kick-drum stakes the attack is a touch slow, and cymbals shimmer a little overlong and sweetly when they should clash a little more, but provided the 'speakers are efficient enough, the Cary's will rock long and

CAD 300SE £3,795
SLP 90 Pre-Amp £2,890
The Audiophile Club,
PO Box 6477,
London. N13 4AY
Tel: 081 882 2822

MEASURED PERFORMANCE

I measured the power amplifiers independently, since this is the best way of identifying the source (pre or power) of any effects. Output power is rated at 10watts by Cary, but just below visual clip on an oscilloscope, this amplifier produced 8watts. Across the mid-band, the amplifier generates predominantly third harmonic distortion, like most fixed bias designs, which generally results in a bright/sharp, but apparently clear sound.

Luckily, the CAD-300SE displayed a very amenable high frequency distortion characteristic, producing primarily second harmonic, which measured 1% at 8watts output (10kHz). This will be aurally innocuous. Since oh so many fixed bias amplifiers, made worse by an imperfectly loaded output transformer I suspect, produce 5%-10% third harmonic at 10kHz, the Cary did relatively well in this very important respect.

Bandwidth (1watt) measured a satisfactory 12Hz-20kHz (-1dB). There was no high frequency peaking, allowing good square wave reproduction to be achieved. Lack of low frequency filtering allowed the output transformer cores to saturate early at 12Hz, passing 3watts maximum, but this is to be expected. Vinyl users beware: any preceding disc stage should have a warp filter. Otherwise, the output transformers were just man enough to pass full output (8volts/8watts) at 40Hz, again a satisfactory performance.

The input stage uses a Shunt Regulated Push-Pull (SRPP) circuit configuration. It's popular in Japan and looked much like that used in the Japanese Audio Professor 300B amplifier. This stage produced some of the third harmonic we measured, but is known

for good sound and high gain. Sensitivity was low at 1.3V for full output, so a pre-amplifier with gain is needed.

In all, the power amplifier measured well compared to many modern 'esoteric' valve amplifiers, at least in critical areas that affect sound quality.

The power supply uses a re-badged Mullard GZ37 - a very rugged rectifier. This will give the amplifier a slow start. The filaments are fed d.c. which shortens valve life a little, but keeps down hum.

The pre-amplifier has an external, solid state power supply and uses triodes throughout. It had a wide measured bandwidth of 4Hz-53kHz on CD, a 200mV input sensitivity (for 1.3V out) and a gain of x10, which is quite high. All these figures are normal enough. The phono-stage had an enormous x850 gain, making it suitable for high output moving coils, as well as moving magnets. Equivalent input noise measured 0.6µV, a low value for moving magnet cartridges, but not low enough for moving coils, where hiss would be audible. With such gain, input overload set in early at just 20mV (1% distortion). However, since it was pure second harmonic, rising to 2% at 40mV, and more than 5% or so is barely detectable as a lightening of timbre, the Cary was fine in this respect.

The RIAA disc equalisation was accurate, but ideally Cary should add a warp filter in my view, to prevent the possibility of disc warps saturating the output transformer cores. Otherwise, the pre-amplifier worked well and could be used with any power amplifier.

In all the areas that count - those that directly affect sound quality - the Cary combination measured well. **NK**

TEST RESULTS

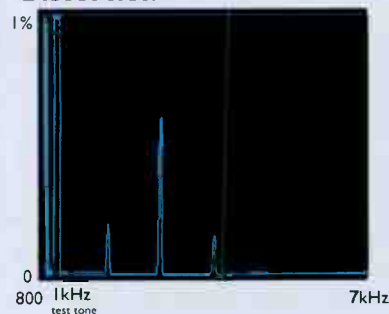
CAD-300SE POWER AMP.

Power	8watts
Frequency response	12Hz-20kHz
Hiss	-90dB
Hum	1.2mV
Distortion	0.2%
Sensitivity	1.3V
Damping factor	4

SLP-90 PREAMP

Frequency response	4Hz-53kHz
Separation	68dB
Noise (input)	2µV
Distortion	0.14%
Gain	x10
Sensitivity	200mV
Overload	10V out

Distortion



Third harmonic distortion may give the Cary a bright character.

GRAND SLAM!



**Thomas
Transducer's horn
loaded Brios have
punch. Dominic
Baker finds them
big in every sense
of the word.**

My girlfriend wasn't impressed. "What the hell are those? Is there a whole band inside them or what?" But it didn't deter me. I was determined to get them into my room and up and running whatever the objections.

My room isn't small, 25ft long and around 16ft wide, but to say that the Brios blended into their surroundings harmoniously would be a lie. But that isn't what the Brios from Thomas Transducers are about. If you want high sensitivity (we measured a staggering 101dB) and the kind of room driving slam and attack a horn can produce, there has to be a trade-off and size is it. In physical terms the Brio is a floor-stander 51 inches high, 15 inches wide and 32 inches deep, with an effective horn length of 15ft. In monetary terms, it has a £4750 price tag.

The Brios use a single Lowther PM6A Hi-Ferric driver which covers the entire audio band. It is a bi-axial unit, having a small 'parasitic' cone centrally mounted around a phase plug to extend treble smoothly upwards. The cone itself is made from extremely thin paper, for lightness and fast response to transients. The rear of this unit drives a folded exponential horn which has been designed so that the Brios work best with their backs facing into the corner of a room.

I quickly found that the Brios didn't suit dull or muffled programme material, making a lean, bright CD player the best consistent match. Combined with a valve amplifier, to exploit its smoothness through the midrange, the Brios came alive. The Lowther drivers are so light and fast that even the merest touch of hardness or grit in the source shouts right at you.

Having listened to several horn loudspeakers in the past, I was expecting the bass to have that dry, hollow, colouration that seems to accompany such designs. The bass from horn loudspeakers is always impressive, hitting you in the chest with every kick from a drum. But it is never especially deep or full, because of the sheer physical size of the mouth needed to reproduce the lowest notes. The Brios managed especially well here, having more body and character in their bass than most, which gives them a richness I found agreeable.

It's quality bass too. Not over emphasised to an extent that it swamps the music, but with all the scale and power you could wish for. It stays taut with bass guitar for example, having the agility and speed to follow plucked strings. The Brios keep a performance in nice proportion too, kettle drums growing from back-stage without swamping the room.

As I mentioned earlier, the treble of the Brios was a little too soft for my liking.

Treble energy can be increased by toeing them in towards the listening position more, but too far and the upper-mid-range becomes pronounced, adding a hardness to vocals and strings. I found the best position was with the Brios toed in just a little, so that their forward axes crossed paths around 6-8ft behind my head. Here treble was powerful enough to balance the sound reasonably, without the mid-range coming too far forwards.

In this position they dealt with Inspiral Carpets' Satum 5 with aplomb. Every crack from the drum stick as it crashed into hi-hats seemingly had great force behind it, even if the upper harmonics needed to provide a really sonorous 'ring' decayed a little too promptly to create the sort of awe inspiring sense of space that some top-end loudspeakers possess.

Overall, I can only describe the way the Brios convey music with such authority, thrusting every note forwards, as majestic. The manner in which they seem able to get progressively louder - and even louder! - without even the slightest hint of compression, giving them great ability to communicate the dynamic contrasts within a recording, or better still from a live Radio 3 broadcast, is nothing short of spectacular compared to that of any conventional box loudspeaker.

The Brios let music flow in a delightfully natural fashion. Listening to

REM's 'back-to-roots' album *Monster*, these speakers conjured up the just the flavour intended, making plain the sparse, uncomplicated feel of the music. The thin paper cone of the Lowther driver didn't add much colouration to Michael Stipe's voice, and the concentric design, with treble radiating from the centre of the unit, helps the Brios to firmly position band members. They aren't quite as precise in this area as, say, the new KEF Reference Series 2s reviewed in last month's issue, but they certainly didn't disgrace themselves.

At the end of the day, whether or not you get on with a loudspeaker depends greatly on personal choice. Even more so if they cost £4750. The Brios have a lot going for them. They're capable of producing a captivating performance of lifelike proportions with a great air of naturalness. They are incredibly sensitive, needing only a couple of watts at most to go extremely loud. One warning though, as well as a large pocket, you're going to need a very large room ●

Brio
Thomas Transducers
White House Hall,
Hadlow Road, Tonbridge,
Kent. TN11 0AJ
Tel: 0732 851408

£4750

MEASURED PERFORMANCE

Memories of the Living Voice Tone Scout came flooding back as I sat hands over ears desperately trying to withstand the sound these 'speakers produced from just one watt of a pink noise test signal during measurement. High sensitivity is all very well, but at this level, it's painful!

Pushing out a massive 101dB at 1m from just one nominal watt (2.8V or 0.6watt in fact, because the Brios have a high 14Ω overall impedance), the Brios will pin you to the wall with ease from a few watts. There are pre-amps around that have enough power to drive loudspeakers like this!

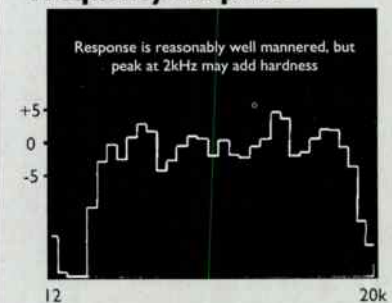
Their frequency response wasn't especially flat, but it is very difficult to get an accurate picture from horn loudspeakers. Through the mid-range the response is quite smooth, up until around 2kHz where a strong peak arises. This will help the sound to project well, but some listeners may find the Brios a little too forward for their liking.

Upper treble extends smoothly to just past 10kHz, after which it rolls off rapidly. This will give a soft and inoffensive treble quality - not always a bad thing.

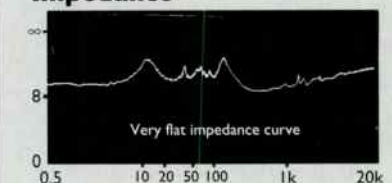
In the bass, the plot shows extension down to 40Hz, and this was with the mic in front of the drive unit. Output from the horn, with room reinforcement, will push bass further downwards, so I would expect deep bass to be audible in normal use.

The impedance curve is extremely flat and smooth, partly helped by the fact that the Lowther PM6A drive unit covers the full range and therefore has no crossover. Impedance was high too, with an overall value of 14Ω, meaning these speakers draw just over half the current of a standard 8Ω loudspeaker. Combined with high sensitivity, this makes the Brios incredibly easy to drive. **DB**

Frequency Response

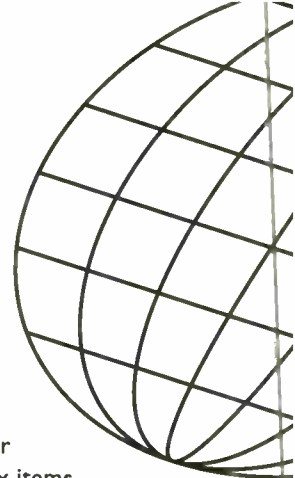


Impedance





World



'MARKET FORCES'

Boycott greedy UK dealers. Here are some price comparisons between US and UK for quality American hi-fi based on a £1.00 to \$1.50 conversion: Monarchy Audio DT-40A transport, £1,000 (US) - £1595 (UK); Counterpoint DA11 DAC, £863 (US) - £1,675 (UK); PS Audio Transport Lambada, £1,130 (US) - £1,990 (UK); Theta Data Basic (transport), £1000 (US) - £1990 (UK); Wadia 8 transport, £2,000 (US) - £3,190 (UK) and finally, Audioquest Emerald interconnect £110 (Israel) - £190 (UK).

Why the discrepancy? Any person can purchase the amazing Bedini CD clarifier by buying 40 US dollars from a high street bank and sending the money in a registered letter to: The Cable Company, P.P. Box 579, Byran Road, Point Pleasant, PA 18950, USA. The total cost is £30, which is a lot cheaper than the £95 charged in the UK.

Conclusion: as UK markets obey the rules of supply and demand, your magazine should show UK buyers how to undertake personal imports. You can start off by doing it yourselves. If the dealers who supply your review equipment get angry, you should resist their blackmail!

Remember to specify 240 volts. You could try calling Audio Adviser in Detroit on 616 451 3868 for some helpful advice. Happy Hunting.

Nicolas Vassiliades
Old City Jerusalem,
Israel.

British dealers have very little to do with this.

Exporters use import agents to handle their products, who then appoint dealers in their territory. Each adds a margin, so the price you see outside the country of origin has an extra margin in it - the importers margin. For their part, the importers are expected to ship and pay the costs, which may be considerable, to stock in depth, to deliver nation wide, to service and repair, and to answer customer enquiries. They may even be

involved in safety certification and liability insurance, being legally responsible for the performance of the goods.

Cost this little lot out and you find that import can be an expensive and sometimes onerous business, which demands margin.

The business of direct personal import (grey imports) raises other questions. It's successful with small, passive items, like cartridges and accessories,

but less so with heavy or complex items, which attract high shipping charges and may need specialist repair. Importers obviously hate grey imports and, since they may be crucially important to a company, have the strength to insist that they be prevented.

How? The manufacturer has to raise prices in the country of origin, to erase

Letter of

Recently I went to a Quad musical evening at my local dealer, the Audiofile. This was the first time I have heard an all-Quad system and the first time I had heard their ESL 63 electrostatic loudspeakers. As the owner of what I consider to be a fairly high-end Linn system, I was absolutely bowled over by how spatial and 3D-like the sound was. Even though I certainly wouldn't trade in my all-Linn set-up for a Quad system, it did have me thinking how nice it would be if I had a spare room and a few thousand pounds cash. With a Quad system as well, I'd have the best of both worlds.

Where the Quads particularly excelled was on very straightforward, uncomplicated vocal and jazz music, as well as classical music. What surprised me was that the 'speakers even had good bass (yes, I did hear them without the

sub-woofer). The front-end was a Quad 67 compact disc player and amplification was provided by the Quad 66 pre-amp and 606 power-amp.

Where the system did come unstuck was on pop music, where the sound could become somewhat muddled. If I did trade in my Linn for an all-Quad system, I would certainly miss the dynamic punch and slam of the Linn set-up.

The purpose of writing was to say just how impressed I was with the system. If I listened solely to classical music, then the electrostatic loudspeakers are the ones that I would certainly go for. However, I tend to listen, in the main, to soul and jazz/fusion.

Whilst on the subject I would again ask you to consider including in your excellent publication reviews of soul as well as jazz/fusion. I have to buy CDs sometimes

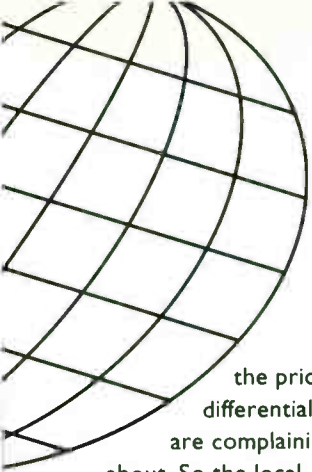
on spec (mainly G.R.P. releases) and quite often I have wasted my money. I know that you pride yourself that your publication is still only £2, and you do say that if you had the extra space then you would include jazz/fusion and soul reviews. I am sure if Hi-Fi World was increased in price, by say 20-30p, you would still sell just as many. After all, a hi-fi is only a means to an end, and I personally feel that more importance should obviously be attached to the music.

Jonathan Paul Diamond,
Hatfield Broad Oak,
Bishops Stortford,
Herts.

Quad Electrostatics can handle Rock, but Quad themselves, as you have recognised, tend to favour classical. We strip ours down, removing the grille cloths and metal protective meshes. This gives them a more transparent sound,

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writes



the price differential you are complaining about. So the local populace pays more, suppressing demand in the country of origin. The manufacturer is forced to decide which market is most valuable.

If US companies don't do this, then it's probably because they value their huge, wealthy home market more than smaller export markets. So the price

differentials you see are hardly a reflection on poor British dealers! They're attributable to importer margins, allied to exporter policy.

The British, by way of contrast, have a smaller and none-too-strong home market, making them more reliant on export. So, unlike the Americans, they are more likely to raise their home margins to minimise such differentials. It might look more equitable to you

in Israel, but it's tough on us Brits! **NK**

WEDDED TO HI-FI

I must say I found Dominic Todd's recent piece on Hi-Fi style the most interesting and thought provoking article for some time. Whilst I sympathise with many of Dominic's observations, I do feel there is another side to the debate.

Once fully hooked, there is no doubt that many audiophiles aspire to the more individualist, idiosyncratic of designs. Most would agree that such products are vital to the industry, and I understand Dominic's wish to see more truly stunning products. However, in order to spread the appeal of real hi-fi, there is a need to attract people who don't already place such importance on hi-fi, so that they'll design their homes around around it. Most will already have homes and indeed wives with which the

hi-fi must co-exist harmoniously.

Moreover, I do feel that good design requires far more than good looks. A well developed product should surely also be convenient, practical, durable and adaptable. Linn's electronics, for instance, are a pleasure to use. The equipment stacks up to hide cables; there are no sharp edges to chip, so it lasts, and of course they are highly adaptable with expansion slots, multi-room possibilities and constant retro-fit upgrades, just some of the important assets which place these 'black boxes' at the cutting-edge of design. I should add that I don't own Linn equipment, but I do wish others would sit up and take notice.

Many products are just plainly impractical and through time can end up looking like a dog's dinner. I once owned some 'speakers finished in

continued on page 41...

the Month

free from a slight colouration introduced by the mesh. But I wouldn't recommend this to anyone inexperienced or with young children who may be tempted to touch, since beneath a thin protective film lie electrodes carrying high lethal polarising and signal voltages.

To date, we've funded improvements to the magazine by rising sales and increasing business (and we're all a bit pleased that as music lovers and hi-fi enthusiasts, rather than as mainstream publishers, Hi-Fi World has a steadily and healthily rising circulation). So, at present, there's no need to raise cover price to fund extra Jazz reviews.

Hi-Fi World readers will scream the house down when, some day, our price does have to go up (it's been £2 since our launch in 1991). For a long time, Scandinavian producers have

been militating for an increase in paper price and this slid through last September but was absorbed by us. I've always hated those "Due to an increase in paper prices.. blah, blah, we've been forced to raise the price of the magazine" that big publishers love and, thankfully, to date we've managed to avoid using it.

I'm also concerned about maintaining the quality of the reviewers we use - most hopefuls, possibly a little too interested in the idea of free music and not concerned enough about either their qualifications or writing ability, don't make it. Our current music reviewers are highly knowledgeable in their particular fields. When we find someone equally well qualified to handle Jazz/Fusion reviews - and modern Acid Jazz - they'll be grabbed! **NK**

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.... continued from page 39

black nextel which collected dust like a Hoover bag. A soft brush was partially successful in cleaning them, but they never looked new again. Any cloth used deposited lint and polishing was a disaster. Turntables without dustcovers share these problems too. Pink Triangle and Kuzma seem to have integrated lids into their design without sonic or aesthetic drawbacks.

I share Dominic's view that there is too much black about (even the Japanese seem to be switching to titanium), and I agree that Michell's Gyrodec is a stunner. I should add that it is also brilliantly designed, being easier to set-up and maintain than any other top turntable I've come across.

I can't finish without plugging my own particular favourites which include NVA's Statement, the original Cyrus range, Anthony Michaelson's products and Sequence loudspeakers.

Whilst I too spend hours drooling over pictures in

magazines (hi-fi titles, that is!), I'd rather have the 'hi-fi illiterati' enlightened by cleverly designed and wonderful sounding black boxes than see them carrying home, yet more, midi-system boxes on the bus every Saturday. We need a wide range of styles, but I do wish manufacturers would put as much thought into their products as the best examples we can mention.

**Andrew Baird,
Tyne & Wear.**

INFLUENCE

It saddens me to see a dispute between yourselves and Pentachord.

If what you say of Dr. Brooks' attempts to manipulate public and readers' perception of Dominic Baker's review of the Pentachords is accurate, then I understand your anger.

What worries and disappoints me regarding yourselves, is that I was one of the people who wrote expressing concern over the standard of Dominic's review,

whilst acknowledging his right to dislike the loudspeakers. But, at no time had Dr. Brooks contacted me to influence me to write the letter. I wrote the letter spontaneously after reading the review.

I believe you are in danger of distorting the truth in an Orwellian, Big Brother manner by simply not printing any of the letters, something I hope and believe you would not be party to.

Then again you could simply dispose of my letter and no-one would be any wiser; that would be a sad response by the hi-fi journal that has set such high standards by using subjective and objective measures in such an open and professional manner.

**Garry Richards,
Wakefield,
West Yorkshire.**

I appreciate your letter, which came at much the same time as a call from a dealer who occasionally handles the Pentachord loudspeaker. He, like you,

was at pains to point out that his letter to us in support of Pentachord wasn't sent as part of an orchestrated campaign, even if the supercilious letter sent to us by Oliver Brook of Pentachord (January 1995 issue) appeared to give the opposite impression.

From this end it isn't possible to tell whether a flurry of supportive or sycophantic letters is motivated by genuine appreciation of

a product and its manufacturer, or by collusion with that manufacturer to gain free, apparently impartial promotion. There's nothing Orwellian about this. It's a silly trick, but from time to time, it occurs and, ultimately, it is a cynical attempt to deceive readers. Perhaps in this case there was no such motivation, Oliver Brook's letter just made it appear so. NK

HALL OF FAME

The Fons CQ30 was reviewed in Hi-Fi News in 1978, in a notorious comparison with the Linn LP12. It was reprinted in the annual for that year, which I happen to have kept.

According to the reviewer, F.J., the CQ was distinctly better than the Sondek. Anyone know who F.J. was? The CQ was manufactured by Fons International Hi-Fi, Ltd., Maybole, KA197BH, Scotland. At the time it cost £93.50, excluding VAT and without an arm or pick-up. Sic transit.....

**Peter Turner,
Frampton Mansell,
Stroud,
Glos.**

A GOTH IN THE QUAD

I've been reading your magazine for a few months, but have noticed that there appears to be much debate about "which 'speakers do I use with my Quad IIs'?"

The Quad documents tell us, and you are fond of reminding us, that Quad IIs only produce 12watts. However, when we tested my pair we found that we were in fact getting 18watts RMS. My friend (an engineer) who refurbished them said that maybe it's because we're using better components, all the resistors have been replaced with Holcos, the capacitors have been replaced also. Any ideas?

continued on page 47



Hi-Fi style - Michell's Gyrodec combines eye catching looks with high quality engineering.

Just a decade ago fears were being voiced over the future of radio, which seemed in terminal decline in the light of the video explosion. In the 1990s, with listening figures rising steadily, those fears look groundless. And with the introduction of the Radio Data System (RDS), many of the annoyances associated with using a hi-fi tuner have been eliminated.

There is no longer any need to think about station frequencies or even the way the pre-sets have been configured. Instead the tuner greets you with the name of the station selected. In the golden age of wireless when the airwaves were the exclusive province of the BBC and a handful of independent local stations, this would not have been such a big deal. But with today's proliferation of ILR stations and new franchises being handed out by the day, RDS is not so much an added convenience as a necessity.

This is where the Yamaha TX-580RDS fits in. Possessing considerable operational sophistication and good build quality, it looks a strong player in an increasingly competitive sector. Parting with five pence less than two hundred pounds buys you a pleasantly finished black box weighing in at just over three kilograms. Maintaining the family image, the Yamaha sports a front panel devoid of clutter and frivolities. As soon as the unit is powered up it displays the frequency of the station selected, which is rapidly replaced by the station name. There is also the compulsory (for Japanese tuners) ski-slope signal strength meter which impresses in the showroom, but not so much at home. Finally, the Yamaha displays pre-set name and tuning mode, which can be either automatic, manual or by pre-sets.

The RDS facilities are easily accessible, allowing quick searches of the airwaves for programme type (news, affairs, sport, culture, etc.), as well as finding the frequency with the best signal for any given RDS compatible station.

As expected, tuning - across FM or AM - proved a breeze, the Yamaha quickly locking onto BBC Radio One and confirming the fact on its display. On the end of a high quality aerial, driving a Denon PMA450SE into KEF Reference Series Model 2s, the TX-580RDS initially sounded highly impressive. Primal Scream's Cry Myself Blind came across with verve and gusto, displaying a keen sense of timing which pulled me into the song. Indeed, throughout the listening period,



AUTOMATIC PILOT

Yamaha's TX-580 tuner comes complete with RDS, useful for scanning today's busy airwaves,

David Price finds.

MEASURED PERFORMANCE

The TX-580RDS has an interesting slow roll down in upper treble output, a feature that's likely to give it a mild presentation - that's if the overall climb upwards in treble output doesn't dominate, as it might; only listening tests can tell which of these two conflicting phenomena will dominate subjectively.

Distortion was a little higher than usual, but comprised mainly second harmonic, as our analysis shows. This doesn't usually sound bad, in large quantity (5% or more) serving only to lighten timbre. At 0.8% maximum this should not be troublesome subjectively, although some slight muddle or 'greyness' in the sound may result.

Channel separation was very high at all frequencies and hiss quite well suppressed at -72dB - about average these

days and low enough for hiss not to be obvious even on Radio 3, during their extended silences.

As expected, the Yamaha was very sensitive and selective; it can pick up weak stations and hold them without interference from powerful ones nearby. The signal strength meter is a simple one with four segments that hit 200µV maximum - a relatively weak signal. Like just about every tuner, this one needs five times as much to work optimally, in full quieting. Audio output from the tuner measured 600mV, a healthy figure high enough to drive all modern amplifiers.

The Yamaha measured well in all areas, although it produces more distortion than is common these days. Whether it will be audible is best decided by listening tests. **NK**



the Yamaha continued to impress with sharply defined leading edges that lend a degree of pace to rock and pop rhythms. However it soon became apparent that the upper midrange was particularly forcefully conveyed - in short, the Yamaha veered towards brightness which on some program material could be fatiguing. Indeed, the sound wasn't a million miles from that of a budget CD player, dealing in broad, well defined brush strokes which did nothing to communicate the nuances of the song. Instead, the Yamaha relied on

its sheer brio to keep the listener interested.

A particular problem area for budget tuners is bass (or rather the lack of it). The TX-580 was actually quite good in this respect, showing a fair degree of extension, but often tripped up and tended to 'one note' the lower frequencies. Another danger area, female vocals, were handled with an unwelcome degree of hardness invariably aggravated by the Optimod signal processing the BBC are so fond of. Switching to Jazz FM

showed the TX-580RDS in a similar light, treading as it did a delicate path between brightness and hardness whilst investing the music with a sense of urgency and force.

The treble was also a mixed bag. Whilst it displayed a respectable amount of detail, high hat and ride cymbals showed signs of splashiness and muddle. On Radio Four the Yamaha proved competent, avoiding sibilance on female voices but lacking the endearing warmth of some other models in this price range, notably the NAD 402. To cap it all, Melody FM, a station whose output is not exactly intended to offend its listeners' sensibilities, came across as quite forward and relentless.

The Yamaha is a thoroughly competent tuner, possessing an excellent user interface, a reasonable sonic performance and good build quality. Unfortunately, that is also its problem. If you want sound quality that will compel you to cut down on your TV viewing, you should look in the direction of the NAD 402. If you want something for casual listening with superior aesthetics, the Yamaha might just be the one for you.

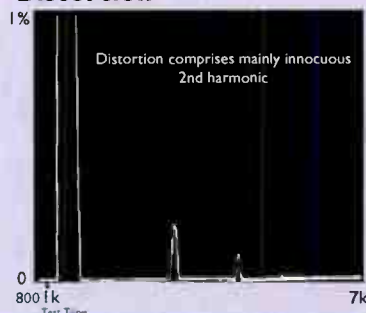
TUNER TEST RESULTS

Frequency response	13Hz-11kHz	mono	1.6µV
Stereo separation	54dB	stereo	25µV
Distortion (50% mod.)	0.4%	signal strength meter	
Hiss (CCIR)	-72dB	LED No.	level (µV)
Signal for minimum hiss	1mV	1	2.5
Selectivity (at 0.4MHz)	80dB	2	50
Sensitivity		3	80
		4	200

Frequency Response



Distortion



Yamaha TX-580RDS £199.95
Yamaha Electronics UK Ltd.,
Yamaha House,
200 Rickmansworth Road,
Watford,
Herts. WD1 7JS
Tel: 0923 233166



Heart of Gold

Aiwa's new AD-S950 is good where you can't see it.

Noel Keyword finds a fine performance hidden behind a modest exterior.

The stylist owns a Micra; at least, that's what I'd expect. It leaves me wondering whether bits wobble on Micras the way they do on the AD-S950, build quality being on the 'light' side, shall I say. But you've got to look at the price - £299.99 - consider the widgets - a full house - and inspect the final performance. Conclusion? Aiwa build to a budget, keep a grip and offer value. The bulbous styling might remind me of a Micra, but the performance of this new deck is less modest.

Rivals? Sony eroded DCC sales with their price-busting TC-K611, relying on Dolby S to offer a similarly hiss-free performance. Aiwa are, these days, a part of Sony and benefit from this initiative too; the AD-S950 is a very similar package to the TC-K611, using Sony-manufactured Dolby chips, for example. It has a dual-capstan transport, one that holds speed tightly I found (some wander badly), three heads (record/replay/erase), Dolby S which offers overload protection as well as very strong noise suppression, and a host of user adjustments, including

variable bias for tape tuning aided by a tune calibration system, adjustable sensitivity for good Dolby tracking, headphone volume, cue/review and track search and, to top it all off, remote control.

Build quality from Aiwa these days is flimsy. In spite of re-locating to Singapore in the eighties, which is where the AD-S950 is made, cost paring permeates this product. Behind the extruded fascia, the sheet metal of the chassis is as thin as it is possible to go. The rear phonos are held on by just one screw, and wobble badly when making connection, the circuit boards are cheap SRBP (resin bonded paper), and so on. Yet in contrast to this, Aiwa use a superb transport and head, and good parts wherever needed to maintain performance, even if this is at the expense of build quality.

The AD-S950 lacks little. It has no back-lighting for the cassette, making the tape difficult to see. It seems that the Japanese have already abandoned last year's widget, the powered cassette

door, so you have to slam this one shut yourself. The Aiwa is no Nakamichi in smoothness of operation, but it doesn't clank too badly.

As expected from the measured performance, the Aiwa performed beautifully, even if some wrinkles showed. The tune calibration system suggested standard TDK MA metal tape couldn't be tuned in, even at maximum bias, yet when I recorded under these conditions, the sound was quite obviously dull and bias needed to be backed off. I feel a little sorry for anyone taking the calibration system seriously, as they are likely to do - quite understandably. It's inaccurate and misleading, and so is the sensitivity calibration system. Aiwa should abandon both of them, explain simply in the handbook how to set bias by ear, and spend the money elsewhere.

With no Dolby, hiss with TDK MA was minimal and recording quality superb, peaking at +6 on the display. Transients from the Latin American percussion and guitars on Songhai 2 were a little rounded, but that's all. Otherwise, recordings were clean, stable and detailed. It would be hard to improve on them, in fact. Violin was screech-free, but the strings did not congeal together, as they tend to with ferric and chromes. Prominent bass caused the sound to constrict a little; Donna Summer had to fight her way through the bass line on Love Is In

Control, unless recording level was reined back to lessen head saturation. Only here was the Aiwa a little less capable than a Nakamichi DR-2, when recording on metal tape.

Anyone wanting to suppress the last little bit of hiss on TDK MA are best advised to use Dolby B, since it acts only at low levels. I found there was no benefit in using C or S.

The overload prevention schemes of Dolby C and S are usually needed to rescue ferric and chromes from treble assault. I was taken aback at how far I could push the Aiwa with quality ferrics without Dolby. TDK AR gave excellent results when peaking music at +6, hiss between tracks being banished with Dolby B or S. Dolby S seemed to offer a little benefit at times, but its performance was hardly convincing, even with the emphasised transients of Steve Earle's guitar on Guitar Town.

“Recordings were clean, stable and detailed. It would be hard to improve on them, in fact”

TDK AD ferric tape accepts treble better than AR, but it overloads more easily in the bass and at +6 sounded muddled and a little dulled; recording level was too high. The bottom line is, however, that the AD-S950 offers superb recording quality even on budget ferrics, always a sign of a deeply competent recorder. Ferric tape doesn't have to sound awful, as Nakamichi have always demonstrated. Poor decks just make it so.

Much the same situation exists with pre-recorded cassettes. OK, so they're not really high quality sources, but all the same they can sound quite decent on a good machine and again, the Aiwa showed good ability in this respect. Piano was stable sounding and reasonably pure, free from pitch warble. Notes were held beautifully in Chopin's Opus 29 Impromptu, allowing Ashkenazy's technical mastery to shine. There was no sign of shakiness or the muffling normally associated with this medium. Tracks with a fast tempo sped along, aided a little by the positive speed error, but also by the sense of control this deck's transport imparts. Anyone with a collection of pre-recordeds, possibly for a Walkman or car, will appreciate the way this deck plays them.

The Aiwa under-sells itself. Flimsy build and derivative styling do little to distinguish this deck from others; in fact, they help submerge it. That's a pity,

because in all other respects the AD-S950 offers a very high standard of performance, in every area. It matches tapes well, makes superb recordings on ferrics, chromes and metals, and gets the best from pre-recordeds. Most quality decks fall down in one area or another, so the Aiwa is well ahead of the pack. At

the price, its something of a bargain ●

Aiwa AD-S950 £299.99
Aiwa
5, Heathrow Summit Centre,
West Drayton,
Middlesex. UB7 0LY
Tel: 081 897 7000

MEASURED PERFORMANCE

Today the budget side of Sony, Aiwa once specialised in cassette decks. With this role to play, you have to expect Aiwa to cost-cut. The question is: does performance suffer as well?

Briefly - No! I was struck by the excellent surface finish of the head of this deck - it gave unusually steady high frequency output. Other critical head properties are frequency response flatness and distortion/overload. Our response analysis with metal tape (IEC IV Primary Reference type MJ507A) also shows remarkable flatness, with high frequency extension to 20kHz. Low frequencies went down smoothly, without too much bumpiness, to 11Hz, but I did notice that high frequency distortion was a little high at 3.5% with metal tape (IEC 0dB level). Around 1-2% is the best possible, whilst budget recorders produce 6% or so.

In spite of this, the head managed to get high signal levels onto all three tape types - ferric, chrome and metal. With a tape like TDK MA it hit +5dB in the midband (equivalent to +6 on the record level indicator) and +0.5dB at high frequencies, a very respectable result. Ferrics and chromes were well handled too, good mid-band and treble recording levels being achieved. So the AD-S950 head is a good one.

Hiss levels were low with all three Dolby systems, even though the replay amplifier had a few dB more hiss than usual, in practice swamped by tape hiss.

Replay frequency response was flat to 18kHz; Aiwa have engineered accurate replay equalisation and set head azimuth with a good degree of accuracy, even if level at 20kHz was -3dB down, where on a Nakamichi it would be +1dB or so up - an ideal result.

The dual-capstan transport worked very well, holding tight speed and suffering little capstan wow or flutter. However, it ran +1.4% fast, rather more error than usual. Some listeners might notice this as a slight increase of pitch on pre-recorded tapes; it will not affect recordings made on the recorder.

Indicated peak record level has been set to broadly encompass both Dolby flux and IEC 0dB flux, which is +1.8dB higher. The meter hits +10, which is optimistic; +6 is a more realistic figure.

The tape calibration system was a little imprecise for setting sensitivity, failing to resolve a 1.5dB error. Response adjustment was good though and variable

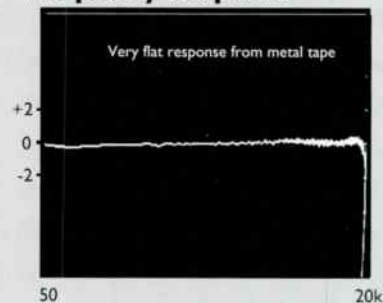
bias on metal tape could just accommodate TDK MA-XG, but not Sony Metal ES, which had a treble peak. As tune systems go it was good enough, bearing in mind that the ear is more effective, especially on a three-head deck, where the original can be compared with the recording directly, using the Tape/Source monitor button. **NK**

TEST RESULTS

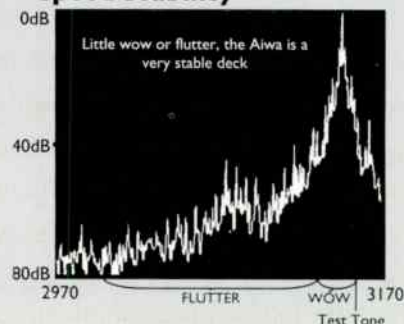
REPLAY (pre-recorded tapes)
 Frequency response (-2dB) 30Hz-18kHz
 Speed accuracy +1.4%
 Hiss (70uS, Dolby out) -57dB

RECORDING (blank tapes)
 Frequency response (IEC Primary Refs.)
 ferric (IECI) 11Hz-16kHz
 chrome (IECII) 11Hz-17kHz
 metal (IECIV) 11Hz-20kHz
 Separation (1kHz) -51dB
 Distortion (315H) 0.8%
 Hiss (70uS, Dolby out) -55dB
 Speed variations (DIN total) 0.06%
 Flutter energy (3-3.13kHz) -27dB
 MOL/SAT (IEC Refs) 315/10k
 IEC I (ferric) +4dB/-6dB
 IECII (chrome) +4dB/-4dB
 IECIV (metal) +5dB/+0.5dB

Frequency Response



Speed Stability



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I'm currently running them with a pair of Tannoy 607s in a smallish front room, and they give easily enough volume to annoy the neighbours, metaphorically speaking, and bearing in mind that I mostly play Gothic Rock!

I'm told it is possible to parallel valve amps to double-up the output. I don't know what your thoughts on this are. I'm inclined against this option as it seems inefficient.

If the option presents itself, I'm tempted to acquire a pair of acoustic horns.

Although unobtainable in the High Street, several kit companies do make them, something that I'm looking into. Your thoughts on this? Assuming of course that I don't have the good fortune to stumble across some Lowthers or Voigts before then!

**Marie Shrewsbury,
Kirkstall,
Leeds.**

I've owned Quad IIs and measured 8 dodgy watts from them. They overload so slowly that you can get around 12watts, or so I'm told. We cannot see how 18watts is possible, unless your friend had replaced the valve rectifier with a solid-state equivalent, in which case the H.T. will have risen drastically and fireworks will commence shortly.

You can parallel valve amps, but the optimum load impedance halves, so with 8ohm outputs you should use 4ohm 'speakers. Our own stereo amps can be monoblocked like this, using 16ohm taps we provide for the purpose, and they give a very strong sound. Don't try it with solid-state amps though, since they may well blow up.

Watch it with "acoustic horns". These need careful audition first. Horn theory is complex, making competent designs rare, and well-designed horn speakers are

very large. Domestically acceptable sizes are truncated horns, which suffer very uneven bass, limited bass extension and even poor efficiency - hardly what a horn is about. **NK**

MARANTZ

For eight years I have been enjoying digital music from CD. My first player was a Marantz CD 45, bought after many reviews and considerations. That machine lasted me five years, the replacement is an Aiwa XA 007. I bought it really to match the rest of my system and because it did get rave accolades from most of the magazines. The rest of my system is Aiwa XA 007 amp, Aiwa ADF 800 and ADF 910 cassette decks, Aiwa D30 turntable, Akai AT S3L tuner, Linn Index 'speakers, and Monsterlink interconnect between the amp and CD player.

I can remember buying my first CD, Abba's Voulez Vous costing £9.99. A year later I saw the same CD in the same shop at £11.99. We were all waiting for CD prices to stabilise, or come down. Now I find the average price is £12.99, for a single CD; some are as much as £14.99. This makes me mad, £12 or £13 for 40 or 50 minutes of music? I thought most CDs hold up to nearly 80 minutes. Not only are we being ripped-off financially, we are also being sold-short on quantity. I recently brought three CDs - Erasure, Chris De Burgh and Howard Jones, only the last one had the the full complement. This seems unfair to the punter, I know production costs are not cheap, but then we the public don't all have big bank accounts. Oh yes, my system does make good music, it is bright, but that is what I like. It's a system that would surprise some reviewers.

**D. A. Graham,
Co. Armagh,
N. Ireland.**

NO FAD GADGET

In your review of the Marantz 63 you said that it offered "no ergonomic improvement on previous models....and dubious aesthetics." Although I thought the review was pretty fair overall I have to say, regarding your comments above: "C'mon, did you really compare it to the '52 Mk2 and Mk2SE?"

1) The 52Mk2 and Mk2SE models only had an Open button not an Open/Close. This meant you had to press Play to close it, whereupon it would, of course, immediately start to play regardless of whether you were in your listening seat or not. Very irritating.

2) The '63's CD drawer opens and closes much faster than the 52Mk2, which was almost leisurely, as well as rather noisy.

3) The 52Mk2 would only fast-forward at one, rather slow, speed. On a long track it seemed to take forever to reach a point near the end. The '63 speeds up after about 4 or 5 seconds of holding the Fast-Forward/Rewind button down, to around double its initial speed, in the manner of most Philips-based machines.

4) The remote-control handset has been redesigned to be less cluttered and easier to use.

5) The '63 accesses tracks much faster than the 52 Mk2, which was painfully slow by comparison to Sony CD players. It would flash up the number of the new tracks and then take another couple of seconds before it would start to play it.

6) The buttons which used to be underneath the track Access and Track-Skip buttons have been moved to the right of the display, after criticism that it was easy to press them accidentally when using the track buttons.

7) The fascia of the '63 is a classy brushed metal, the '52 Mk2 a cheap-looking plastic. The older budget Marantz CD players always looked plasticky, how can you say that the

brushed metal fascia of the '63 is not an improvement?

It seems to me that Marantz have put a great deal of thought into the '53 and '63, not just into the sound, but also the appearance and ergonomics. O.K., so maybe some people find gold buttons a bit tacky, but that's a minor point. I think you must have a very rose-tinted view of the 52 Mk2 and 52Mk 2 SE if you think they were both wonderful to use and look at.

In my view, the revised ergonomics and aesthetics of the '63 are long overdue and very worthwhile. If more expensive Marantz players look classier, you have to remember, the '63 is effectively a budget model and given this, looks damn good.

Finally, you can't criticise the '63 for having unnecessary features like a numeric keypad and editing features. I for one, find these extremely useful and if not on the CD player, an essential on the remote control. You have to remember this is a budget player and it is in this section of the market that features sell. If you want to be a hair-shirt audiophile, (admittedly) not really possible with CD, then go for a more expensive player (I have a Pioneer S 802, which is pretty basic looking and I can't say I really miss lots of buttons on the fascia).

**Julian Osborn,
Westbury-on-Trym,
Bristol.**

I stand by my comments about the CD63 being no real advance upon the CD52 (and not standing out from the rest of the crowd) in terms of ergonomics. Let's take your points one at a time.

1) To operate the CD52 when seated, simply leave the draw open, sit down, and then press Play on the remote handset. This will

.... continued from page 49

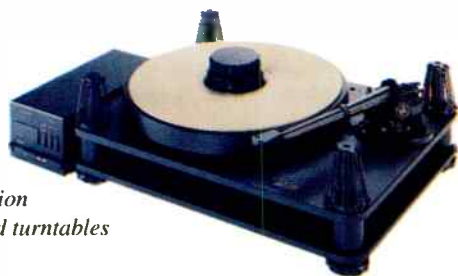
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.... continued from page 47

close the draw and begin the CD when you're ready.

2) A call to Marantz confirmed that the CD52 does in fact have a variable speed scan.

3) Yes, the remote is simpler, but it is also less comprehensive which brings me nicely onto:

4) Features. NAD and Rotel have both proved that you don't need to make a budget machine loaded with features, to sell. Both have proved that by spending money on components rather than gimmicks, the machines sound superior to similarly priced rivals.

5) Yes, the metal fascia does look better, but I'm unconvinced by gold buttons that wobble, and build-quality so light that when you push a button, the whole unit moves!

6) There's no doubt that the '63 is operationally better than the '52. It does access quicker and is quieter, but, unfortunately, this improvement doesn't extend to the finish or the controls.

Finally, there is no way I look at the CD52(SE) with rose-tinted spectacles. As I said in the review, its finish was disappointing and I found it over-rated, sonically, too.

Oh, and by the way, I think the CD63 is a great player and well worth an audition! **DT**

WIZARD PLAYER

I read your review of the Overture CD convertor with interest. You've missed, however, what must be its best point. The fact that, according to the camera, it possesses the extraordinary ability to hover at least 5" above its support!

If this particular attribute catches on, the future of hi-fi will be assured forever.

**Peter Davies
Carmarthen,
Dyfed.**

HIGHER GROUND

Tweaking pays. My system comprises: Naim/NAP/NAC72/Hi Cap, Oracle Delphi turntable with Koetsu arm and Linn Klyde cartridge, fronted by KEF 104/2 'speakers.

I have been recently cogitating on an upgrade, but no matter whatever path I went up it looked to be an expensive exercise. I therefore decided to try the Hi Cap modification of Audio Physics advertised from time to time in your magazine. I also decided to give my plugs and interconnects the Kontak treatment. Lo and behold it is as if a veil has been lifted from in front of my KEFs. Definition, imagery and transparency have improved on all sources. The improvement is hard to understand. Music (vinyl) simply flows far better than it ever has. This, I think, shows that tweaking can be an inexpensive form of upgrading.

**L.A. Dwyer,
London.**

HOPE AND HEALTH

My involvement with hi-fi goes back some 30 years, but due to serious illness some five years ago, I had not played any music for 3 years. After three years of being house-bound and in a sorry state, with no help forthcoming anymore from the medical profession, I decided to try and play some music and asked my wife to buy me a hi-fi magazine. One was Hi-Fi World, which impressed me and aroused my interest.

I was able to use your mail order for accessories and CDs and gradually my enjoyment increased. Taking out a yearly subscription helped as well, but perhaps most of all, interesting articles and reviews by all of you rekindled my enthusiasm.

My system before illness struck had not long been

upgraded to Quad 34/FM4/306 amplification, Linn Axis/Akito/K9, Marantz CD65 I SE, with manufacturer's interconnects.

By obtaining Audioquest 'Quartz' interconnects from you, an immediate sound improvement was noticed, and with an ever-increasing collection of CDs and an increased enjoyment of a full spectrum of music, both old and new, my health and well-being (if not physical condition) improved until I was very content and satisfied.

Alas, the anticipation of your magazine each month also increased causing some anxious moments, and not least some financial poverty! I now have a new Quad 67 CD player and a 606 amplifier, longer Quartz interconnects, more CDs, (I'm now a "Tring" Royal Philharmonic Orchestra fan) and I think my Rogers LS4a 'speakers on Apollo sand-filled stands, sound brilliant - so please don't review too many more 'speakers, or my wife will go through the roof or leave.

Your contributors and magazine strike an ideal balance and varied input which makes compelling reading.

My only criticism would be your music reviews, which should include some mainstream classical, rock, pop reviews and perhaps 1950s and 1960s re-issues, as many young people are finding new music from my era of great enjoyment.

I appreciate the difference between vinyl records and compact disc, but please don't ignore the silver disc, as the sound quality often exceeds that of the same long-play version, albeit perhaps in a different way. Much is to do with actual recording quality and engineer (witness any by Brian B. Culverhouse, even on budget Naxos and EMI).

I will remember the

varying quality of vinyl records and recording standards in its heyday - I still have many poor LPs. The same criteria applies to compact disc regardless of price. Many budget CD reissues of old vinyl recordings and performances highly thought of in the 1960s and 1970s are in fact superior in sound quality. Compact Disc on both my systems have never sounded 'cold' and 'clinical' as perhaps when they were first produced. A CD gives superior frequency range and dynamics and its ease of use allows me to appreciate the music far more than the record.

Perfect sound will never be achieved, and one can only endeavour to achieve the best sound quality relative to financial restraint and each individual's hearing and personal preferences.

In conclusion, many thanks for what you have given me, beside the Compact Disc and I shall, of course, re-new my subscription when due, which may help towards your continuing success.

**N. S. Draper,
Giltbrook,
Nottingham.**

GLOBAL VILLAGE

I should like to thank you very much for having answered my letter in the September '94 issue, under the heading 'IMF in Mauritius', and providing precisely the kind of advice I was seeking.

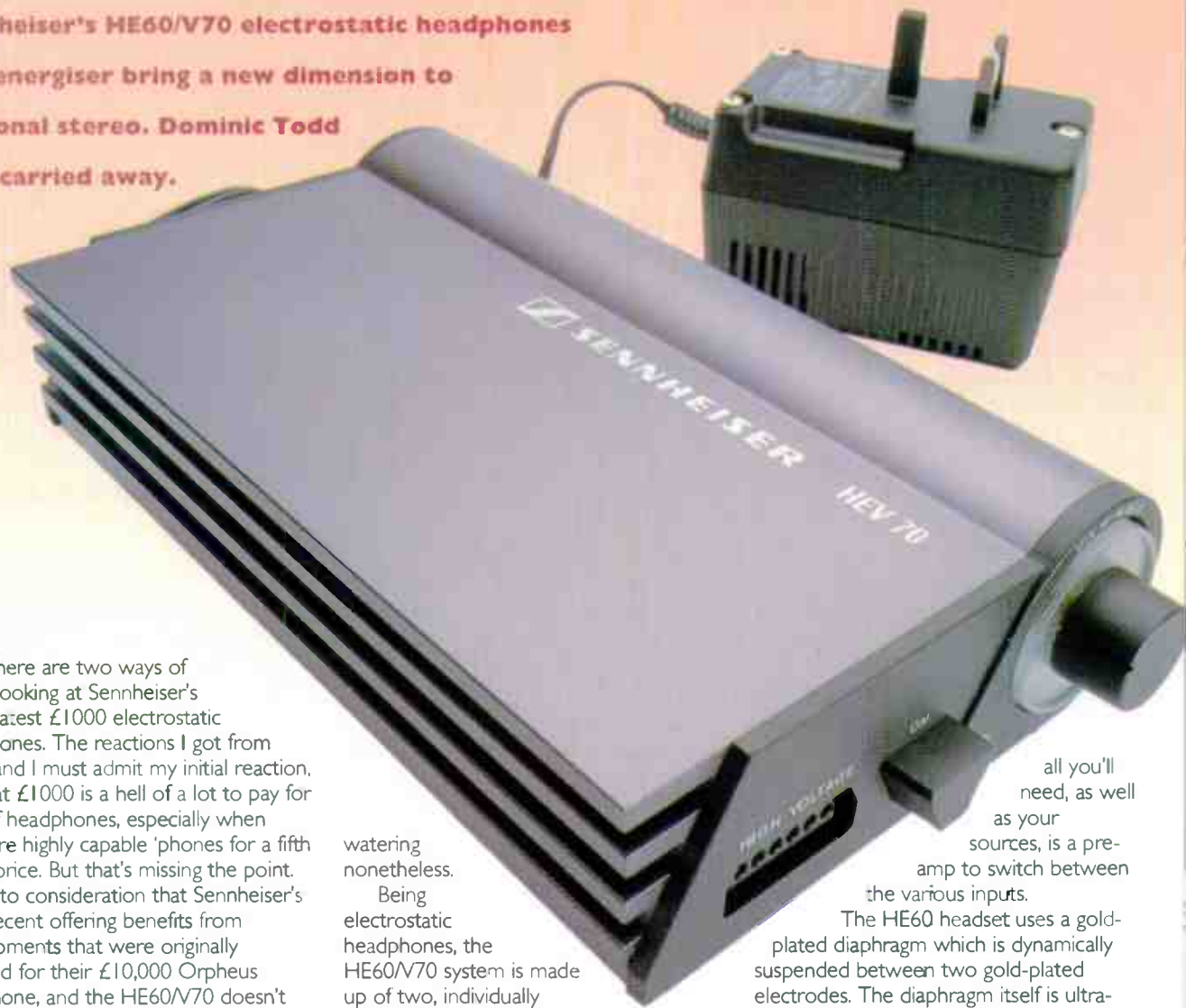
Your comments have raised quite a lot of interest among the few, but dedicated hi-fi enthusiasts out here. It is worth noting that such a positive interaction through your publication enables us not to feel cut off, but rather members of a big family sharing one great passion, i.e. the love of well reproduced music.

**A.G. Lefebure,
Port Louis,
Mauritius**

MUSIC MUSIC MUSIC
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Lost in Music

Sennheiser's HE60/V70 electrostatic headphones and energiser bring a new dimension to personal stereo. Dominic Todd gets carried away.



There are two ways of looking at Sennheiser's latest £1000 electrostatic headphones. The reactions I got from many, and I must admit my initial reaction, was that £1000 is a hell of a lot to pay for a set of headphones, especially when there are highly capable 'phones for a fifth of the price. But that's missing the point. Take into consideration that Sennheiser's most recent offering benefits from developments that were originally reserved for their £10,000 Orpheus headphone, and the HE60/V70 doesn't start to look bad value after all. Okay, so the new headphone doesn't have the gorgeous valve energiser of the Orpheus, but the specification is still pretty mouth

watering nonetheless. Being electrostatic headphones, the HE60/V70 system is made up of two, individually priced, units. The HE60 headset and the HEV70 energiser both cost around £500 each. Provided you are going to listen solely to headphones, then

all you'll need, as well as your sources, is a pre-amp to switch between the various inputs. The HE60 headset uses a gold-plated diaphragm which is dynamically suspended between two gold-plated electrodes. The diaphragm itself is ultra-thin and light, so that it can respond to even the smallest signal change giving it tremendous resolution of detail. The connecting cable is oxygen-free copper,

with a gold-plated connecting plug. Unlike some electrostatic headphones I've used before, the signal lead produced no noise whilst being handled. The headset is extremely comfortable, with the circumaural design (covered in velour) ensuring the 'phones fit snugly around the ears. Finally, the head band is reinforced with Kevlar to give the 'phones the best chance when being sat on!

The smart metallic grey energiser features a separate power supply and pure Class A amplification. Other quality components include a dual concentric Alps volume control, and high quality phono-sockets.

The great advantage of headphones, of course, is that it doesn't matter where you sit. Wherever you are, you can be assured of the 'phones performing to their utmost ability. With this in mind I donned the comfortable headset, and listened carefully.

The first thing to strike me, using Richard Thompson's Mirror Blue, was the sheer transparency. I know it's one of the oldest clichés in the book, but the Sennheiser's really did reveal information that you'd miss completely on a conventional hi-fi (even a fairly transparent one). And it wasn't so much the quantity of information, more the quality. For example, listening to Fast Food through the loudspeakers I was aware of the support

their respective sense of proportion and space. Whilst not quite possessing the 'out of head' feeling of certain Stax rivals, the balance never became stuffy and constrained.

One slight disappointment, which was apparent with all types of music, was the surprisingly curtailed bass extension. There was enough to satisfy those used to compact 'speakers, but anyone who had just come from listening to a decent pair of floor-standers, could be disappointed. Apart from that, the tonal balance was excellent, sounding natural and unforced through the midrange and treble.

“I know it's one of the oldest clichés in the book, but the Sennheiser's really did reveal information that you'd miss completely on a conventional hi-fi.”

If there is a negative aspect of such transparency, however, then it shows itself with poorer recordings. Records which had previously seemed fine, were made almost unlistenable with the Sennheisers faithfully picking up every click and pop. This isn't a fault of the headphones, and is a characteristic shared by many of the Sennheiser's adversaries.

As you have probably guessed, by now, I was quite smitten by the Sennheisers. It took a couple of albums to get used to the balance, but once I became accustomed to them, returning to conventional 'speakers always seemed like a backwards step in terms of transparency.

The Sennheisers stand up well against their competition, too. Despite being slightly bass light, and not quite as spacious sounding as some, they proved extremely unfatiguing and rewarding to listen to over long periods of time, which is especially important with headphones. Combine this level of sound quality and comfort, with excellent build quality, and you've a combination that not only sets a class standard, but also provides a strong case for dumping your power amp. and 'speakers altogether, if you're the unsociable type, anyway.

And that is something that I'd never thought I'd say, even when the headphones cost £1000 ●

Sennheiser HE60/V70 **£1000**
Sennheiser UK
12 Davies Way,
Knaves Beech Busines Centre,
Loudwater,
High Wycombe,
Bucks.
HP10 9QY
Tel: 0628 850811

vocals. But on the Sennheiser's I could actually distinguish the tonal differences between those background vocalists. In this case one of the singers took on an hysterical tone, which just wouldn't be captured on all but the most transparent of 'speakers. They highlighted the sharp intake of breath from the lead vocalist, and the exact movements of the guitar strings. This brutal resolution of detail may sound rather off putting, but I actually found it made the recording more intimate and involving, drawing me deep into the performance.

It certainly is the case that some headphones can sound too sharply etched, and overwhelm the listener with an artificial brightness. Fortunately the HE60/V70s managed not to fall into this trap. Provided the energiser had been left to warm up for half-an-hour or so, the sound was always smooth and unforced, yet still finely etched and articulate.

The Sennheisers really excelled on classical music too. A test disc from loudspeaker manufacturers Cabasse, provided a variety of music from Chamber through to powerful orchestral works. No matter how dense the recording, they always seemed to clearly separate the instruments, and give them



SHAKE DOWN



It's hard to believe we are still in the 1990s. The 1990s, with all its trends and fads, will soon be a thing of the past. Transmission and bass. Now! Keyword finds subtlety too.

John Wright, founder of TDL, seems to have an uncanny knack of getting bass depth and power from a loudspeaker. Both the popular RTL range and the upmarket Studio series are known for their earth shaking bass. If you crave deep bass, think TDL.

The RTL range of loudspeakers were introduced little over a year ago now, using a shortened transmission line to achieve a compromise between bass depth and reasonable cabinet size. The Studio range all produce more powerful bass, but the RTLs are easier to drive, making them suitable for a wider range of amplifiers, including esoteric valve and low powered Class A designs. The RTLs do produce less bass power than TDL's Studio 'speakers, but don't be put off, they still kick out enough to shake most competitors to pieces.

The RTL range has been incredibly popular - and quite rightly too. They are competitively priced, use high quality drivers, mainly constructed in-house, and do everything their competitors can. But they have that aforementioned special ingredient that can make all the difference.

We found the smaller floorstanding RTL3s powerful, driving large listening rooms with ease. Keen to show off his talents in the lower octaves, John Wright has now introduced the RTL4s. Using two 8inch polypropylene bass units, a 25mm soft dome tweeter and having two large transmission line vents, there isn't much wood left on the front baffle. The RTL4s look mean and powerful.

SOUND QUALITY

The RTL4 is a warm and fulsome sounding 'speaker, with plenty of low end grunt. Its balance veers away from the thinness or forwardness of many 'hi-fi' loudspeakers and in offering such a balance the RTL4s may well appeal to those who find too many of the breed go for detail at the expense of balance. It gives orchestras a sense of majesty, imparting scale by putting prodigious low end power behind kettle drum and plucked bass, and fully reproducing massive crescendos with almost laconic ease; Wagner's Lohengrin swept from diminuendo to crescendo with frightening power. It was an impressive performance marked by a sense of smoothness, as well as of scale, yet my monoblocked K5881 amplifiers were almost idling, these speakers need so little power.

It was with classical music that the RTL4s were most effective, though that is not to say faultless. Strings came across sounding smooth and string sections well separated; under pressure these speakers don't crack up. They are, however, boxy and plucked basses grumbled rather noticeably, setting off a pronounced boominess; the sudden introduction of strings was accompanied by a 'whoomph'. This was balanced to a goodly degree by other properties. The ebb and flow of Cesar Franck's intriguing Opus 18 and 19,

played on the organ of Saint-Semin by Peter Hurford was superbly captured; on this sort of music many hi-fi speakers squeak disappointingly. The RTL4s conveyed this organ's massive power, as well as highlighting the way Franck exploits its contrasts, from gentle liturgical melody to deep thunder from the Contrebasse pipes.

“The RTL4 gives orchestras a sense of majesty, imparting scale by putting prodigious low end power behind kettle drum and plucked bass, and fully reproducing massive crescendos with almost laconic ease”

But I haven't said much about Rock, and this - as you might guess - is where the RTL4s are less happy. They produce a strong, deep, boxy thud that gives the impression of bass, but it goes little past that: an impression. I found it difficult to perceive changes in pitch of deep fundamentals, whilst the seeming absence of upper bass made the speaker sound slow and ill-defined especially on kick drum. On albums with genuine lows, like

the unusual deep rumbling bass of Aye, by Angelique Kidjo - quite well sorted by KEF's Reference Series 2s - the RTL4s grumbled distractingly. Here, I found them difficult to use, they sounded so boxy.

My only other gripe is that, on occasion, they could spit a little; the tambourine on Steve Earle's Esmerelda's Hollywood had a stinging bite to it.

This was strong when sitting on-axis with the tweeter which, at roughly 2ft off the ground, means sitting low. The sound gelled better in this position, as measurement suggested it would; listening just above the tweeter gave a smoother sound, but a less cohesive one due to phase cancellations.

Whilst I found bass from the RTL4s intrusive and at times distracting, and I missed the smack of hand drums and kick drums, these speakers have strengths. They are smooth and easy on the ear, warm and quite cohesive, missing out little. They convey plenty of detail, but do it in an easy manner. There was a fine sense of timbral richness to instruments, especially orchestral strings and horns - lovely! - and vocals sounded natural enough too. All this, and awesome power, from just a few watts. Some might find the 4s a perfect match for a low powered amplifier - through them even a mouse could roar. For Rock fans wanting cohesive, impactful percussion and sheer pace, however, they may not appeal - listen first ●

TDL RTL 4 **£649.95**
TDL Electronics Ltd.,
Unit 2, Pilot Trading Estate,
High Wycombe,
Bucks. HP12 3AB
Tel: 0494 441191

MEASURED PERFORMANCE

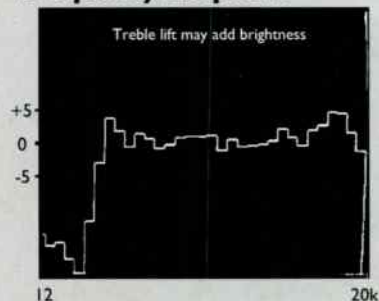
The RTL4s are the latest to join TDL's successful series of reflex transmission line loudspeakers. As with other large TDL loudspeakers which produce prodigious amounts of bass, they were not the easiest to measure in our smallish test room. Bass can be seen to extend well down, the peak at 60Hz corresponding to the dimensions of the test room where output is emphasised. In a larger room, the TDLs should have a smooth and deep bass with terrific power.

The midrange is essentially flat and smooth, and the rising output around 3kHz will help to push detail forwards and out of the box. The only area of the response that does look problematical is the strongly rising treble output, which was clearly audible with the pink noise test signal I used. It was phasey too, moving the microphone causing a suck-out to appear.

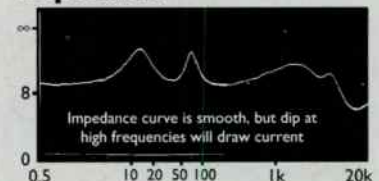
The RTL range of loudspeakers all have good high sensitivity, the RTL4s continue this with a measured 90dB sound pressure level at 1m using a nominal watt (2.83V)

pink noise signal. This, and the smooth impedance curve, measuring 8.4Ω overall, makes the RTL4s an easy load and they will go loud with few watts. **DB**

Frequency Response



Impedance



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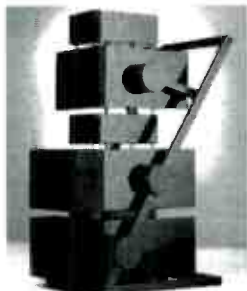
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...Mesmerizing





Pioneer for the People

Pioneer's budget PD-103 CD player should tempt the cost-conscious music lover.

Dominic Baker checks his loose change.

A CD player for under £150 doesn't normally conjure up too exciting an image for the budding audiophile. But the latest PD-103 from Pioneer, priced at a lowly £140, is certainly worth considering by those on a tight budget. But before I explain why, more about the player itself.

The PD-103 sits at the bottom of Pioneer's range of separate CD players. It is not the kind of thing a company like

“On a quick audition, it'd stand a good chance of giving a two hundred and fifty-pounder a run for its money.”

this would be willing to send a magazine for review, especially one which holds sound quality to be of paramount importance. In fact, they didn't send it to us - we slipped into Hi-Way hi-fi and borrowed it.

As you'd expect for £140, the PD-103 is simple to use and understand. It comes with a good range of features too, including a peak search which is useful for setting record level on your tape deck.

Another useful little feature, for home taping, is 'compu program edit'. It sounds more complicated than it really is. All you have to do is punch in the length of the tape you are recording onto and the CD player automatically re-arranges the tracks to fit the tape.

The PD-103 doesn't come with a remote control; the PD-203 does for £20 more. Neither have a digital output, which may be a consideration if you intend to upgrade at a later date.

I began my listening with Nirvana's MTV Unplugged - Live in New York. Straight away the PD-103 sounded warm and relaxed. Perhaps aware of the reputation cut-price players have, Pioneer have engineered a sound that is completely the reverse of the sharp, gritty and thin sound budget players are normally tarred with.

Whilst bass lacked the slam, depth and dynamics of a good mid-priced player, the mid-range and treble had an uncanny smoothness lacking even in some players costing twice as much. The live version of Come As You Are did sound a little over-damped and closed-in though, and swapping to a player of known abilities showed that part of the Pioneer's smoothness was down to softer than usual treble. However, in the budget systems the PD-103 is likely to end up in, this softening may prove suitable.

Again, with Counting Crows' August and Everything, some of the spaciousness of the studio was lost, the band huddled closer together than usual and seemed to be playing through a thin curtain that was absorbing any ring or tinkle from the treble; nuances had vanished. But the enthusiasm and pacy rhythm of the music wasn't lost, coming through well enough to create a surprisingly enjoyable performance. The Pioneer doesn't offend, an important quality.

Swapping to Blur's Parklife, where the emphasis moves away from delicate upper harmonics and ambience towards punchy and driving upper bass with good attack, the PD-103 was far more confident in its behaviour. In fact, on a quick audition, it'd stand a good chance of giving a two hundred and fifty-pounder a run for its money.

The PD-103 is quite light and dry in the lowest bass, but has good weight further up, which suits pop tracks especially. The soft treble character will help bright or harsh discs to sound more balanced with a fuller, more

“ Whilst bass lacked the slam, depth and dynamics of a good mid-priced player, the mid-range and treble had an uncanny smoothness lacking even in some players costing twice as much. ”

rounded sound. In this way, the '103 has been targeted well, suiting the kind of music that, in the majority of cases, will find its way into the drawer.

Classical listeners may find the ultimate lack of openness and tonal neutrality too much to suffer, but even here smoothness is likely to appeal. For £40 more the NAD 501 offers a far better insight into the music and will suit a wider range of systems. But, if money's tight, the PD-103 has a degree of refinement that has traditionally been lacking from sub-£150 CD players ●

Pioneer PD-103
Pioneer GB
Pioneer House,
Hollybush Hill,
Stoke Poges,
Slough,
Berks.
SL2 4PQ
Tel: 0753 789789

£140

MEASURED PERFORMANCE

The PD-103 is Pioneer's entry level CD player, sitting at the bottom of their range. However, you wouldn't suspect it from the measurements. The PD-103 measures as well or better than many designs costing several times more.

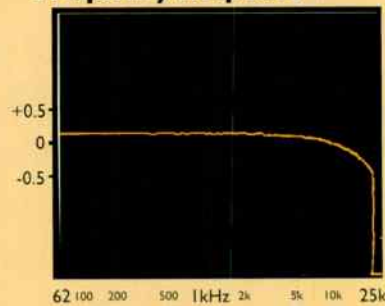
Distortion was low at all levels. At -30dB, a signal chosen to represent a typical music signal, the plot shows a complete absence of distortion harmonics, yielding a super low 0.004%. At lower signal levels, distortion rose as you'd expect, but even at -60dB the figure of 0.45% was one of the lowest we've measured.

This, combined with the smoothed response and rolled-off treble should give the PD-103 a warm and inoffensive sound. My only worry is that the treble roll-off starts so early that on some systems the PD-103 could possibly sound a little too warm, perhaps lacking some high frequency definition.

The low distortion at -60dB gives a correspondingly wide dynamic range of 108.5dB (EIAJ test) and output was just above the Philips 2V standard, measuring 2.14V. For the money, the PD-103 appears to be very well engineered. **DB**

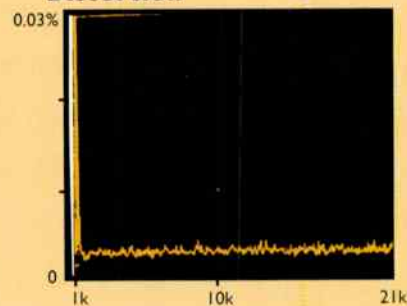
Noise	106dB
with emphasis	107dB
Dynamic range	108.5dB
Output	2.14V

Frequency Response



Rollled off treble will give a soft sound.

Distortion



Very low distortion

TEST RESULTS

Frequency response 4Hz-20.75kHz

Distortion (%)		
-6dB	0.006	0.006
-30dB	0.004	0.004
-60dB	0.45	0.48
-90dB	29.5	30.2
-90dB dithered	13.0	13.2
Separation (dB)	left	right
1kHz	103	103
20kHz	90	90

Pro-ject Audio Systems have bucked the trend and produced an integrated amplifier with a phono stage which they describe as 'very sophisticated and high quality'. Designed by a Prague university professor, the £259 7 is a dual-mono design (with the exception of the mains transformer) with five line inputs, in addition to an MM/MC phono stage.

You could be forgiven for thinking that the vinyl disc is to all intents and purposes extinct and a disc stage like this an irrelevance. But if you look closely there's actually a vibrant second hand vinyl scene and many new releases are still available on black plastic if you're prepared to order them.

This helped 1994 see the introduction of a plethora of separate phono stages, a consequence of both the tendency of amplifier manufacturers to produce line level only preamp sections, and a renewed interest in the sonic properties of the phono stage.

The front panel layout of the Pro-ject 7 initially caused a degree of suspicion. The smooth perspex panel covering input and volume LED indicators looks neat enough, but there was always the feeling that money could be better spent on sonics.

However, this proved totally

unfounded the moment the amplifier was powered up.

At the heart of the World reference system comprising Garrard 401/SME 312/Ortofon MC30 Supreme and KEF Reference Series Two loudspeakers, the little Pro-ject instantly impressed. A Denon PMA-450SE was used as a benchmark, being a strong budget contender, having as it does a strong, powerful sound which was manifest on Jamiroquai's *When You Gonna Learn*. Opening strings came through with power, tightly located left to right and forward of the speakers. Bass was a touch light but very supple and tuneful and the Denon displayed its muscular character as volume was wound up.

With such a strong performance from the PMA-450SE I got the feeling that I couldn't really expect anything more at this price, but I was wrong. The tonal characteristics of the Pro-ject were noticeably different, with a warm, valve-like richness that stood in contrast to the light, bright Denon. Piano took on greater weight and was more expressively conveyed, percussion sounding less mechanical and better syncopated with the bass guitar.

Differences were most obvious at frequency extremes. The Pro-ject conveyed the full power of the bass guitar, going down deeper, stopping and starting

faster. The treble was smooth, crisp and incisive where the Denon's had been a touch glassy, albeit no less detailed. It soon became clear that whilst the Czech amplifier was tonally richer and less bright, it was no less controlled - quite the reverse in fact - the Pro-ject seeming to have a firmer grip on the behaviour of the KEFs' drive units.

Moving to another acid jazz classic, *The James Taylor Quartet's Jungle Strut*, the Pro-ject once again took the day, conveying a greater sense of the recorded acoustic and a truly expansive soundstage imaging, unlike the Denon, behind the speakers. The bass guitar was once again highly tuneful and extended, with timing spot on. Back to the PMA-450SE, and the bass moved back in the mix, losing the groove which is so central to the song's purpose. Whilst lead saxophone was more emphatically presented due to the Denon's penchant for treble, ride cymbals assumed a glare which detracted from the enjoyment of other instruments.

The difference between the two amps was becoming clear. Whilst the Japanese design got its commendable sense of speed from its natural brightness which emphasised the leading edges of notes, the Czech succeeded through greater control, enabling it to be both fast and tonally rich at the same time - a desirable combination.

This meant that on all types



Bohemian Rhapsody

Czech firm Pro-ject has come up with a budget integrated amp that is bound to attract attention and sales. David Price listens in.

MEASURED PERFORMANCE

The Pro-Ject amplifier looks unusual. A trifle wary, I applied the most difficult and revealing test first: distortion at 10kHz under full output. It sailed through this test, producing 0.02% distortion, with equal amounts of second and third harmonic evident, as our analysis shows. At very low outputs the distortion patterns and behaviour of this amplifier were unusual, but levels remained quite low at 0.13% maximum.

Output power measured 36watts into 8ohms and nearly double, 64watts, into 4ohms, so the Pro-Ject has a beefy power supply. It has a wide measured bandwidth that reached to 130kHz on CD and 80kHz on MM cartridge.

Input sensitivity on CD was normal enough at 330mV, but unusually low via the phono input (MM) at 7mV and MC at 0.7mV. The volume control will have to be wound up high with many cartridges, budget high output types being most suitable in consequence. Input overload was high.

Accurate RIAA equalisation ensured flat

phono frequency response, a low frequency roll-off below 24Hz giving a little warp suppression (-3dB at 13Hz). The Pro-Ject didn't suffer slow bass roll off on MM, but it did on MC, so I'd expect a little more low-end weight on MM than that of many amplifiers, if not on MC.

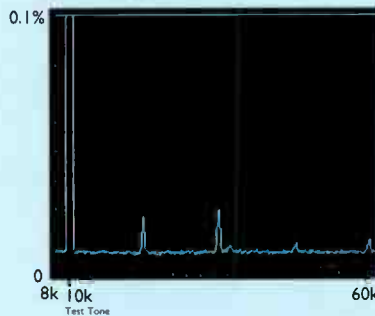
In all areas this 36watt amplifier measured well, except that low phono sensitivity (MM) makes high quality, low output cartridges unsuitable and will result in hiss on MC. **NK**

TEST RESULTS

Power	36watts
CD/tuner/aux.	
Frequency response	18Hz-130kHz
Separation	90dB
Noise	-102dB
Distortion	0.01%
Sensitivity	330mV
dc offset	11/4mV
Disc (MM)	
Frequency response	24Hz-80kHz
Separation	60dB

Noise	-84dB
Distortion	0.02%
Sensitivity	7mV
Overload	75mV
Disc (MC)	
Frequency response	44Hz-92kHz
Separation	60dB
Noise	-65dB
Distortion	0.02%
Sensitivity	0.7mV
Overload	7.5mV

Distortion



of music, the Pro-Ject never failed to impress.

On Kraftwerk's Computerwelt, a vintage piece of electronic music which sounds warm due to the analogue synthesisers of the day, the Denon added a useful but artificial brightness to proceedings. The Pro-Ject again sounded smoother

but exhibited far greater control, with the sub-bass going down low but remaining tight. Intricate, multi-layered strands of electronic percussion were also handled with greater panache. Relative dynamics, which go hand in hand with timing as the key components of what is often called 'musicality', were also excellent. Instruments could be heard to get louder and softer individually, capturing the music's rhythmic inflections superbly.

The Pro-Ject 7 proved eminently

enjoyable and listenable throughout the entire audition period, with a rare mixture of sophistication and fun, which at the price makes it an absolute bargain. The fact that it's got a phono stage that gives little away to some offboard units is even better. The only reservation is that its modest power makes it unsuited to either large rooms or power hungry mini-monitors ●

Pro-Ject 7 £259
Ortofon UK Ltd.,
Chiltern Hill, Chalfont St. Peter,
Bucks. SL9 9UG
Tel: 0753 889949



IN THE MARCH ISSUE

The holiday hangovers are but faint memories and the hi-fi new year is finally getting into the swing of things with a plethora of new products. Hi-fi World gives you the bottom line on all of the new equipment.

Here are just some of the exciting products we hope to bring you in the March issue.

ORTOFON MCI 5 Super II

A top quality £110 moving coil cartridge offering a taste of the high end at moving magnet money. Get the full story on this super value cartridge next month.



AUDIONOTE SORO SE

Big brother to the impressive OTO SE, the Soro single-ended valve amplifier offers more power in the same convenient integrated package. Auditioned with the sensitive Audionote E loudspeakers.

PIONEER A-103

Being black and neatly styled is nothing to write home about, but having a famous bigger brothers is. We ask is this new amplifier as hot as the A400?

YAMAHA CDX480

Pitched foursquare at the competitive end of the market, can Yamaha's new budget CD player sway you to invest in Compact Disc? We take a long hard look.

DPA ENLIGHTENMENT 2-BOX

DPA's latest CD transport and discrete convertor at £695 and £795 respectively. We assess their potential.

AUDIOVALVE LC8/PPP30s

This £1995 German valve pre-power combination has a style of its own. We ask if the sound lives up to its lustrous exterior.



DENON DRM-740

With three heads, three motors and dual capstans for £259, this new Denon cassette deck looks like a steal. Noel puts it through its paces.

Hi-Fi World is still only £2, but with more editorial than most rivals. With the most enthusiastic and expert editorial team in hi-fi journalism, can you afford to miss it? Make sure you don't by filling in this order form and handing it to your newsagent.

B&W P4

A floorstanding loudspeaker using high tech Kevlar drive units, real wood veneer and with an attractive price tag of £599 certainly caught our attention. See next month's Hi-Fi World to find out if the ingredients add up.



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Francinstien

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— Eric Braithwaite – Hi-Fi World

"CDs sounded better defined, the soundstage having a more definite shape. It was as if there was more air around each strand in the mix, allowing you to hear it more distinctly, more separately... I didn't immediately want to switch the CD player off and relax with some LPs, instead I went on to make further explorations of my CD collection"

— Andrew Cartmel – Hi-Fi Choice



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Last month I introduced my concept for building the "Maximalist" pre-amplifier - a design so fully featured that it would be future-proof in my hi-fi set-up for a good ten years or so. As I explained last month, a decade on from my last home-built preamplifier design, I'm getting increasingly frustrated by the lack of facilities on my existing unit. Most of all, I yearn for a digital tape-loop so that I can record directly from CD to DAT or DCC without plugging and re-plugging digital interconnects between my outboard DAC and the DAT player. This month, I thought I'd start my consideration of the design proper. Starting (unlike Julie Andrews!) at the very end - with the transformer output circuitry.

The reason for the proposed transformer coupling is a result of the possible fixed connection to the Soundblaster card. I own several power amplifiers and all of them are earthed. Unfortunately so are computers and this unhappy state of affairs results in inevitable ground-loops which cause audible hum. Lifting earths is very dangerous and I never do it on principle so the only option, given the circumstances, is to use line-bridging transformers.

The output stage design (shown in Fig. 1) incorporates the Sowter 3575 transformer. I've found this is an excellent device provided several requirements are fulfilled - the most important being the correct loading of the secondary winding. Without the correct load, the 3575 manifests considerable "ringing", revealing its +18dB resonance peak in the 100kHz region.

The time-domain performance of the output stage is illustrated in Fig. 1, by my sketches of observed oscilloscope waveforms. As you can see the frequency response of the Sowter part is exemplary, being essentially flat (10k load)

from 15Hz to well beyond 20kHz. Distortion is very low too, rising to 0.5% THD at 50Hz at +26dBu - a level well below that used for domestic (pseudo -10dBV) operation.

You'll note one unusual factor in the design, the 10nF (ground-tie) capacitor C1. This ensures that all screens are "earthy" at radio frequencies. Without this, radio frequency interference (r.f.i.) from the computer and other sources can interfere with the power amplifier by being accidentally rectified in the



Message but this month's an exception. I've just finished (at 2 o'clock yesterday morning in fact) arranging and co-producing the score to a new children's West End musical and if you want to take your kids (7 to 11 years olds) to a fun show in town this Christmas let me suggest, Mumsie's Christmas Escapades at the Jermyn Street Theatre. Starring Sandra Caron (the eponymous Mumsie from Channel 4's Crystal Maze) with music by American actor Eric Loren, the show is a celebration of the

recorded message

Left by Richard Brice

amplifier's input circuitry.

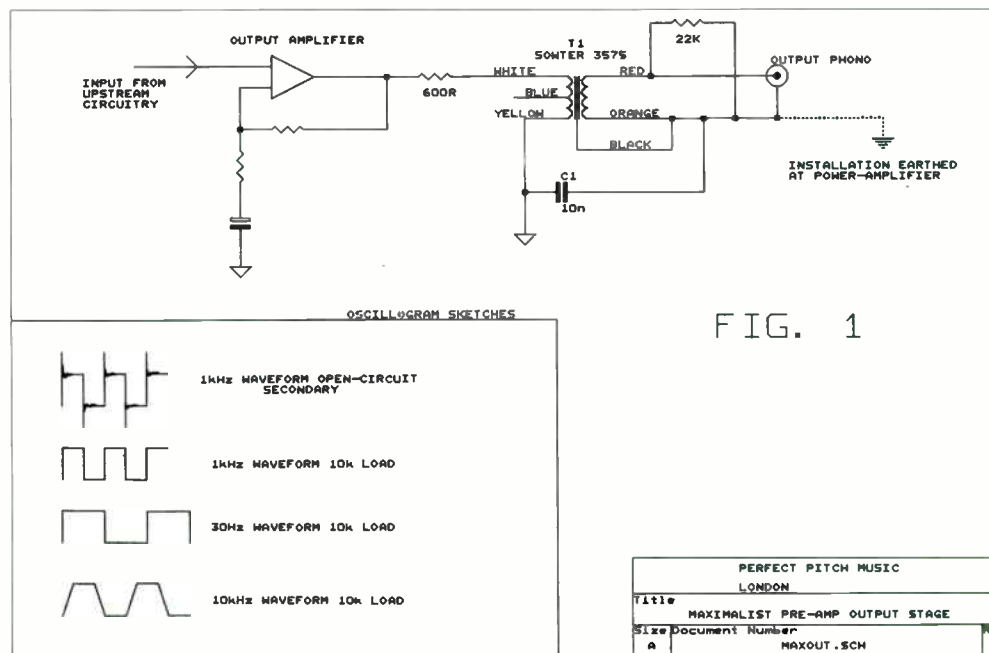
Starting a design from the end is a game plan I've discovered in the process of designing many professional audio products. It has the advantage that I may listen to the design as it evolves. Consider the opposite - and apparently more logical - alternative of starting at the input and working towards the output. It's often many months before the input circuitry is suitably augmented by the necessary subsequent circuitry in

order to create an auditionable design. Starting at the end and 'working backwards', the opposite is the case and I can audition the design as I progress. I'm happy to say that this output stage passes listening tests with full marks, proving to be clean and detailed. Next month, I'll describe the digital-audio output stages.

Mumsie

I don't normally cover more than one topic in Recorded

bizarre and off-beat. Also starring champion body builder Kevin Finch assisted by Lionel Blair's 12 year-old son Matthew in his formal theatrical debut, the financiers who have backed the show have allowed Sandra Caron to donate whatever small fortune the box office generates on this first run to the Great Ormond Street Hospital. So you can have fun and do good at the same time! (Jermyn Street Theatre Box-Office 071-287-2875) ●



"Ken Kessler", author of the original article in *Hi-Fi News*, November 94, does not share the views expressed in this advertisement

This Month: Support for Tim's claims about modern tube reliability
by David Chessell

Tim's Tips ?

November 23, 1994 / Volume 1

We agree with Tim

You probably read Tim De Paravicini's glowing speech on single ended amplifier design in *Hi-Fi News* November '94.

We at Alema must whole heartedly agree with his statements, and we all should be proud that Tim has the stature to publicly admit the problems of audio design specifically those concerned with tubes.

> Tim: "Designing our single-ended amplifier has proven more difficult than I first imagined".

We agree! "SINGLE ENDED" amplifiers are the most difficult to design properly. To produce one with full frequency response and low distortion without feedback the problems multiply, on top of that throw in a decent triode and some designers steer clear as very few circuits work correctly.

> Tim: "The first major problems were the reliability and quality of current production triode tubes."

We agree! Not only triode tubes but finding reliable consistent components of any description is a "MAJOR PROBLEM" even capacitors and resistors.

With respect to triodes, hundreds of thousands has been spent improving the quality of the current production, even then a percentage must fail.

The "RELIABILITY" of components lies in the hands of the manufacturer and the designer.

With careful design tube life (all tubes) can be extended dramatically.

Through the diligence of manufacturers and distributors, through a burning in period along with extensive testing in the static and dynamic states, rogue tubes can be eliminated and returned to source. They should never reach the end user, you the customer.

With experience and technical knowledge we have in the last 3 years supplied thousands of reliable tubes to our customers, we are currently running a long term reject rate below 0.5% this including customers with over 5000 hours use without loss of emissions (tube life)

> Tim: "Driven hard in single ended mode these tubes give 10 watts but with poor reliability" - "only a few hundred hours use"

We agree! The 300B tube has a design parameter for long term operation or maximum operation as a single ended class "A" audio amplifier.

When over driven in a poorly designed circuit the life expectancy reduces dramatically.

When the curves of currently available 300B are plotted and studied for long life operation the maximum out should be 7 watts (low distortion >1% no feedback audio use).

When "DRIVEN HARD" beyond suitable design parameters (over voltage or over current) any tube becomes unreliable even a light bulb, and life expectancy becomes unpredictable, in the worst case as low as "ONLY A FEW HUNDRED HOURS". This is a world wide problem of poorly designed amplifiers.

> Tim: "And diabolical performance"

We agree! The current production of 300B tubes are very linear in operation (real triodes are the most linear amplifying devices available) and as such can faithfully reproduce incoming signals from a correctly applied source without introducing excessive distortion.

However the tube (and all triodes) is notoriously difficult to drive effectively and thus a poorly designed driver stage will be faithfully reproduced with "DIABOLICAL" results.

> Tim: "Surely no customer wants to be spending hundreds of pounds on new output valves every couple of months?."

We can only agree! we would be idiots if we did not, but 3 years with the 300B triode we have yet to find a customer which has had to change their output tubes outside the warranty period (1 year for ROD tubes in our designs backed by the tube manufacturer).

Fortunately they will be in production for years to come, the EL509 on the other hand is already becoming scarce and prices have already doubled from some suppliers since Tim's glorious article. They will become collector rarities in the future.

> Tim: "Enhanced triode mode operation"

We agree! The method used in Tim's designs enables the PL509 to operate a form of pseudo triode mode operation, avoiding the problem of the low screen grid voltage rating when compared to the anode voltage.

This is only an "ENHANCED" mode for the EL509 and should not be classified as an enhancement over a true triode or even a pentode designed for audio use (not TV use) when operated in a properly designed circuit.

> Tim: "I turned to conventional tetrodes and pentodes. Sadly, as was the case with the above-mentioned triodes, none could deliver the goods in either power or longevity."

We agree! the same old nugget single ended class "A" and push pull class "A" DC operating parameters are similar, poorly designed amplifiers do not work in any manner. Class "B" amplifiers on the other hand can quite easily be made to last for longer periods (20,000 hours minimum) due to the under running of the tubes but this type of industrial amplifier should not be used for audio amplification except in large auditoriums i.e. football grounds where sound reinforcement is a requirement and the sonic qualities of high end audio are unnecessary.

> Tim: "It's cheap and lasts for ages."

We agree! the EL509 is cheap (well it was last year) and lasts for ages when used as a class "C" or class "D" operation as it was intended to be used as a switch producing a sawtooth wave form in tv sets. Even then ages did not last so long as tv engineers after constantly replacing them turned to the slightly more

reliable EL519 (another rare tube) in the hope of some satisfaction for their customers.

As Tim De Paravicini has been so gracious to enter the amplifier EAR 859 into the public domain (*he would not give it to a friend*) it becomes open to a public forum for discussion.

The specifications for the Amplifier as published, At 13 watts full power <1% at 1Khz <5% at frequency extremes would be reasonable for a no feedback single ended amplifier but generally a feedback amplifier of any description can resolve figures closer to 0.005% at all frequencies quite easily depending on the amount of feedback somewhere in-between would be quite reasonable but these figures should be the absolute maximum without feedback for audio use. *Fortunately he only gave us the left channel circuit maybe the right channel is better*

A new SINGLE TUBE 300B design we worked on recently, operating within long life conditions measured fully, returned the following results without feedback into 8ohms 20hz to 20khz.

- 7 Watts < 1%
- 13 Watts < 5%
- 21Watts < 15% maximum output

For an amplifier without feedback this shows remarkable linearity, the lack of feedback also enables the true dynamic contrasts of the music to be portrayed fully with a true to life spacious sound. The addition of feedback would reduce the distortion dramatically and also assist the driving of difficult loads with some sonic losses.

From current production and receiving world wide acclaim especially in Japan (probably the largest S.E triode market in the world) comes the small but dynamic 300B S.E. stereo retailing in the U.K for £995.00 inc. as a 1 input power amplifier and £1250.00 with full line level inputs. the results were similar to those above with <2% distortion at 7 watts without feedback, a good result for what can be classed as a budget priced 300B amplifier.

Fully burned in and dynamically tested 300B super or titanium tubes are available from Audion dealers with the brand name R.O.D. (Research on dynamics) these tubes carry a 1 year return to base warranty when used with approved circuit designs or a 3 month guarantee as standard.



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"The time: 1986...a corner of the R&D laboratory at Teac headquarters...a lone engineer spent long days and nights developing a completely new CD drive mechanism. Even though CD sound was critically acclaimed throughout the world, he was already convinced that it could be better."

Well, it's nice to know that according to their publicity material, nothing gets past Teac engineers. Some might say that you don't need to be knee-deep in measuring equipment to notice that mid-eighties compact disc could strip wallpaper at a hundred paces. So it's something of a relief to say that Teac's new VRDS-TI is more than a just a pretty face.

At £499, this entry-level transport has been introduced to provide an affordable way of getting that digital data off the silver disc into a separate DAC. It is impressively built, giving a reassuring sense of solidity in use. The VRDS-TI sports a stripped-down version of Teac's Vibration-free Rigid Disc Clamping System with copper shielding, and improved power supply and electronics. The purpose of Teac's much vaunted VRDS acronym is to "totally eliminate oscillation and vibration", a thoroughly commendable aim, as any disc wobble can cause mistracking which in turn will get sound-degrading error correction circuits working overtime.

Although a £500 CD transport may not be used with state-of-the-art converters, I chose to audition it through Pink Triangle's superb Da Capo to truly test its mettle. After all, it's likely that

buyers could start off with the TI and something like a QED Digit to give them a high-value entry into the world of two-box CD separates, later upgrading the DAC to something approaching the Pink. If the Teac is flexible enough to handle that, it will prove very popular indeed. And so the VRDS-TI found itself feeding data into the Da Capo one-bit discrete convertor. As a reference, a Pink Triangle Cardinal transport (not sync-locked, to keep a level playing field) was used.

First impressions were favourable. In use the TI was quiet and had commendably fast access. As soon as 'The Sun Rising' by The Beloved kicked off it was clear that it was doing something right with a warm, fulsome bass that powered the song along. There was a lot of detail coming through, and in conjunction with a rhythmic feel to proceedings the Teac sounded nicely musical. The lead vocal possessed body and was tightly located betwixt the KEFs.

Switching over to the Cardinal transport, it became clear that whilst there wasn't a profound improvement, the Cardinal was doing things better. The Teac, whilst giving an enjoyable rendition, was blurring the fine treble detailing on the hi-hats, failing to capture their rhythmic inflections, tending to sound 'samey' regardless of what was actually going on. Bass proved deeper and more controlled, start-stopping with greater alacrity, but less weight.

Moving on to the Boo Radleys' 'Bamey and Me' proved equally illuminating. The Teac gave a bright rendition of the opening steel-stringed

guitars, and a deep, warm bass guitar thrum. As the track progressed the Teac remained enjoyably rhythmic if a tad unincisive, failing to separate out all the players. Moving back over to the Pink and it became clear that the VRDS-TI was muddling things slightly, masking the heavily fuzzed lead guitar and Rob Cieka's percussion. Nevertheless, unlike the Teac, the Pink veered toward thinness on Martin Carr's voice. This point was emphasised by the Teac's voluminous bass which made up in weight what it lacked in control.

Omar's 'There's Nothing Like This' served only to crystallise the differences between the two transports. The Pink was lighter, tighter and communicated rhythms very deftly. The Teac's solid, powerful bass impressed, but it didn't appear as happy with high hats which were given a touch of splashiness and timing imprecision.

It is of course inevitable that the Cardinal should prove to be ultimately more musically communicative, being the more expensive of the two. The point is that the Teac always turned in an insightful, enjoyable performance which, considering its excellent build, finish and keen pricing, makes it a thoroughly good buy ●

TEAC VRDS-TI
TEAC UK
5 Marlin House,
The Croxley,
Watford,
Herts. WD1 8YA
Tel: 0923 819630

£499

BATTLESHIP BLACK



Teac's affordable VRDS-TI CD transport is built like a battleship. David Price finds that it sounds heavyweight too.

WIN ARCAM CD PLAYERS WORTH £2250

There are three superb Arcam CD players up for grabs this month, each offering a high standard of performance from Compact Disc. Top of the pile - and the prize for the winning entry - is the flagship Arcam

Delta 250 transport, complete with Black Box 500 discrete-DAC CD convertor. The Delta 250 stand alone transport uses the latest Philips CDM-9 mechanism, to ensure maximum detail is retrieved from Compact Discs. This is connected to the Black Box 500 convertor, which with its discrete Bitstream convertor design by Arcam, is one of the most advanced available. A special sync-lock optical cable runs between the two to reduce jitter, resulting in a smoother and more detailed sound.

The second place prize is aimed at the audiophile on the upgrade path. Winner of our May issue group test, the Burr Brown PCM-69 equipped Arcam Black Box 50 convertor is one of the best available at the price. In fact there are few that better it at twice its £450 price. This design has a superb performance, pulling the music together to form a complete and enjoyable performance. It has both a coaxial electrical and an optical input and can be connected to the majority of one box players as an instant upgrade. Or, even better, a Delta 250 transport could be added at a later date to take advantage of the sync-lock feature.

Third prize is the latest Arcam Alpha One CD player. At £299.95 this is the most affordable British player on the market to date. With an emphasis on sonic performance rather than gadgets, the Alpha One is one of the best players in its class.

To enter this competition, simply complete the questions and tie breaker opposite.

Please send your entry on a POSTCARD, or the back of a SEALED ENVELOPE, and completed in block capitals, to arrive no later than Monday 5th February 1995 to:

ARCAM CD COMPETITION
Hi-Fi World Magazine,
64 Castellain Road,
Maida Vale,
London W9 1EX.

Don't forget to include your name, address and a telephone number so we can contact the winners promptly ●

COMPETITION ENTRY QUESTIONS

- 1) What is the system called that reduces jitter between the Arcam Delta 250 transport and Black Box 500 convertor?

A. Jitter-lock	B. Jitter-sync
C. Sync-lock	D. Optical-lock

- 2) What transport mechanism does the Delta 250 transport use?

A. CDM-4	B. CDM-9
C. CDM-12	D. CDM-15

- 3) What chipset does the Black Box 50 use?

A. Philips DAC-7	B. Analogue Devices AD1867
C. Crystal CS4328	D. Burr Brown PCM-69

- 4) The Alpha One CD player is the most affordable British player on the market. What does it cost?

A. £249.95	B. £299.95
C. £399.95	D. £349.95

TIE BREAKER (Obligatory)

Arcam make CDs sound sweet,
 all their players look so neat.
 With latest chips,
 and discrete convertors,

.....

Complete the ditty above in no more than thirty words.

COMPETITION RULES AND CONDITIONS OF ENTRY

1. Only one entry per household will be accepted. Multiple entries will be automatically disqualified.
- In the event of more than one entrant submitting all the correct answers, the winners will be picked from the tie breaker by the Editor. We will endeavour to publish the results in the April 1995 issue. Purchase of the magazine is not a precondition to entry.
- No correspondence about this competition will be entered into and the Editor's decision is final.
- No employees of Audio Publishing Ltd. or any of the companies associated with production or distribution of the prizes may enter.

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DECEMBER ISSUE COMPETITION - A COMPLETE SYSTEMDEK/DPA DIGITAL VINYL SYSTEM

Comprising a Systemdek IIX900 turntable complete with RB250 tonearm and Goldring 1022GX cartridge, DPA Renaissance amplifier and Systemdek 931 loudspeakers, the entries for this one flooded in. There can only be one lucky winner though, who is:

C. Barber of Bognor Regis

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If you were asked what the Personal Computer (PC) had to do with the enjoyment of music, you'd probably respond with a resounding "nothing". But the link between the PC and hi-fi is becoming increasingly strong. At every stage of the chain from recording the original music to playing it back in your home, the computer is involved, and its involvement is increasing all the time.

In the recording studio, computers are used extensively, controlling the mix, adding effects, editing, checking the digital masters to make sure they are error free and so on. They control the recording process, and the machines that produce the software.

Computers feature heavily too in the development of the hi-fi components you listen to. They have become so powerful, and the software so advanced, that a product can be designed and tested on screen before an engineer even picks up a soldering iron. Circuit simulators can model an amplifier for example, allowing you to investigate what happens if a component fails, or the effect component tolerance variation will have on performance. It will predict what power you will get from the circuit, and how it will behave under stress.

This helps the engineer to design a more reliable product. You can model, for example, what would happen if a component fails, and what effect it will have on the rest of the circuit. So before you've even built the first working model, you can be pretty sure of a reliable and competent product - which is good news for consumers.

We use computers to help us with the kit loudspeaker designs for the Supplement. A drive unit can be measured using a computer controlled measurement system, like the IMP test system reviewed in the supplement this month, and the data conveniently stored for reference later. The computer will calculate the

Thiele-Small parameters for that particular drive unit and then cross check them to ensure accuracy. This data can then be used by an enclosure design package, which will model the driver in a box and allow you to optimise the cabinet volume and reflex port tuning frequency.

From the drive unit's frequency response, impedance curve and phase plot, a network analyser will even model the crossover for the loudspeaker from the measured data, allowing the designer to select which order of filter is best suited



Dominic Baker

dB on the level

and what the crossover frequency should be. But that's not all, the computer will calculate the circuit and component values for impedance compensation, conjugate loading, zobel networks and a whole range of other things which would take hours of painstaking maths to calculate. The PC does it near instantaneously, and is generally far more accurate too.

Even valve amplifiers can be modelled on a computer, the valve data loaded in and the circuit checked. So it's not just modern digital circuits that benefit from these computer design packages, it's every area of hi-fi design.

Once the design has been finalised the computer can route the printed circuit board positioning the components to give the shortest signal path and a layout that will perform well when it comes to noise, channel separation etc. Of course, extensive listening tests are still the only way to fine tune a product, even

the most advanced computers only point you in the right direction, giving a useful starting point for a new design.

So you can see that the computer already features strongly in the hi-fi chain. Computers control the way hi-fi develops, and will be more and more responsible for future advances. Even Quad's new 77 integrated amplifier takes advantage of computer technology with its 'intelligent' remote control, which is effectively a hand-held computer.

Perhaps the future of hi-fi will feature computers as a source for your music collection, replacing the CD transport. Instead your computer will supply the digital music signal from its hard disc, there is no physical process involved, so effectively a perfect error free signal is sent to your digital-to-analogue convertor.

To buy a new album, you will be able to take your hand held PC into a bureau, browse the networked database which has access to every record

label, and download the album you want. Once home, the information can be transferred to the main computer ready to play through your system. The need for software would be completely eliminated and you'd always be able to get the album you want, it wouldn't be out of stock or no longer available.

The Internet has already put a lot of this technology in place, allowing anyone with a computer and a modem to 'log-on' and select the information they want. Buying a new album could be just as simple,

after all the digital code on a CD is just another form of information.

So, is all of this computer modelling a good thing? Or will the unique, innovative products that come from the imagination of a good designer become a thing of the past as we see more computer optimised hi-fi? As computers advance, those innovative engineers can realise their designs far faster, so I think that it is a good thing. Also, the real design input comes from a human designer, and the computer does little more than check their maths.

We can't be certain about future developments in hi-fi, but one thing is for sure, the computer will certainly be a prominent feature as the maths behind today's circuits becomes increasingly complex. Hopefully, relying on computers won't mean more mediocrity and less innovation, but more advanced design that pushes hi-fi forwards both in performance and reliability ●

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Benjamin Franklin said "there are two certainties in life - death and taxes", he missed one other certainty: inflation. No matter how low inflation may be, it's rare for it to go negative into deflation. In the context of someone's lifetime, the cost of goods will invariably be higher at death than at birth.

Generally this is true of hi-fi too. Over the last nine years (as far back as my oldest hi-fi books go), the cost of a Linn LP12 has increased from £449 to £894 (at the time of writing). To save you the finger work, that's an increase of 99%.

Other hi-fi components show similar rises. The Quad 306/34 amp. combination has shown a 49% increase, Audiolab 8000A, 51%, Nakamichi CR7 67%, and the Quad ESL 63 'speakers a whopping 106% price increase since 1986. Admittedly, these price rises have often been brought about by improvements, particularly in the case of the Linn and Audiolab. However, such improvements often cost the manufacturer little.

Also, taking into account how much more efficient manufacturing processes have become over the last nine years (particularly with companies the size of Linn and Quad), it's likely that inflation (pushing up material and labour costs) is to blame for these price rises. This is nothing unusual though, car and clothing prices have generally risen by similar amounts. So what's the big deal?

Well, the hi-fi industry seems completely split over the question of prices. On the one hand, prices for many items have been rising steadily, as the above figures show. But, in the cut-throat budget sector, where most volume sales are made, exactly the opposite seems to have happened over the past nine years.

Rather like portable colour televisions and videos, where prices seem to have remained static or even come down, budget hi-fi equipment has defied inflation by remaining at set price points. Hence we still

have a £100 'speaker category, a £150 amplifier category and a £200 CD player category. These rungs haven't melted away from the bottom up, the £100 limit becoming £120 for example, as they might have done.

The falling price of CD players is understandable. Philips' entry-level models have dropped in price by 35%, NAD's by 45% and Denon's by 31%. This is explained by the manufacturers selling higher volumes and perhaps due to reduced component costs.



Fair Views

- from Dominic Todd, our man in Scarborough

What is less easily explained, however, is the similar reluctance of budget loudspeakers and amplifiers to change in price.

Mission and NAD's product prices spring to mind. Interestingly - and it's no coincidence - both are also market leaders in the budget sector. Looking back nine years, the development of Mission's cheapest 'speaker has gone something like this. In 1986 the budget Mission model was the 70MkII, price £100. By the end of 1988, the price had gone up to £110. In 1989 the model was replaced by the 731, priced at £120. As this model's price slowly crept up, Mission introduced a new baby model, the 760, which once again brought the entry price down to £100. The 760 improved and prices gradually crept up from £120 to £130 (today's price). This brings us bang up to date, with Mission's latest effort, the 731, priced at £130. In nine years, Mission's budget 'speaker has not once ventured over £130. This means that, in real terms (excuse the politico-speak), the Missions have come down in price, taking into account inflation.

NAD's story is even more baffling. A 3020 cost £140 in 1986. Today, they have launched a new model, the 310, which NAD themselves say is the spiritual successor to the 3020, and yet it only costs £130. So in nine years, NAD's cheapest amplifier has actually fallen in price by around 7%.

So where's this all leading? There's no doubt that customers today buying a budget CD player have, excuse Harold MacMillan's phrase, "never had it so good". Sound quality on budget machines has come on by leaps and bounds in the past nine years, whilst in many cases features have increased and build-quality become consistent. This means that, if you purchase a budget CD player today, you're getting a good deal more for your money than a decade ago.

However, it has to be said that the same is not really the case for budget amplifiers and 'speakers. Manufacturers appear concerned about keeping performances similar, and holding prices down, rather than improving budget equipment, maybe at the expense of a slight price

rise. A recent listen to a pair of Mission 70s and Goodmans Maxim 2s, showed how little budget 'speakers have advanced. The only area I could find any real improvement in the Mission 731s was with slight advantages in imaging and treble sweetness. Otherwise, the two 'speakers were extremely close and both sound good with cheaper, less revealing equipment.

Much the same is true with the NAD 3020 versus the new 310. There isn't a great deal to tell them apart,

bar perhaps ultimate detail retrieval. This doesn't mean the 310 is a bad amp. Far from it, in fact. It's simply that the 3020 was so good in its day that it seems things haven't really advanced much.

Yet, things have advanced. If the 3020 had continued to rise in price at the rate of more expensive hi-fi, it would be the price of the NAD 304 (£240). So, in effect, the real predecessor of the 3020 is the 304. It also happens to be an excellent amplifier and a country mile ahead of the 3020 in most aspects. It's not just NAD and Mission that continue to offer better value either. Other manufacturers, though not all, seem unable to depart from their beloved price points, no matter where they are.

I've no complaints if manufacturers hold, or even slightly increase, the level of sound quality, whilst holding the price. What worries me is that, sooner or later something has got to give. Let's just hope it's the price rather than performance. Otherwise, the distinction between mass market audio and hi-fi separates will become increasingly blurred ●

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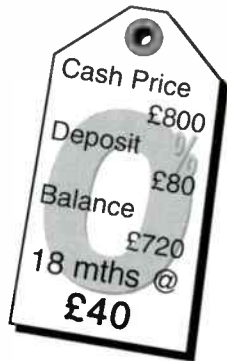
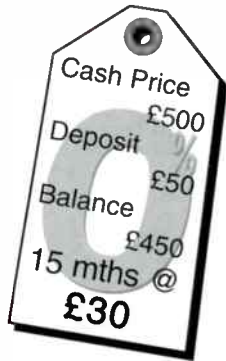
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The Music of the Days

and debauchery more easily spring to mind - but on this track this Irish waster has produced a song of deceptively subtle lyricism.

There are other delights here on what could have so easily have been Shane's last stumbling swansong. The delicate 'Bring Down The Lamp', the rousing 'Donegal Express' and the lilting 'A Mexican Funeral in Paris'. Yes, no doubt about it, Shane is still a lad to be reckoned with.



THE WOLFGANG PRESS
Funky Little Demons
CAD 4016CD

● Any band which has Tom Jones cover their material has to be definitively funky, and back after a two year lay-off, The Wolfgang Press are well and truly "Funky Little Demons". This is not the way the band's early fans would have described them - from Gang of Four agit-prop to a mellow funk groove within just a couple of years is some move. A band that has come of age - no doubt about it, their best work to date.



SHANE MACGOWAN AND THE SNAKE
The Snake
ZTT 4509-98104-2

● There's nothing like a survivor to warm the cockles of your heart - or for that matter, the heart of your cockle - but that's another story. Shane MacGowan, truth be told, was fired from the band he conceived and created. Master McGee, so they said, was so ruined by various abuses - alcoholic and narcotic - that he could no longer cut the proverbial rug. Well well, the holy surprise is that The Snake is quite probably the most exquisitely perfect record that has ever stumbled out of young Shane's erratic career pathway.

With even relatively trivial verbal throwaways as the self explanatory 'I'll Be Your Handbag' hitting hard and heavy, handsome and perfect. And as for the ballads such as 'Her Father Didn't Like Me Anyway', they are as sublimely touching as anything in this man's canon. Take for instance 'Victoria', innocence and deportment are not the qualities normally associated with Shane, depravity



BIG AUDIO
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● Two things about Mick Jones - he has virtually no voice and he only has one, maybe two tunes to his name. With this latest B.A.D. incarnation (volume the

Giovanni Dadomo

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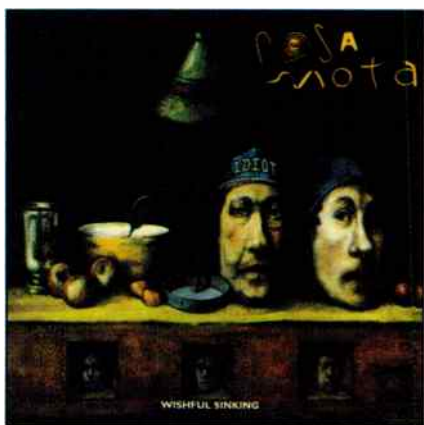
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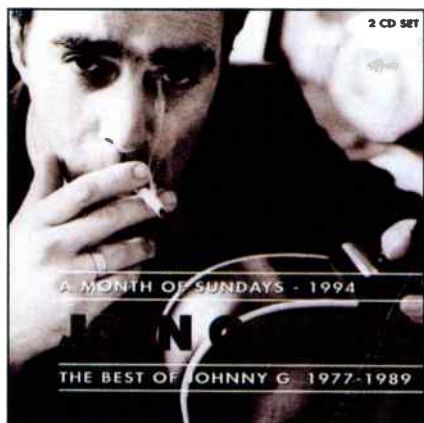
third, methinks) we're back on familiar territory, bits and bobs of TV and movie clips spliced amidst familiar paeans to his beloved 'London Tahn'. Not that many people could get this excited about the Harrow Road!

But right at the end of a fairly predictable disc comes a glorious Small Faces-style stomper, by the name of 'Hope' - one of the best songs Mick's penned this side of 'Should I Stay or Should I Go'. Someone'll put it on a TV ad one day and it'll be a massive hit. Or so one can hope.



ROSA MOTA
Wishful Sinking
13THCD2

● Praiseworthy homegrown grunge is a pretty rare item. However *Wishful Sinking*, the first effort of newcomers Rosa Mota is that item. All the right elements are blended together in a heavy, tuneful and intelligent mix. They won't be doing any stadium headliners in the near future, but there can be no doubt that they're headed in the right direction.



JOHN GOTTING
A Month of Sundays - The Best of Johnny G.
JGCD1

● Semi-legendary bluesmen that you've never heard of don't come from England. They come from way down

someplace hot and steamy, and by the time they've gained their legendary status they are usually well dead and gone.

Not so with John Gotting, this man is alive and kicking, steaming even. Billed as a one man band, Johnny G has a lot of help from his friends on this compilation. Sadly he'll probably never be famous away from the pub gig circuit - but what an awesome pub gig the man does. Blues, ska, cajun, country and western - a master of the blues guitar. This album is your chance to take the best pub blues gig you've ever heard home with you.

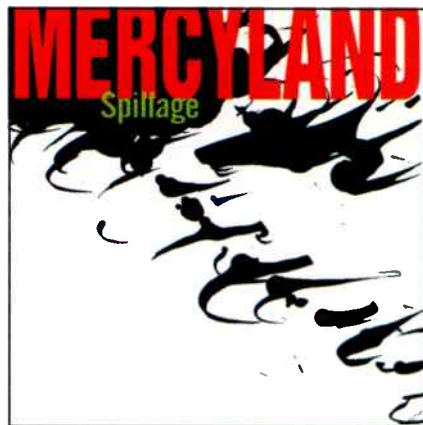


VARIOUS ARTISTS
Woodstock 94
A&M 540 322-2

● "I came upon a child of God, he was walking along the road", unfortunately he was so loaded down with promotional materials and merchandising freebies that there was absolutely no way he could see where he was going. It really is a very long way from Yasger's farm, and this record's connection with the most defining event of the sixties is pretty tenuous. Apart from that, it's not a bad album. Dismiss your Woodstockian preconceptions from your mind and settle down to some well neat performances.

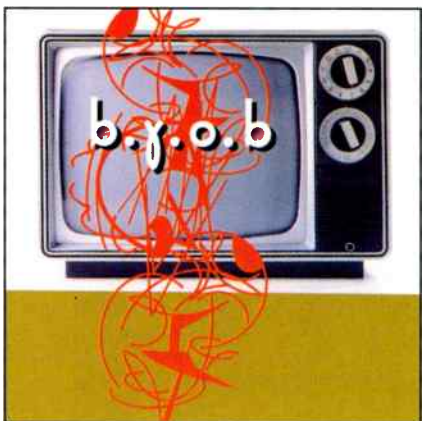
From the middle-aged brigade, Bob Dylan proves that he can still rasp out a number with the best of them, as do a specially reformed Traffic. Peter Gabriel puts in a definitive performance of his classic protest song 'Biko', and Joe Cocker shows that he's still 'Feelin' Alright'.

However, it's the more recent names, the artists who were too young to get into the movie, who really shine here. The Violent Femmes put in a fabulously neurotic performance while Cypress Hill and Salt'n'Pepe show their worth. So settle down, hit the groove, get mellow and remember to keep away from the bad acid.



MERCYLAND
Spillage
RYKODISC RCD 10314

● If you've heard of David Barbe at all, I'll wager it's in his current employ as bassman/sometimes songwriter for Bob Mould's mighty - and mightily successful - Sugar. And listening to this selection of material - a second LP plus some bits and bobs - from his previous group, it's easy to see why he tickled Mould's fancy. An Athens, Georgia power trio with more than a little in common with the early works of Mould's own vastly influential Husker Du, Mercyland come on with all the engagement and passion of a stripped-down Nineties' offspring of The Clash at their most primitive. True perhaps that Barbe doesn't quite have Mould's ease with a catchy tune, but if you like your thrash hard, fast and passionate, there are no reasons for disappointment here. Anyone fancy a stagedive?



B.Y.O.B.
B.Y.O.B.
RYKODISC RCD 10310

● An eclectic mix of funk, rap, samples, uptown soul - you name it, all courtesy of D.C. Basehead, working name for producer/mainman Michael Ivey - I responded particularly to the haunting "distances", but the whole thing sounds like a slice of the street plonked right in one's inner ear, at times threatening, seductive, hypnotic, never anything less

PEARL JAM
Vitalogy
EPIC EK66900

● Probably the most unlikely, least predictable of all indie crossover bands - their tunes are by and large unremarkable, ditto singer Eddie Vedder's voice and looks - but for all that Pearl Jam seem to have spent several lifetimes on stage at last year's MTV and other 'Best Of...' award ceremonies. And Vs was only their second album. All these things considered it seems a fairly safe bet that 'Vitalogy' will be one of the coming year's Big Jobbies.

Not that Pearl Jam don't have their strong spots - the first of no doubt several single spin-offs is a nouveau punk riffer with a guitar motif of stunningly catchy simplicity the likes of which the original Damned would rightly have been proud of. Eat your heart out Brian 'where are you now' James, ditto 'Bugs', one of a handful of deceptively simplistic throwaway shortlings.

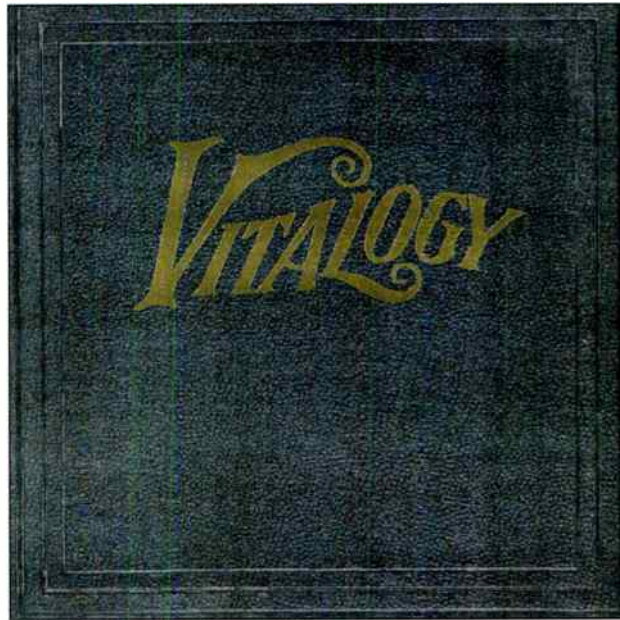
In fact the whole enterprise positively glows

with a charmingly well-wrought faux-naiveté, from its charmingly antique styled sleeve logo to the references aplenty to the turn-of-the-century home encyclopaedia whence both the title and general inspiration are said to have been derived. So then the movingly abrasive Steve Jones-out-of-Johnny Thunders guitar thrashings of 'Corduroy', or the wierdly titled yet enticingly melodic

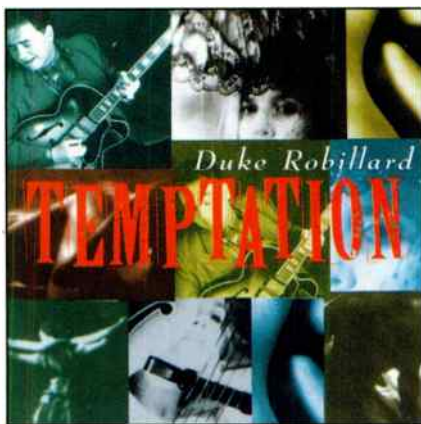
'Tremor Christ'.

And so on, from such patently deliberate abrasiveness as the self-explanatory 'Not For You' through to the closing (and to be honest perhaps a mite overlong) 'Stupid Mop' - the n-th musical tribute-cum-epitaph to the geezer from Nirvana who put himself out of his misery and thousands of others into theirs. But treats abound - take 'Whippings', with such sweet lines as, "don't need a helmet/ I got a hard, hard head", or such, er, lyrical lyrics as the one about the geezer who "caught a bolt of lightning, cursed the day he let it go".

Myself, I think I'd still prefer to live on a desert island with Soundgarden's sublime "Superunknown", but who knows? Time will no doubt tell, and the odd spot of self-indulgence aside - a tad too many little spots of "sorry man, one spliff too many that night" studio fripperies, not to mention the sleevenote cobbler, Vitalogy is nothing to be ashamed of, and as third LPs go, promises to be sturdier and longer lasting than most.



than moving. Collage for the ears, '94 style, reaching parts mere words don't dare take you to.



DUKE ROBILLARD
Temptation
POINTBLANK VPBCD 20

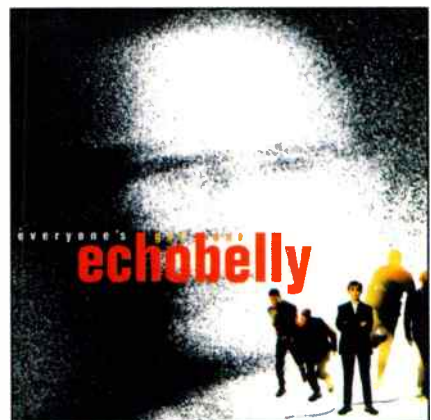
● This man could only have come out of America - a smokey-voiced singer of vast power and feeling, and Blues-grounded guitar-player of equally

awesome potency. Duke sounds like nothing so much as Huey Lewis with balls or an unfairly long-lost second cousin to ZZ Top. The songs are familiar reflections on love, its vagaries and disappointments, but the key-word here, both in the singing and playing, is passion. When Robillard sings "Baby I live to give everything to you", you know he means it. Cracking selection. It's like Creedence Clearwater Revival never went away. All together now: E viva Swamp Rock!

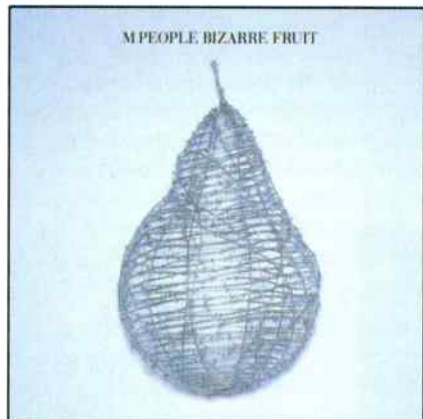
ECHOBELLY
Everyone's Got One
FAUV 3 CD

● Small wonder they were (are?) Morrissey's fave group. Echobelly are from start to finish, a rather drab, not to say sad re-tread of Morrissey/Marr's Greatest Hits. Exceptions? The lead vocalist's a girl (wasn't she always?) and the tunes are nothing to take home. I don't buy it. Sorry kids, but your UB40's waiting.

Rock



Jon Clarke

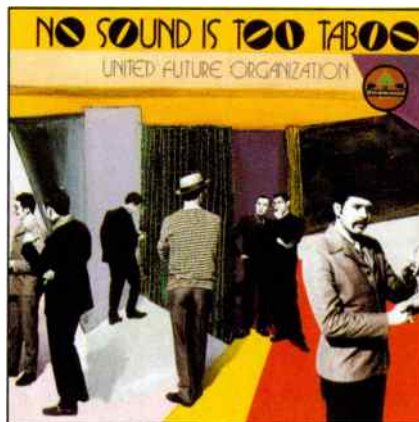


M PEOPLE
Bizarre Fruit
REC N°

● Bizarre Fruit is where M People join the heady ranks of Duran Duran, Kylie and Take That. Because, the once critically acclaimed media darlings have gone for the big one. With LP three, Britain's finest dance floor divas have finally succumbed to commercial pressure and chucked all cutting edge pretence out of the window. And, it appears that the perfectly crafted house/dance LP *Elegant Slumming*, of only a year ago, has merely become the springboard for *Bizarre Fruit*, the perfectly crafted pop/dance album. Having found the perfect pop formula, you might argue, why not? And commercially speaking you'd be right. But it does seem a little strange that England's most celebrated house specialists should have just won the prestigious "Mercury Music Prize" touted for originality and flair within the most adventurous music industry in the world when much more creative bands like Blur and Pulp were left out in the cold.

It's not that *Bizarre Fruit* is a bad album, it's not. It definitely has many decent moments. We first start to hear the band's finer qualities with the pumping 'Open Your Heart'. But it is not until the excellent disco anthems 'Precious Pearl' and 'Walk Away' that M People as we know it really get under full steam. The voice of the delightful Heather (boyfriend of England rugby league bruiser Shaun Edwards) is as ever sweet and melodious, and the percussion of now regular band member Shovel, adds the perfect live beat dimension to the band's drum machine. London's M People, who most Brits think are either American or Mancunian, have already had chart success both here and stateside, and should boost their reputation and following four fold with

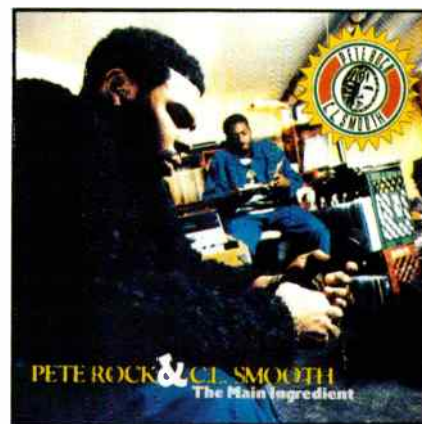
this new offering. The clever marketing ploy is to release *Bizarre Fruit* hot on the heels of previous LP *Elegant Slumming*, which is still sitting very much on people's turntables and has hardly left the top 40 all year. In that way, while the new album is not quite as fresh and original as earlier recordings, it will get the media and public attention it needs to become a major hit. Sitting somewhere between juicy fruit and rotten apple, this bizarre fruit isn't exactly pick of the bunch. But it will be picked nonetheless.



UNITED FUTURE ORGANISATION
No Sound Is Too Taboo
BROWNSWOOD 522 271-2

● The (yet) little known United Future Organisation really get off the ground with their new LP on *Talking Loud*. Not riding on the crest of a populist commercial wave, like M People, UFO score their points with a very streetwise, club-friendly vibe, because this wonderful slice of Asiatic progressive jazz/funk, is fine, pure fine. And quite a remarkable achievement for a trio of Japanese groovers based so far from the essential cutting edge club market that is England. But their reputation is such, that a large list of US and British collaborators queued up to record tracks on the album. And what a list of collaborators it includes - among the 10 sweet tracks on this great LP can be found the talents of US jazz vocalist Cleveland Watkiss, mixmaster Gilles Peterson, DJ Krush and various other musical odds and bods from the Mo Wax, London and Acid Jazz record labels. Taking off with the delightful 'United Future Airlines', the album waxes through a fusion of jazz, samba and soul tracks. It climbs highest with Cleveland Watkiss's scary vocal range on 'Make It Better', the Bosanova

groove 'Sunday Folk Tale' and the funky dance floor killer 'Doopsy:alolic' with its haunting sitar melody. *No Sound Is Too Taboo* is a wall to wall selection of instruments and styles, and if you're looking to see where the current cutting edge of street sounds is at, you can't go further.

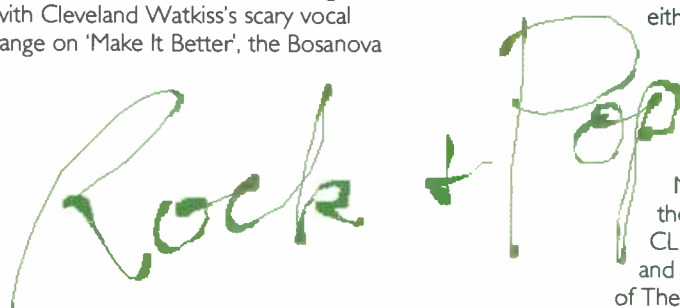


PETE ROCK AND CL SMOOTH
The Main Ingredient
ELEKTRA 755 961 661-2

● When LP Mecca and the Soul Brother came out two years ago, Pete and CL were acclaimed as the right ingredient of rap music. With laid back relaxed beats and intelligent Islam inspired lyrics, it was a big seller and got voted in *The Face's* top ten albums of 1992. Since then, out of the woodwork have crept Snoop Doggy Dog, Warren G and numerous other Gangster rappers to steal the limelight. The harder West Coast rap scene has taken over from its poorer, quieter East coast cousin, as guns, drugs and whores reign the day. The sort of music to compliment the *Reservoir Dogs* of the film world, it is often mindlessly shocking in content, but mightily entertaining.

But as the tail end of 1994 fizzles out, back bounces intelligent East Coast rap in the shape and form of Brand Nubian's *Everything is Everything* LP and this, Pete Rock and CL Smooth's fourth album. A firin' moody album, it is as laid back as rap can get. On a very Tribe Called Quest tip, *The Main Ingredient* is groovy, off beat and artistic. The 16 tracks kick off quietly, but gradually pick up in pace and style, the best moments sitting in the centre with the title track, 'Worldwide' and the soulful anthem 'All The Places'. The rest of the album doesn't let down

either. A real antidote to the mindless macho mouthings of Gangster rap, *Main Ingredient* is the best Pete and CL album to date and probably worthy of *The Face's* top five.



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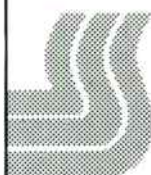
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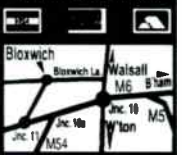


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Classica

Peter Herring

**Bach as it should be played;
Mexican music as it surely can
only be played; scintillating
Strauss; - eloquent Elgar; but
Giulini's 'Pastoral'? It's
beautiful, but is it the bucolic
Beethoven?**



**LUDWIG VAN BEETHOVEN
Symphony No6 in F Major
Op68 'Pastoral'/Overture
Coriolan Op62/Egmont
Overture Op84**

La Scala Philharmonic Orchestra;
conductor, Carlo Maria Giulini
SONY CLASSICAL SK53974 (DDD/65.28)

● Over time, a work such as the 'Pastoral' Symphony can become so familiar that it takes a quite exceptional performance to remind the jaded ear of the qualities of the music. For me, that 'exceptional performance' came with Roger Norrington's revelatory period instrument recording for EMI Reflexe, issued back in 1988. It has been rather strange, therefore, hearing it played in what might variously be described as an 'orthodox' or 'old-fashioned' way. The first thing to say about Giulini's interpretation is that it is beautifully played by the Milan orchestra and if, as the recording data suggests, was recorded live, then the achievement is all the more notable. The playing, from strings and woodwinds especially, is wonderfully poised and refined, the phrasing seductively shaped. The performance emphasises the lyricism of Beethoven's bucolic musings and this is nowhere better heard than in the gently ambling slow movement, the 'Scene by the Brook'. Here, Giulini is almost two minutes slower than Norrington but the momentum is maintained and the playing is utterly beguiling. The first movement, too, is generally successful but the third movement, the 'Merry gathering of country folk' as Beethoven described it, is altogether too restrained an affair. It should surely be far more 'unbuttoned' than this, wonderfully played as it is; too often, Giulini slips from the poetic to the ponderous.

Given the pictorial nature of this work - it was the first 'programme'

symphony - one would assume that Beethoven would have wanted the musical imagery contained within the fourth movement, the storm, to be conveyed to maximum effect, which Norrington does. Giulini appears to treat this as a purely symphonic movement, largely oblivious to its descriptive content, which - to be fair - does fit in with his concept of the whole work. Giulini brings a radiant, celebratory air to the final movement and, as a result - at 10'55" - takes over two minutes more than Norrington's joyful romp.

For many, Giulini's interpretation will appeal, even standing as it does at one extreme of the tempo spectrum. Norrington is at the other. I'm not suggesting he has it absolutely right, but overall I can but feel it is closer to the spirit of Beethoven's rustic ruminations. In recent years, the octogenarian Giulini has preferred increasingly slow tempos. In much music - Bruckner, for example - it can have a luminous effect; elsewhere, the result is merely leaden-footed, and this is a case in point. The two overtures here largely mirror the performance of the symphony: fine in the grander moments, but missing the urgency and tension which also pervades both pieces.

**EDWARD ELGAR
Variations on an original
theme ('Enigma') Op36/
Concert Overture: In the
South (Alassio)/Pomp and
Circumstance March No4 in G
Major**

Royal Philharmonic Orchestra;
conductor, Yehudi Menuhin
TRING/ROYAL PHILHARMONIC
COLLECTION TRP018 (DDD/59.19)

● These are fine Elgar performances from Menuhin and the RPO, but what I

Continue on page 86 ... ►►

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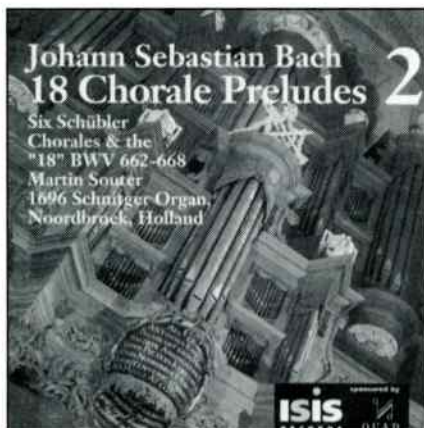
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The conductor, Otto Klemperer, was once asked why, in six decades as a musician, he had rarely extended his repertoire beyond the giants of the Austro-German school - Mozart, Beethoven, Brahms, Bruckner, Wagner. He replied that he saw no need to, adding that you could devote a lifetime to the Beethoven symphonies alone. I daresay instrumentalists would say the same about the works of Johann Sebastian Bach, especially organists. Bach's organ works are the cornerstone of their repertoire and understanding them and interpreting them could easily become a lifetime's quest. The same could be said of appreciating the works as a listener. You begin with the sadly hackneyed, Toccata and Fugue in D minor (which, ironically, may not have been composed by Bach in the first place), progress to the other popular pieces and then slowly discover the myriad, and often more rewarding riches of this vast legacy.

And, while undertaking this journey, you encounter the varied styles of playing Bach: the scholarly, the flamboyant, the romantic, the spartan. I was introduced to Bach's organ music by the recordings of the Swiss organist, Lionel Rogg, and continued my explorations with Helmut Walcha (monumental, if indisputably spiritual), Charles Benbow (excitingly fresh) and - more recently - Peter Hurford, Tom Koopman, Piet Kee, Marie-Claire Alain

and Kevin Bowyer. To this distinguished list - and at, or close to the top - must now be added Martin Souter whose latest CD, concluding his recording of the 'Leipzig Chorales', confirms his status as one of the most distinguished and illuminating of contemporary Bach interpreters.



**JOHANN SEBASTIAN BACH
The "Leipzig" Chorales Nos
II-18: Chorale Preludes
BWV662-668/Six Schübler
Chorales BWV645-
650/Chorale Prelude Liebster
Jesu wir sind hier/Prelude
and Fugue in G Major
BWV541**

Martin Souter, organ
ISIS RECORDS CD008 (DDD/75.31)

● This is the companion volume to Isis CD007, reviewed in the November issue, and so completes Martin Souter's survey of the 'Leipzig' chorale preludes, the so-called '18'. As with the first volume, the organ used is a very special instrument indeed: the 1696 Schnitger organ in the Hervormde Kerk in the village of Noordbroek, Holland. What distinguishes this instrument - built only forty-six years after Bach's death - is that, where most organs from this period have undergone radical rebuilding in the ensuing centuries, the sound of the Noordbroek organ remains more-or-less the same as it was three hundred years ago. It was modified in 1768, when its lower register was extended and a vox humana added, and then sympathetically restored by Herman Freytag in 1809. Freytag gave it a new, enlarged case, made up a full complement of bass pipes and fitted the stops still used today. The organ has remained untouched since that date, making it one of the very last unrestored instruments in Europe. How did it escape the 'modernisers'? Its remoteness helped (Noordbroek lies in the north-eastern corner of The Netherlands) and the paucity of church funds simply did not permit a full-scale restoration to be undertaken. As a result, the venerable Schnitger may creak and wheeze a little, but what a sound it produces: warmly expressive,



suspect will attract many to this recording will be its impressively wide ranging and richly detailed sound, engineered - as with the Dvorak issue reviewed last month - using 20-bit recording, editing and mastering and employing Sony's Super Bit Mapping technology. Immediately evident is a fullness to the string sound and a striking clarity to the woodwind and brass writing, all contained within a broad and spacious sound picture and balanced in the most convincing way. The range of the recording brings the kind of thunderous impact to the tympani in

Enigma seldom encountered in other recordings of this work yet without, I should add, any sense of exaggeration. On the minus side, the brass in the tuttis has a hard, even fierce edge.

These works, of course, cry out for a brilliant orchestral sound: this is Elgar at his most 'public', despite the mysterious secret supposedly contained within the Enigma Variations. It was this work which, in 1899, brought Elgar the recognition he deserved, just at a time when he was despairing of ever making his mark as a composer. The famous theme was simply something he picked out while improvising at the piano; it was his wife, Caroline, who latched on to its plaintive delicacy and asked him to repeat the melody. Rightly, it is the 'C.A.E.' variation (Caroline Alice Elgar) which opens this colourful and affectionate sequence of musical portraits of the composer's friends, acquaintances and - the argument goes - lost loves.

Menuhin's performance is affectionate yet thankfully truthful and unmannered yet misses some of the personality which, for example, Barbirolli brought to the work in what, I accept, is a wholly idiomatic but nonetheless unforgettable

recording on EMI. Menuhin is more characterful in that splendid concert overture in the South, Elgar's celebration of things Italian, including the grandeur of its Roman past. Composed some three years after the Enigma Variations, Elgar displays a mastery of orchestral scoring and colour to rival that of Richard Strauss (who was a great admirer of his English contemporary). In the South was also something of a proving ground for the compositional skills which Elgar so earnestly wished to bring to fulfillment in a large-scale symphony. It was to be another three years, however, before that aim was fulfilled.

This RPO release from Tring concludes with that familiar Elgar 'lollipop' the fourth of the Pomp and Circumstance Marches (am I alone in thinking this the finest, most sublimely regal of the five?). It seems an odd piece of programming because the time available on the CD would have permitted the recording of a complete work, the Cockaigne overture, for example. Or is it a matter of marketing, and the general 'recognition' of the words 'Pomp and Circumstance'? Whatever, it's a stirring performance and a stunning recording.

intimate and with a subtle palette of colours rarely encountered with other instruments. It is the ideal instrument for playing Bach (and, one would imagine, Buxtehude and Sweelinck, for that matter), especially as the acoustic of the Hervormde Kerk is entirely appropriate for the instrument: atmospheric and spacious but not so reverberant as to blur detail.

The eighteen 'Leipzig Chorales' present something of a mystery in Bach's organ literature since they do not fit any obvious liturgical function. All are revised versions of chorales composed during Bach's Weimar period (1708-17), with the changes varying from the structural to minor changes in notation or ornamentation. The manuscript of the first fifteen chorales is in Bach's own hand, beautifully and meticulously written out. The remaining three, along with a version of the Canonic Variations, are partly in the handwriting of one of Bach's pupils (the composer's eyesight was rapidly worsening during this period). Given the absence of any specific liturgical purpose, was Bach here gathering together some of the works for which he had a special affection for one final revision and presentation? We shall probably never know, but the suggestion is plausible given the consistent inspiration and beauty of these chorales. From the gentle, almost ethereal opening of Allein Gott in der Hoh sei Ehr, Martin Souter gives a most

persuasive account of these musical jewels, the Schnitger organ responding with the most subtle and luminous of tone colours.

As well as completing the 'Leipzig Chorales', Martin Souter also offers superb performances of the well-known Schubler Chorales which, unlike the bulk of his music, were actually published during the composer's lifetime, in 1741. The first five chorales are arrangements of canata movements and the sixth probably has a similar origin, except that the original has been lost. Again, the Schnitger organ proves the ideal instrument since the Schubler Chorales demand an organ with two manuals and two pedals so that the bass line, the chorale melody above it and any other voices employed can be clearly differentiated. The fluency of Martin Souter's playing here, its suppleness and flexibility and response to colour and rhythm, is immensely satisfying.

This generous programme concludes with a little known gem from among Bach's organ works - the charming Liebster Jesu wir sind hier - and the magnificent G Major Prelude and fugue BWV541, which the Schnitger organ takes in its stride. As well as Martin Souter, credit for this outstanding Bach issue (and its companion disc) must go to the production team of Edward and Geoffrey Horn who withstood below freezing temperatures and, no doubt, the cold wind that always seems to blow in from the sea across northern Holland, and to the hi-fi manufacturers Quad who have been quietly but consistently sponsoring these recordings on the Isis label. I don't believe they'll be disappointed in Huntingdon when they listen to this latest product of their generosity on Electrostatics!

Classical



MANUEL PONCE
Violin Concerto*
CARLOS CHAVEZ
Symphony No2 ('Sinfonia India')
SILVESTRE REVUELTAS
La Noche de los Mayas
 Henryk Szeryng, violin*; Royal Philharmonic Orchestra*; Orquesta Filarmonica de la Ciudad de Mexico; conductor, Enrique Batiz
ASV DIGITAL CD DCA866 (DDD/71.41)

● ASV have really struck a rich musical

vein with their 'Musica Mexicana' series. This is the second volume to appear and, like the first, it is brimful of music of exciting and colourful originality and colour. The three composers featured here were among those who distilled a 'national' style for Mexican music from several disparate ingredients, principally the indigenous music of the Mexican indians, the music which was imported from Spain along with the conquistadores, and nineteenth century orthodox European classicism. The composers also have personal links: Chavez was a pupil of Manuel Ponce and conducted the first performance of the Violin Concerto recorded here; Chavez and Revueltas once played as an instrumental duo.

The Violin Concerto was Ponce's last major work, completed in 1942 and premiered in 1943, when the soloist - as in this recording - was Henryk Szeryng. The romanticism and rich melodic content of the work evidently still appeal to Szeryng fifty years on, for he gives a radiant account of the solo part. In the first movement, the soloist carries the melodic line, while in the second movement Ponce quotes wryly from one

of his songs, a song which became so popular, it should have earned him a fortune - except that he unwittingly relinquished all rights in it to his publisher!

The third movement of this sumptuously-scored work is a free rondo, its mood reminiscent of the manitas, a form of Mexican popular song. The RPO, under the baton of Enrique Batiz, accompany with panache and zest. While not lacking in Mexican flavour, the Ponce concerto does belong firmly to the western classical tradition. Not so Carlos Chavez's 'Sinfonia India', the sixth of seven symphonies which he penned. Chavez's career blossomed with his 'Aztec' ballet *El nuevo fuego* and the *Sinfonia India* of 1935-36 continues in similar 'primitive' vein. It is in one movement, full of audacious rhythmic departures and bold instrumental brushstrokes (among the unorthodox sounds employed are those of a water gourd, the strings of deer hooves and butterfly cocoons - I quote the sleeve notes here!) yet the structure of the piece is taut and lean, the energy of the music sustained throughout. Again, a fine performance from Enrique Batiz, this time with his own Mexican State Orchestra.

But for a colourful orchestral romp, Silvestre Revueltas's music for the film *La Noche de los Mayas* (The Night of the Mayas) takes some beating. Full of rhythmic twists and turns, exotic combinations of orchestral colour and unashamedly outlandish dramatic effects, this is an orchestral showpiece par excellence and receives a suitably exciting, unbuttoned performance. The recording, too (produced in Mexico, like the Chavez symphony), is appropriately full-bodied and vivid. The Ponce concerto, I should add, was taped in London, but the separate sessions seamlessly come together in this trans-Atlantic effort. Like Mexican cuisine, Mexican music leaves you positively glowing with pleasure.



RICHARD STRAUSS
Don Juan*/Till Eulenspiegels
lustige Streiche*/Dance of the
Seven Veils (from Salome)*
THOMAS CANNING
Fantasy on a Hymn Tune
 Stadium Symphony Orchestra of New York*; Houston Symphony Orchestra; conductor, Leopold Stokowski
EVEREST EVC9004 (AAD/51.09)

● The Everest label came to prominence during the late 'fifties and early 'sixties both on the technical and artistic fronts. First, it attracted some notable conductors to make recordings, not least the legendary Leopold Stokowski. Second, it explored an interesting technological avenue by making its recordings in three-channel stereo on 35mm magnetic film rather than the conventional quarter-inch tape. The original Everest masters are now held by Vanguard Classics which has been busily remastering them using Sony's 20-bit Super Bit Mapping technique. Apart from the sampler CD, reviewed last month, this Stokowski compilation is the first of these reissues to come my way.

Have these famous recordings stood the test of time? In the main, yes, and I get the impression that the remastering has done full justice to what was contained on the original masters which, to be fair, included a touch of roughness in the upper registers and a certain 'hollowness' to the brass sound. But the

spatial effects and perspectives remain thrillingly immediate and, for all their musical attributes, the two Strauss tone poems - *Don Juan* and *Till Eulenspiegel* - are glorious sonic showpieces. And what performances Stokowski gives, full of vitality, humour and flamboyance; his *Till Eulenspiegel* is quite special and the New York orchestra responds to every nuance of the score. But then, Stokowski had this effect on what was an ad-hoc ensemble, witness the *Tchaikovsky Francesca da Rimini* and *Hamlet* which I see are on Vanguard's list for forthcoming Everest reissues - well worth looking out for (EVC9025).

Stokowski and his orchestra are also in top form with the *Dance of the Seven Veils* from *Salome*, giving full voice to its earthy eroticism, and with a recording as vivid as the performance. In sharp contrast is the *Fantasy on a Hymn Tune* by Thomas Canning, who was born in Pennsylvania in 1911. The hymn tune in question is *Amanada* by Justin Morgan (1747-98), one of a group of New England composers of that period. The scoring of the piece - for double-string quartet and string orchestra - as well as its 'fantasia' form bring immediate echoes of *Vaughan Williams Fantasia on a Theme of Thomas Tallis*; indeed, I would be very surprised if Canning was not directly influenced by the *Vaughan Williams*. Canning's treatment of Morgan's tune is sympathetic and eloquent, if lacking the soaring inspiration of *VW*, and is beautifully played. It is Stokowski's Strauss, though, that makes this Everest reissue desirable.



ITALIAN BAROQUE ORGAN MUSIC
Works by Bernardo Pasquini,
Domenico Scarlatti,
Giovambattista Martini,
Gaetano Valeri, Giuseppe
Gherardeschi and Anon
 Luigi Ferdinando Tagliavini, organ
FONE 90F33CD (DDD/49.09)

● Last month, it was the dazzlingly virtuosic violin music of *Pietro Antonio Locatelli*; this month, the Italian Fone label offers a colourful tapestry of organ music from the Italian baroque, once

again with a recording that is remarkably truthful in its reproduction of the colours, timbres and acoustic of what is an exceptional instrument. As with the *Locatelli*, a Neumann valve microphone was employed, fed to a Teac digital recorder, with Audio Research power amplifiers and Ruark Accolade loudspeakers used for monitoring, all wired up with Van Den Hul cables. Fone's engineers, like many of their British and American counterparts, demonstrate that you do not need a truckload of equipment to make good recordings. A good acoustic helps, of course, in this case the *Priory of San Michele Arcangelo* in *Vignole*.

Then there's the organ, built by one of the founders of the two famous organ workshops in *Pistoria*, *Pietro Agati*. *Pistoria's Church of St Ignazio* (now *St Spirito*) remains home to the organ built there by the *Flemish Jesuit, Willem Hermanns*. The sound of this instrument, with the unusual colours available from its *da concerto* stops, both fascinated and influenced *Agati* and the *Vignole* instrument shares much of the varied and piquant tonal palette of the *Pistoria* original.

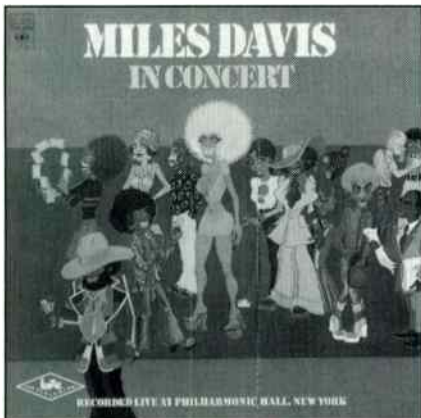
Among the composers here, the only name known to me was that of the *Neapolitan Domenico Scarlatti*, best-known for his five-hundred-odd sonatas for harpsichord. He apparently wrote just three pieces specifically for the organ, a delightful *G Major sonata Kk328* which is included here. The other *Scarlatti* offering is the youthful *D minor sonata Kk77* which, according to the score, can be played on any instrument and certainly suits its organ arrangement very well.

The other composers featured here are more shadowy figures from Italian music in the seventeenth and eighteenth centuries but the music chosen to represent them is, without exception, delightful. There is nothing especially heavyweight here; it is more a selection of *toccatas*, *sonatas* and so forth to test the virtuosity of the player and to explore the panoply of sounds available, from the jewellike brilliance of the soprano stops to the reedy resonances of the bass pipes. Enhanced by the superb recording, I found it all utterly seductive but, then, that also has much to do with the stylish playing of *Luigi Ferdinando Tagliavini*.

The *Bologna-born Tagliavini* is one of Italy's foremost exponents of this repertoire, as well as a prominent scholar of Baroque music. As well as performing, teaching and music editing, he devotes a great deal of his time to lovingly restoring and preserving historic instruments, and it is not difficult to hear that affection for the music, its period, and the instrument being communicated here. *Signor Tagliavini* clearly enjoyed recording these works on this near two-hundred-year-old but still fine-sounding organ; I venture you will enjoy listening to him.



Simon Hopkins



**MILES DAVIS
In Concert**
COLUMBIA 14-476910-10

● We have the good work of the French offices of Columbia to thank for a couple of cracking - and thoroughly essential - Miles Davis reissues this month. For altogether too long now a huge swathe of music which the great bandleader and trumpeter recorded in the seventies (between 1969 and 1976) has been only available on mortgage-inducingly expensive Japanese import, so it's nice that gradually, one by one, Davis' albums from this period (not to mention an increasingly large number of

bootlegged live shows) are seeing the light of day as domestic CD releases within Europe.

Quite apart from the fact that fans of Miles' seventies work are finally getting to collect this stuff on CD without ending up living on the street, the emergence of this catalogue is having a welcome and significant effect; namely the complete reappraisal of the work that Davis committed to wax in the seven years after the recording of the seminal *Bitches Brew*. The plain fact is this: in this short space of time, Miles Davis, a musician who'd already been a major part of three complete jazz revolutions - and arguably the instigator of two of them - managed to put together a body of work which easily equals the work of any other single musician of the 20th century.

It was a body of work which embraced modal jazz improvisation, rock instrumentation and arrangements, post-Darmstadt composition, and funk rhythms; it was a music which fused Duke Ellington and Jimi Hendrix and Stockhausen and James Brown; and it was a music almost totally ignored by critics and audiences alike, both at the time and for a long time since. When Miles himself re-emerged in the early 80s after a half-decade of illness even he had turned his back on this music and was content to spend the rest of his career ploughing the light fusion furrough.

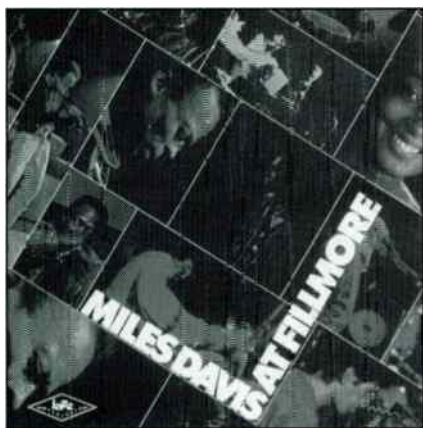
If you are a newcomer to this music, then there are other records you should investigate first. The aforementioned *Bitches Brew*, a studio double album, really kicked everything off, and remains one of the great albums of all time, regardless of genre. Between it and the three live doubles recorded in Japan at the very end of this period - *Dark Magus*,

Pangaea and *Agharta* - you'll have enough music to change your preconceptions forever. But for the fan, both this, and *Live At Filmore*, will be essential.

In Concert is the later of the two albums. Recorded live at New York's Philharmonic Hall in the September of 1972, the album came with a sleeve so dripping in pimp chic that it looks the blueprint for a thousand current crappy funk bands who reckon that a few dated threads, an afro, a wah-wah pedal and some cheesy synth make great funk. But where it's impossible to imagine *Bitches Brew* without Mati Klarwein's inspirational artwork, *In Concert*'s happy street scene cover belies the darkness that's evident at the heart of this music from the minute the album opens with fast, furious, and ritualistic funk underpinning Davis' bleak, screaming trumpet.

The band is nine-strong, and bloody well sounds like it: Davis on trumpet - often heavily processed with wah wah and fuzz box - and organ, Carlos Gamett on soprano, Cedric Lawson on keyboards, Reggie Lucas on guitar, Khalil Balakrishna on sitar, Michael Henderson on bass (Davis borrowed Henderson, brilliantly, from Stevie Wonder, perhaps the only musician to equal Davis in the seventies in redefining Black music) Al Foster on drums, Badal Roy on tabla, and percussionist Mtume Foreman.

Ultimately, this isn't the finest band that Davis worked with in this period - I'd personally reserve that judgement for one of the Reggie Lucas-Pete Cosey double guitar line-ups that came later - and it's not one of the best recordings, either. But this is still inspired music-making, and still a challenge to musicians twenty years on.



MILES DAVIS
Miles Davis At Filmore
COLUMBIA COL 14-476909-10

● Now this is a classic band, recorded two years earlier at New York's famed Filmore concert hall. It's a smaller band than that on *In Concert*, a septet which was pretty much the core group of the Bitches Brew line-up: Steve Grossman on soprano; Chick Corea on electric piano; Keith Jarrett on organ; Dave Holland on bass; Jack de Johnette on drums; Airto Moreira on percussion; and Miles, of course, on trumpet.

This reads like a who's who of seventies fusion, and surely all these players would go on to highly successful solo careers, and highly diverse ones, from the highly-wrought, complex jazz rock of Chick Corea's *Return to Forever* group to Jarrett's epic, neo-Romantic piano improvisations. But the music here - a stripped-down and funkier version of the Bitches Brew material - has more going on inside it than all the music Miles' alumni would chum out between them. A music rich in possibilities.

The apparent current resurgence of interest in Miles' music from the seventies - from the darker strands of jazz-drenched hip-hop appearing through the Mo Wax label to the monstrous, industrial jazz that London's God grind out - is a welcome thing for sure. If it's taken twenty years for these strands of musical DNA to have finally made it into the cells of mainstream contemporary music, no matter, we're getting there at last.

HERBIE HANCOCK
The Complete Warner Bros. Recordings
WARNER ARCHIVES 9362-45732-2

● In the first few years after the various members of the Bitches Brew line-up dispersed, some of the musicians did go on to make some pretty extraordinary music. The idea that after Miles Davis' great leap forward all his cohorts went on to careers of either unbridled conservatism - say, the defiantly purely acoustic music of Jarrett - or ridiculous commerciality - witness the immensely

popular but pretty vacuous fusion of Corea's *Return to Forever* - is a tad sensationalist, and very unfair (although it's a generalisation this hack's usually happy to make).

The truth, as ever, is more complex. Saxophonist Wayne Shorter and keyboardist-composer Joe Zawinul went on to form Weather Report, and while that group is undoubtedly best known for the funky, uplifting, and fairly trite music of its middle years - and particularly for their hit single "Birdland" - the music on their first clutch of albums was a rich combination of deeply resonant composition and immensely sympathetic group improvisation. As for guitarist John McLaughlin, he formed the famed jazz rock supergroup Mahavishnu Orchestra, whose first three or four albums, despite the remaining critical prejudice against them - a prejudice certainly not helped by preposterous album cover graphics that wouldn't go amiss on a Yes album, and titles like *Visions of the Emerald Beyond* and *Between Nothingness and Eternity* - were an incendiary blend of mammoth post-Hendrix rock freakouts and hugely complex, visionary structures.

But of all the musicians to come out of Miles' great groups of the late 60s and early 70s, the keyboardist Herbie Hancock perhaps came the closest to fulfilling the promise of Bitches Brew. Hancock had been in Davis' group immediately before the trumpeter "went electric", the group which saw Miles move from an acoustic, modal jazz which so stretched the formula as to be on the brink of Free Jazz. He'd followed Miles through into his early electronic experiments, and brought all this experience to bear on three staggering albums which he recorded in the early 70s.



This Warner Archives double brings together the first of these monumental albums, *Mwandishi* and *Crossings*, with the album he recorded immediately before, *Fat Albert Rotunda*. This first album - basically a soundtrack to a Bill Cosby cartoon series - has its charm, but it's a pretty limited affair, all sassy urban funk and no real exploration, although fans of the newly-rediscovered tenorist Joe Henderson will find it of interest. But for *Mwandishi*, Hancock pulled together a

sextet which pretty much remained constant for three albums: himself, bassist Buster Williams, drummer Billy Hart, trumpeter Eddie Henderson, bass clarinetist Benny Maupin and trombonist Julian Priester. The music this group made on *Mwandishi* was shocking enough, blending tropical funk with austere horn arrangements and radically free group improvisation, but by *Crossings* the group had gone even further out, adding a vocal quintet and Patrick Gleason's freakish synthesiser to this already vibrant, mutant music.



HERBIE HANCOCK
Sextant
SONY SRCS 7047

● But perhaps the group's masterpiece was their final album, *Sextant*, recorded for Columbia. On this album the group attained a perfect balance of eerie synths (Hancock was, and remains, one of the great innovators in electronic keyboards, and here he's still in the company of Gleason), dank funk, complex odd meters, tribal drumming and free group improvising. After this album, Hancock would go on to a much more financially successful brand of funk, but on *Sextant* he reached the apotheosis of Jazz Rock.

Sextant unlike its predecessors on Warners, remains available only as an expensive Jap import, but completes a trio of some of the most important, and criminally overlooked, albums of the 70s.





**BILL FRISELL/VICTOR BRUCE
GODSEY/BRIAN ALES**
**American Blood/Safety In
Numbers**

VERABRA VBR2064 2



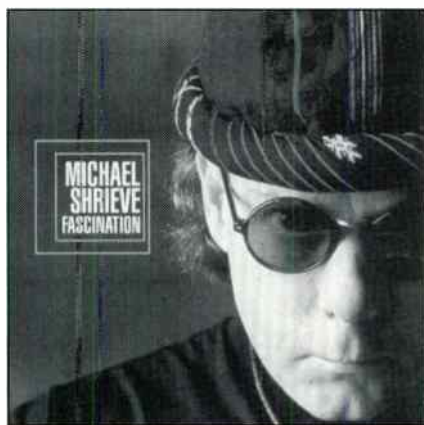
● A couple of different settings for the American guitarist Bill Frisell, at one time a frequent visitor to these pages, largely absent of late. There can be no doubt that by the mid-eighties Frisell was one of the most progressive jazz guitarists on the scene, but recent solo records and live appearances in the UK have been hampered with a certain conservatism, so it's good to have two such wildly different contexts - contexts in which he's not got the mantle of bandleader to constrict him - in which to gauge the current state of his art.

The American Blood album features the two intriguing long, multi-part pieces of the album's title. On 'Safety in Numbers', sampling and electronics man Brian Ales has constructed a huge ten-movement piece from fragments of a single Frisell guitar improvisation. To this Frisell has added a part-by-part improvised commentary on guitar, banjo and ukulele. The result's always enjoyable and at times quite stunning. Frisell retains a unique ability to balance the whimsical - even the sentimental - with the brutal, and the range of his musicality here - in terms of technique, genre and emotion - is immense.

'American Blood' sees Frisell and Ales

joined by the poet-narrator and singer Victor Bruce Godsey. Again Ales constructs a backing track from Frisell's guitar playing, to which the guitarist has added yet more guitar and Godsey has added a narration of his own poems. In concept, this is highly esoteric stuff, for sure. But in practice, the music here is highly accessible, if fairly constantly searching - and the combination of it and Godsey's evocative voice is compelling stuff.

MICHAEL SHRIEVE
Fascination
CMP CMPCD67P



● Frisell is also one third of drummer Michael Shrieve's trio on Fascination, alongside longtime-compadre from John Zorn's Naked City "supergroup", organist Wayne Horvitz. But this is altogether a more regular set than the American Blood album, unsurprisingly, given its leader's background. A scan of Shrieve's two and a half decade career would take in work with Santana, Tangerine Dream founding-member Klaus Schulze, Steve Winwood, John McLaughlin, and solo projects which feature the likes of Andy Summers and trumpeter Mark Isham. It's an impressive list for sure, but not necessarily one you'd associate with real musical innovation.

So it's a bit of a surprise finding him in the company of two New York noisemakers, recreating - and attempting, perhaps, to redefine - the classic jazz guitar-organ-drums trio. By happy coincidence, Fascination's accompanying

press release quotes Shrieve as saying that this music is directly inspired by "post-60s Miles Davis stuff like Live at the Fillmore" (see above), and it's instructive to listen to this set back-to-back with the Davis record. For despite the highly responsive and dextrous improvising that these three musicians turn in, the music here - with the sole exception of the album's final piece, the highly atmospheric ambient piece 'Sounding in Fathoms' - is pretty traditional stuff, using the tried and tested formula of post-bop jamming as its basis. The group may dip into the odd bit of grunge or space-rock, but always quickly return to contemporary jazz familiarity. Fascination may have much of Live at Fillmore's sense of space and freedom, but the implications of Davis' richly fertile forebodings are never so much as touched on.

All that said, you'd have to be a miserable sod not to get some considerable enjoyment from this record. These players are far too sensitive and creative to let their obvious accomplishment get in the way of the music, so this never descends into session musician jazz fusion narcissism. And the sheer sound of this group is superb; Horvitz and Frisell weave a rich and colourful tapestry between them, and if Shrieve isn't contemporary jazz's most interesting composer, he's nonetheless a fine drummer, both fiercely swinging and timbrally diverse.

All in all, not the explorative stuff one might have hoped for, but highly enjoyable for all that.





Simon Cooke



**KETAMA/TOUMANI
DIABATE/JOSÉ SOTO**
Songhai 2
HNCD 1383

● And, as they say, now for something completely different...

Those of you who are familiar with the original 'Songhai' album featuring Toumani Diabate and 'new flamenco' wizards Ketama will undoubtedly be amazed that this sequel album is being reviewed under 'jazz', but why not? It is the product of the cross-pollination of Spanish flamenco with traditional Malian styles which creates a sound which is not easily definable, but which rewards consideration and repeated listening.

I wouldn't recommend this CD to anybody with a sharp sounding System as the highly strung lyrics and stinging flamenco' guitar will do your tweeters - or your ears if you are brave enough to use headphones - no good at all. Around these are built complex layers of strings,

percussion, vocals, and musical mysteries of old Africa of which I confess ignorance; Balafon and ngora. Each layer is beautifully and faithfully recorded, a point which serves the ethereal quality of the vocals especially well. These are not mainstream, technically 'perfect' singers, but artists using traditional idioms which are often translated unsympathetically by recording or mastering engineers. As 'world music' becomes more popular this is becoming less common, but it still, unfortunately, occurs. Happily it has not happened here.

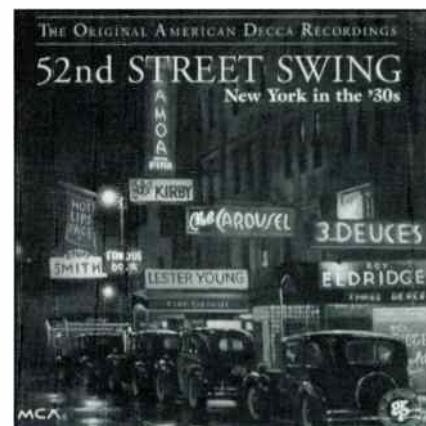
Even if you can imagine a Malian/Spanish crossbred musical form, this CD will reveal many different facets to the careful listener; to me there are elements of oriental music in here, the odd cadence from East European and Arabic devotional music, National guitars, twinkling Andean music and even a disconcerting hint of the 'Sturm und Drang' of Northern Europe to temper the hot Hispanic and African blood, but I'll warn you now, others have heard nothing but 'Fawty Towers' Manuel strangling a cat. It's weird, wonderful, and only for the serious student of esoteric music.

ELLA FITZGERALD
The War Years (1941-1947)
GRP 26282



● A double CD totalling 43 tracks and including a previously unreleased take of Rose/Harburg/Arlen's 'It's only a paper moon' and two of Lewis/Hamilton's 'How high the moon'. Of course, no mere compilation album could do justice to a performer of Fitzgerald's standing but, like the rest of the series, this is serious quality nostalgia for older listeners or interesting archaeology for the young. Take your pick.

52nd STREET SWING
New York in the '30s
GRP 16462



● This is another of the Original American Decca Recordings series partly reviewed in the January edition. With two tracks from The Delta Four and Sam Price, three from the Spirits Of Rhythm, Stuff Smith, John Kirby and Hot Lips Page, and four from the Leonard Feather All-Stars, also including Dick Katz' nostalgic booklet notes - excellent notes are a forte of this series - this is a bargain collection of top-notch swing. If you buy just one 'American Decca' recording, make it this one.

MILDRED BAILEY
The Rockin' Chair Lady
GRP 16442



● With a voice like a canary and a build like a battleship, Mildred Bailey remains one of the most underrated female Jazz talents. The twenty tracks on this CD cover the career of a voice that sounds remarkably like your Grandma's singing. It's something else entirely.

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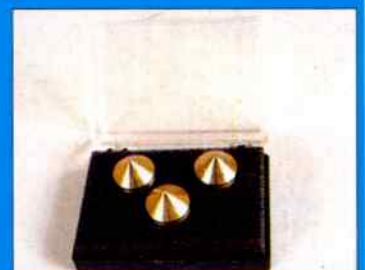
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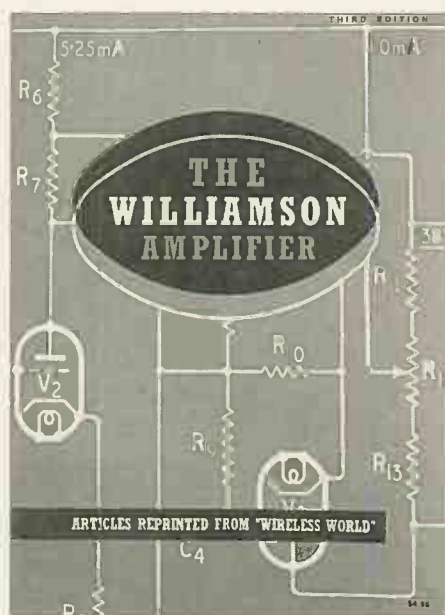
MULLARD TUBE CIRCUITS FOR AUDIO AMPLIFIERS. £13.95

First published in 1959 by Mullard, this book includes full designs for eleven power and control amplifiers, including the 5-20, using valves. This book begins with a four-chapter tutorial on getting the best sound from valve amplifiers.



THE WILLIAMSON AMPLIFIER, by D. T. N. Williamson. £9.95

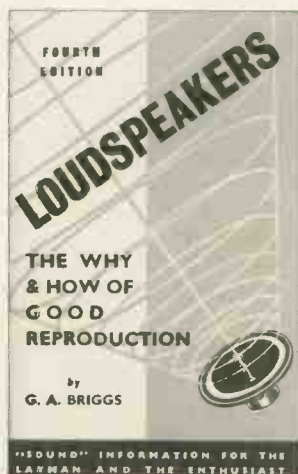
In April 1947, Williamson's valve power amplifier become an overnight success. The author takes you deep into his design decisions and offers practical advice on how to build the amplifier and set it up for best performance.



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LOUDSPEAKERS: THE WHY AND HOW OF GOOD REPRODUCTION, by G. A. Briggs. £10.95

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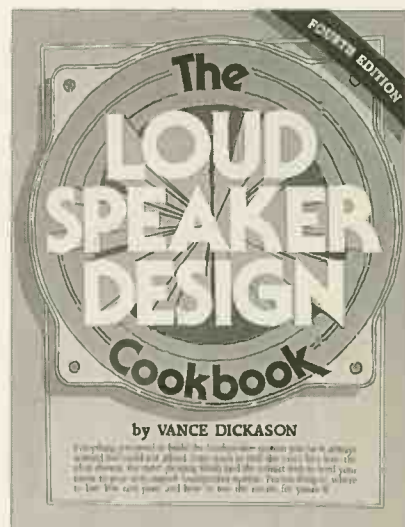
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THE LOUDSPEAKER DESIGN COOKBOOK, by Vance Dickason. £23.75



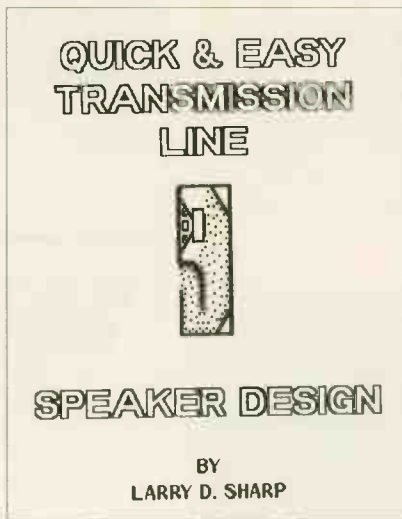
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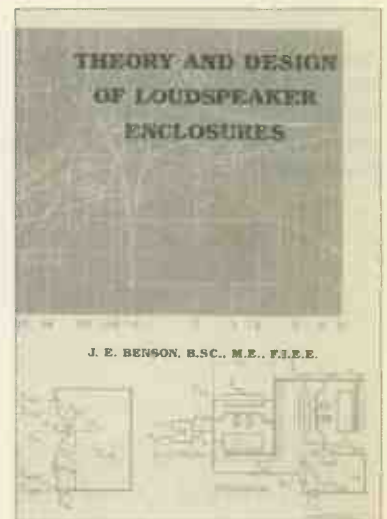
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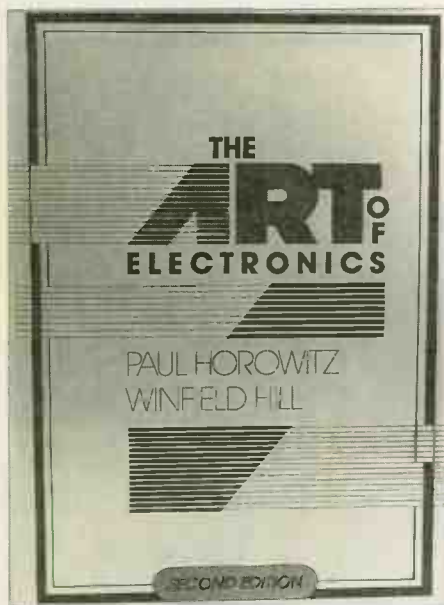
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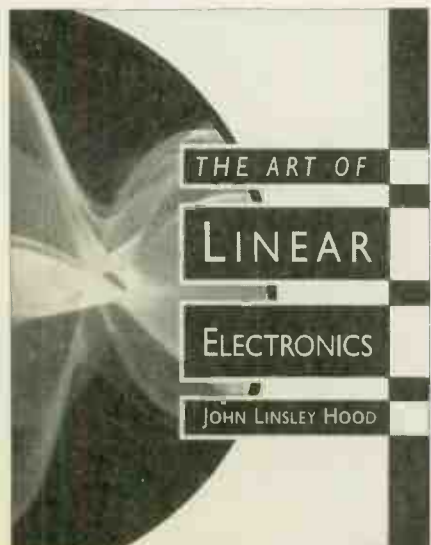
THE ART OF ELECTRONICS, by P. Horowitz and W. Hill. £35

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THE ART OF LINEAR ELECTRONICS, by J. Linsley- Hood. £16.95

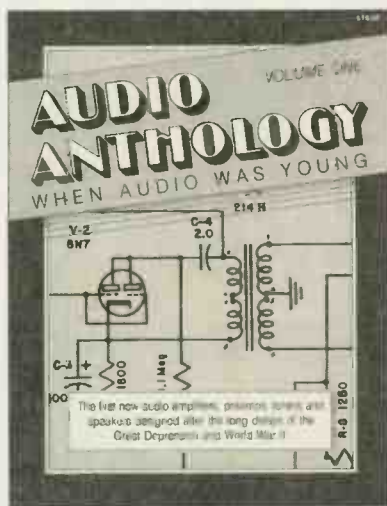
Concentrates specifically on analogue electronics for audio and goes into detail on obscure topics like the drawbacks of feedback, as well as its advantages. Covers mainly solid state but also includes valves. A must for serious enthusiasts and budding designers.



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Audio Anthologies - When Audio Was Young

There are five volumes of the Audio Anthologies, listed below with a brief description and guide to their contents. They cover one of the most exciting and important eras of hi-fi, from the end of the second world war, through the introduction of stereo, magnetic recording, binaural recording and the FM Multiplex decoder. They contain many ground breaking circuits and theory covering all aspects of hi-fi design. A must for valve enthusiasts.



Volume One - May 1947 to December 1949

The first new audio amplifiers, tuners and speakers designed after the long delays of the Great Depression and World War II. **Summary of Contents:** 9.5watt, 5watt and 6.5 watt 6A57G amplifiers, 30watt 300B amplifier, valve FM tuning indicator, 30watt 211 power amplifier, cathode follower amplifier using 6V6, an adaptation of the Williamson amplifier, valve phono preamplifier, several horn and reflex loudspeaker designs and much more.

Volume Two - January 1950 to July 1952

More great amplifiers, preamps, loudspeaker designs, and the first glimmer of the stereo revolution plus magnetic recording aids. **Summary of Contents:** Ultra linear 6L6 design and operation of the Williamson, a direct coupled amplifier, Williamson type amplifier using 6A5s, 40watt 845 push-pull amplifier, valve phono and line preamps, valves and loudspeaker damping, design and construction of reflex and horn loudspeakers.

Volume Three - August 1952 to June 1955

Seven power amplifiers, eighteen preamps, twelve loudspeaker designs, including four horn types and binaural recording techniques.

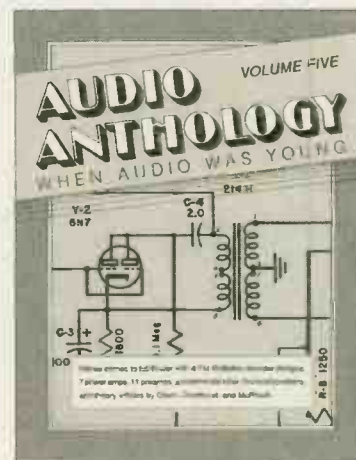
Summary of Contents: Simple valve phono stage, transformerless amplifier using 6082, 20watt 5881 amplifier, 10watt 6V6 amplifier, stereo valve preamp, high quality valve phono stage, a preamp for the Williamson, low distortion tone control preamp, binaural or stereophonic?, transistor phono amp, corner horn loudspeaker, concrete horn loudspeaker.

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Volume Five - January 1958 to December 1959



Stereo comes to full flower with four FM Multiplex decoder designs, seven power amps, eleven preamps, a commercial killer, five loudspeakers, and theory articles by Olson, Crowhurst and McProud.

Summary of Contents: Stereo valve multiplex decoder, 7watt EL84 amplifier, valve active crossover and 20watt treble amp/50watt bass amp., monaural binaural, monophonic and stereophonic explained, heterodyne FM multiplex adapter, transistor preamp, 60watt EL34 amplifier, high power audio amplifiers, hi-fi loudspeaker enclosure.

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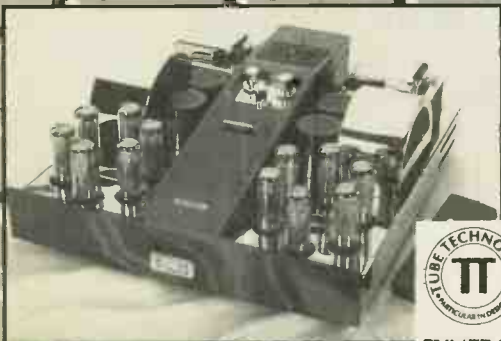
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SME IV	£850	Loses little to the fabulous V, possibly the best value for money SME.	Dec'93
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World favourites

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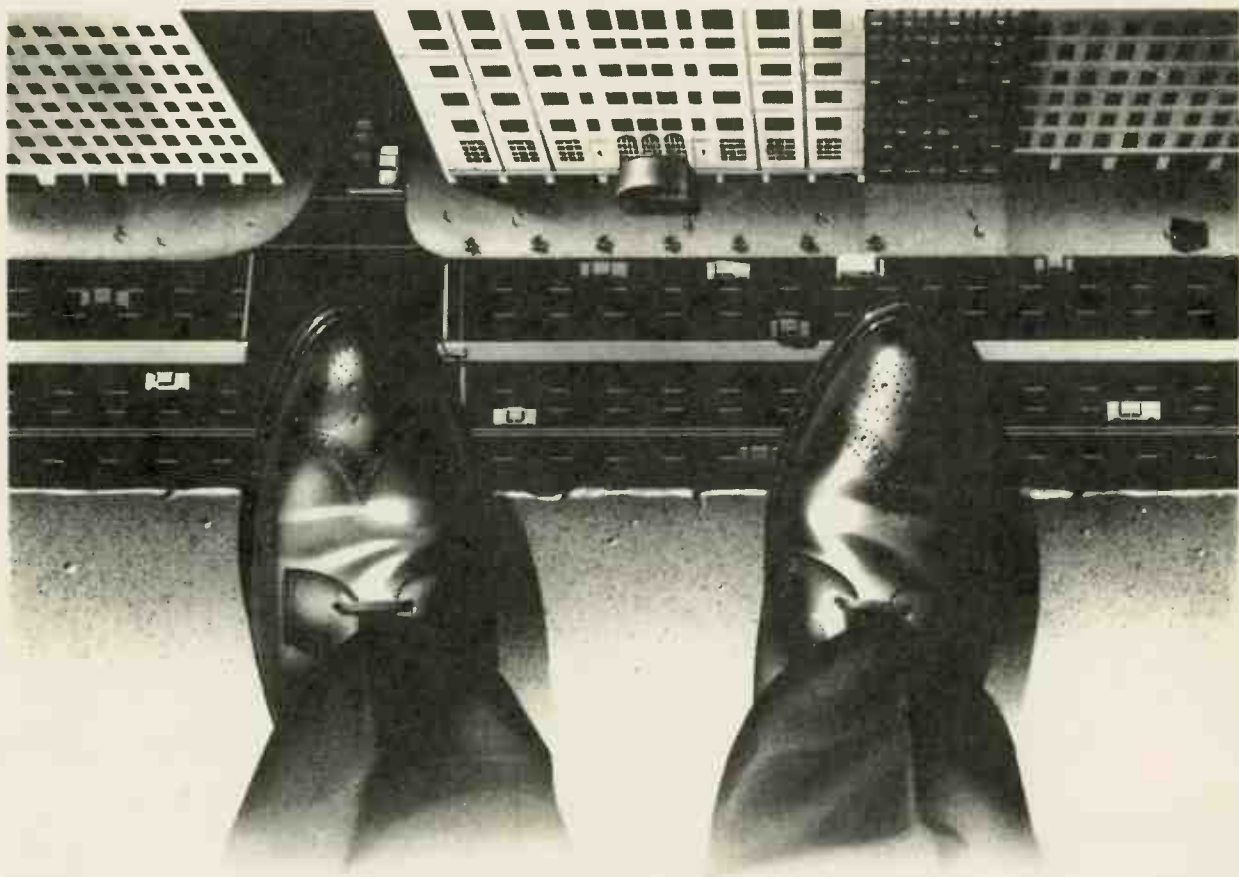
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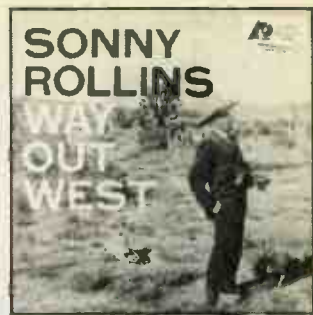
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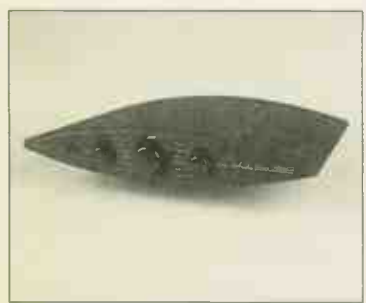


As a Hi Fi consultant I spend my time either evaluating equipment or demonstrating equipment here or in customers homes. In the end the latter invariably applies as even if a customer selects an item after listening in my demo room I would invariably require to ensure it does the job in situ. But what is so frustrating at the moment is the number of systems i hear which sound awful and have cost a small fortune, invariably bought second hand.



People seem to believe they can just go out and buy S/H equipment that appears to be well thought of/expensive, throw it all together and wonder why they aren't enjoying it! Two recent systems must have cost £10K and yet I could easily get better sound for less than £2K at new prices. The fact that both systems included large expensive Krell Power Amplifiers may be purely co-incidental, but considering one can buy for example,

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Neil Sparks
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Our panel of experts will endeavour to solve them, or at least offer some practical advice.

comprising a BC109 in emitter follower

configuration, working from a 12V rail. Although we thought this would just about accept 2V from CD, on enquiring the company told us there was a "headroom limitation". They recommend you use a PCD316M CD attenuator (10dB), available from them at a cost of £17.71 including post and packing. Write to Quad Electroacoustics, Huntingdon, Cambs PE18 7DB, Tel: 0480-52561, or ask a Quad dealer to supply.

Through the 33/303 I'd recommend a player with good, positive treble, the Rotel RCD940BX being

appropriate. A Quad 67 CD player would be another good choice; it has forceful bass and sweet treble, but at £825 perhaps it is beyond your budget. **NK**

DCC PRICES

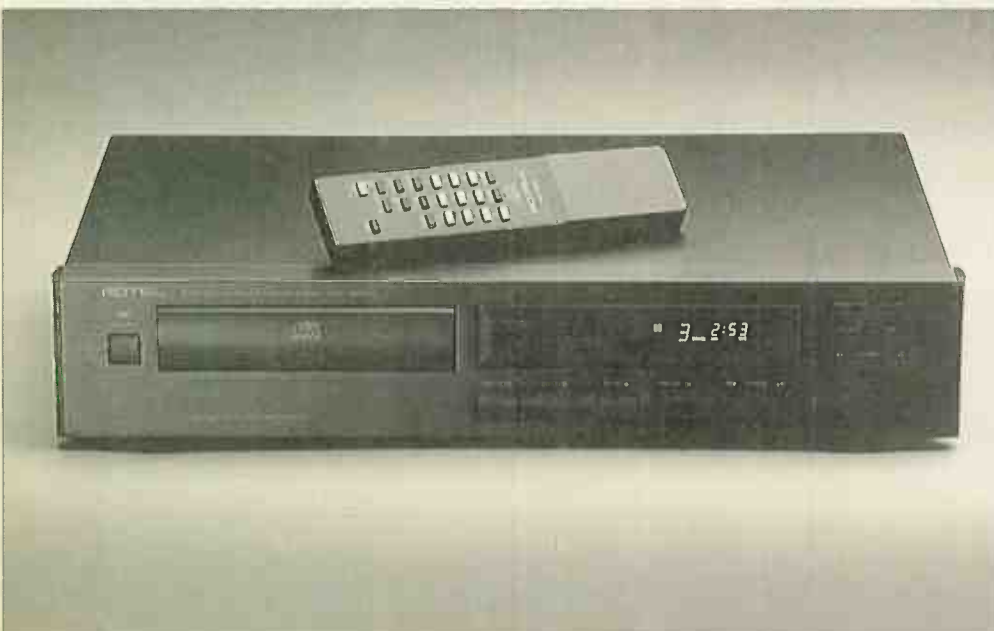
For my sins, I unfortunately purchased, 12 months ago, a Philips DCC tape deck, before discovering the tape cassettes in England costs £9-£10, a price I flatly refuse to pay.

I have friends living in Hamburg, Germany who sent me the following prices: Scotch 60, DM 11.95; 90s, DM13.95; BASF 60 DM 12.90 and 90s DM 14.90 I would appreciate your assistance in finding a stockist in the country who can offer similar prices.

I have been enjoying Hi-Fi World for 11 months. My friends in Hamburg would like to know how to obtain regular copies in Hamburg?

K L Hooper
Barnstaple,
Devon.

The recommended retail price of a Philips DCC90 tape is £6.99, Philips tell us, or £5.99 for a DCC60, which compares with German prices. Some

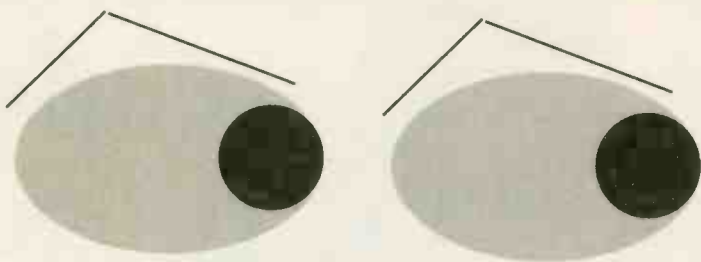


The positive treble of the Rotel RCD940BX should suit the Quad 33/303 well.

Continued on page 113...

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.... Continued from page 111

retailers seem to want to charge up, as we've found in Central London, where £8 is not uncommon. In fact, Philips suggested they should be prepared to charge a little under the recommended price. Anyway, DCC tapes at these prices are available to you in Devon by Mail Order from Dutch West (Tel: 0434 320452). Alternatively, call Philips Consumer Help Desk on 081 689 4444, who can tell you who your nearest Philips stockist is (for Philips blank tapes).

Your friends in Hamburg can subscribe to Hi-Fi World, see page 68 for details. **NK**

VALVE CANDIDATE?

I am considering buying some new hi-fi equipment. Initially, I will base a system around my personal CD, a Technics SL-XP700. Not perhaps the best way to go about things, but it gives a pretty acceptable sound and will allow me to use funds to support it.

I am particularly taken by your range of 'in-house' designed equipment. I am therefore considering the KLP1 line-level pre-amplifier with either the 20 watt K5881 kit, or your new 36watt solid-state unit. Would it be possible to provide a review, both personally, and from a third party assessing your designs? This would help me in my final decision. Also, can you recommend a suitable pair of 'speakers either commercial or DIY, or second-hand to match the above combinations, up to £300? I have had Rogers LS6a before, so I think the 'BBC sound' is preferable. I have quite a small room, 3m X 5m so stand-mounts may be impractical.

**Steve Stoddart
Cambridge.**

It is very difficult to give an 'unbiased' view on our own products, and what we

normally suggest to potential customers is that they have a listen for themselves at Hi-Fi Confidential, call Luigi on Tel: 071 233 0774. The only thing I would say, is that because we are a magazine and in the 'public eye' as such, we wouldn't dare let any of our products on to the market unless we were completely sure of their abilities and performance - in the same manner as any reputable manufacturer.

It is hard to recommend a loudspeaker for you without knowing what kind of music/presentation you like, but any 'speakers with sensitivity above 85dB or so will provide a good match for 5881. You can save by building your own, and personally I'd strongly recommend this route. Otherwise models from TDL, Systemdek, Rogers, Castle and ProAc are normally well engineered for fine sound quality and are suitably sensitive. **DB**

WOOLLY BASS TAMER?

After reading one or two references to Spendor BCIs in recent issues of Hi-Fi World, I understand that the woolly bass problem associated with these 'speakers, can be cured with a 20Ω resistor across the bass 'speaker terminals. Can you confirm this works and suggest any improvement?

**R
Thompson.
Burham,
Bucks.**

The 20Ω resistor in parallel will make virtually no difference at all if you are using a modern

transistor or valve amplifier with feedback, other than to draw more power from the amp. which is dissipated through the resistor, confirmed Derek Hughes of Spendor.

However, if an amplifier with a high output impedance is used, like our zero feedback 300B, the 20Ω resistor will draw power away from the loudspeaker, reducing bass power which may well give a cleaner bass performance. So the effect of this modification depends on your amplifier rather than the loudspeaker.

Apparently, later BCIs had a modified reflex port fitted which re-tuned the bass and improved performance considerably. Before you experiment with the modification above, Derek suggested that you contact Mike Stevens of Bromley, Tel: 081 460 7299, with the serial number of your BCIs so that they can identify whether your BCIs had this modification fitted. If not they carry out a service which will bring them up to latest spec. **DB**

NO BOOM IN THE HOUSE

Could I, through your columns, perhaps obtain

some advice on loudspeaker placement? The problem is that I bought Mission 753s a few months ago and installed them in our, then, small lounge (4m X 4m). There is not much bass, but I thought all would be well when I moved them into the new lounge in an extension; not so.

The new lounge is 7.6m X 4m with the loudspeakers firing down the long axis, but with alcoves (see plan). The problem is that I know what the 'speakers and the amplifier (NAD 1020A pre and Crimson Elektrik power) is capable of.

The 'speakers are 60cm out from the back wall so that their fronts are clear of the fireplace. If I push them back there is no improvement. I have tried them across the short axis and there is a slight improvement. Curiously the bass in the alcoves is prodigious and boomy. Are the alcoves acting as cabinets in some way and not allowing the bass out?

Any thoughts on what I can do? If I were to put cupboard doors over the alcoves, how much would I need to destroy the alcove effect and place the Missions in their correct relationship to the wall?

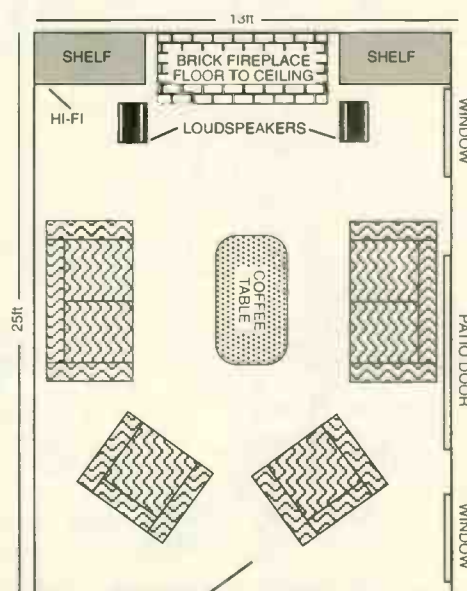
On another subject your magazine extols vinyl over CD. For me at the bottom-end of hi-fi, I find the difference to be unimportant, (CD - NAD 5420, vinyl - Thorens TD160, SME IIIs and Ortofon MC10). However, I use CD mainly because the lack of faffing around with sleeves, cleaners, arm etc.

Keep up the good work with respect to DIY.

**Phil Catchsides
Thornbury,
Bristol.**

There are a number of possibilities regarding the lack of bass.

The Mission 753s benefit greatly from a solid rear wall.

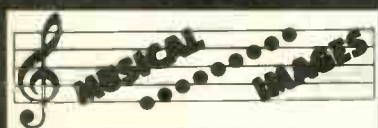


Phil Catchsides needs more bass from his Mission 753 loudspeakers; repositioning them may help.

Continued on page 115... ▶▶

dpa

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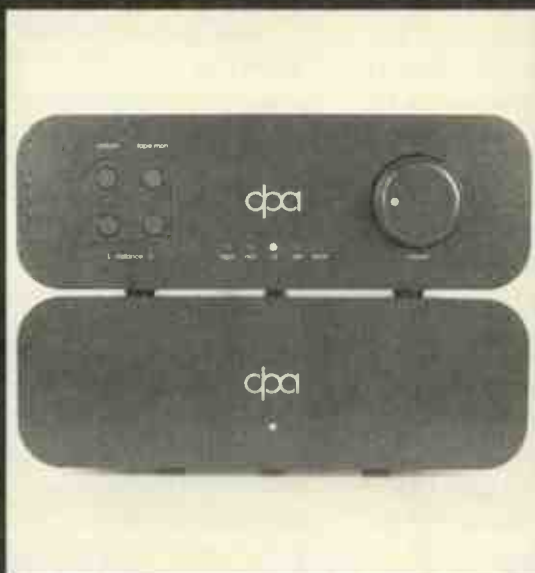


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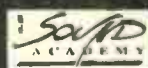
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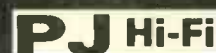
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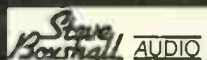
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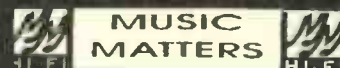
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.... Continued from page 113

This is a general rule of thumb for most transmission-type loudspeakers. In this case the 'speakers are in compromising positions in respect of the room. The room has great length and height ratio. This means in order to preserve the bass, the 'speakers need as much environmental reinforcement as possible.

The essential 'kicking' area (200-500Hz) which corresponds to approximately 2-4 feet is effectively diffused and minimised by the present location. The shelving behaves like a low frequency absorber/diffuser resulting in the apparent rise (prodigious boom) in the alcoves and lack of bass in the listening position. Furthermore, the left and right channels are separated by the inglenook, resulting in two independent rather than interactive channels. There is a distinct possibility that, as you acknowledge, the alcoves are operating as independent resonators. This means that at some stage in the signal

path there is potential phase cancellation resulting in further loss of signal integrity. Finally, the two settees act as absorbers and also attenuate low frequencies.

The solution: move the 'speakers to the opposite side of room where they will benefit from the more solid structure. The response will be far more linear and natural. The amplifiers will also breathe a sigh of relief because the room acoustic will be providing a natural reinforcement and amplification of the signal: lower operating power, greater head room and signal dynamics. The far wall (inglenook, alcoves and bookshelves, will now act as effective mid to high frequency diffusers resulting in a more accurate sound stage and improved presence.

Also try to avoid absolute bi-lateral symmetry. With regard to your diagram, both settees are equidistant from the 'speakers and the room boundaries. I suggest you try alternatives in order to break up any standing waves

and redirect any possible problematic reflections.

**DF-D
BALANCED BASS-
HEAD**

I am planning to upgrade my system in the near future and need your advice on amp and 'speaker combinations.

After reading your DIY supplements and loudspeaker reviews, I have short-listed the following: IPL S3s; Mainhattan Acoustics CT77 and the TDL RTL 2s. The amplifiers I've considered are the Aura VA-50 (1st choice), Denon PMA 350II, or a second-hand Audiolab 8000A, if I can obtain one cheaply.

As you can see, any combination of the above components will give me loads of bass; that's what I'm after, but I don't want to end up with something that is unbalanced. Since you have recently built the two kit 'speakers the advice you could give me will be the only thing I'll have to go on, so the merits and faults will be quite important. Can you help?

Also I have a Pioneer PL 12D turntable. Is it possible or even worthwhile fitting a decent arm and cartridge to it? I listen, mainly to alternative indie music - much the same as Dominic in fact. I hope you can help. Current system: Technics SU 610 amp; M/Short MS310 'speakers; Aiwa AD F40 cassette deck; Sony ST 70 tuner and a NAD 501 CD (soon).

**Derek Anderson
Fife,
Scotland.**

For the kind of music you're into the CT77s are excellent. They have superb bass depth and dynamics, but without sounding unbalanced. The bass isn't peaked up or forward, just fantastically deep. Bear in mind though that you will need quite a large room to realise their full potential. Mike Malone of Tabula Rasa, the importers of the Mainhattan CT77, now lives in Scotland, so it

may be possible to arrange a home demonstration before you buy - always worthwhile. Give Mike a call. Tel: 0334 838841.

Of the amplifiers you mention, the Aura VA-50 has recently been replaced by the VA-80, but you may be able to get a bargain on the VA-50 if there are still some in the shops.

Otherwise, as you seem willing to shop for second-hand, there are a few other amplifiers worth keeping an eye out for. The Mission Cyrus II has a lovely sound, and there are thousands of them around to pick from, starting at £80 for a Mk I, and up to £200 for a mint condition latest spec. version. Beware of the Pioneer A400 though, which although extremely good, would not work especially well with the CT77s because of its full bass and may lead to the unbalanced sound you wish to avoid.

The PL 12D is not really worth the effort of a new arm, tune-up etc. For under £200 both the Pro-ject 0.5 and I are superb value and would be a far better bet.

By the way, the NAD 501 is a good choice; it has a sweet and smooth sound that is more enjoyable than that of most budget players. **DB**

ROB'S QUEST

After being a student for six years and on the dole for a further year, I have finally got a job. With my new-found wealth I would like to improve my hi-fi system which I've built up "on the cheap" from warehouse clear-outs and second-hand bargains. Unfortunately, my budget is still tight due to the debts built up over the last few years; I have about £400 to spend.

Unfortunately, my upgrade path is not too clear to me. My current system

Continued on page 117....



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comprises: Rega Planar 3 with homemade Linn-based suspension system added, Linn Basik LVX, Goldring 1042, Cambridge CT50 cassette deck, Technics tuner (only used for listening to Radio 4), Cambridge C70 pre-amp, Quad 303 power amplifier, Heybrook Solos on very sturdy, open, spiked stands, Tannoy gold-plated leads throughout, Cyrus solid core to the 'speakers and a Target wall shelf for the record deck.

Firstly, I want to get a CD player (I had a Marantz CD40, but have now given this to my father). My intention, at the moment, is to get a cheap CD player now and to add an outboard DAC later (the CD40 has no digital output,

The second option is to blow all the money on one component in my system - £400 would get me an Arcam Alpha CD player, £300 (£100 for XC-333) could be spent on new 'speakers. I like my solos, but I think their high frequency end could be improved (the Solo's tweeters can ring at certain frequencies, though this has been largely cured by sticking Blotak behind the tweeter flange) and I would like to improve the depth and height of the sound-stage.

Would the Quad 303 drive Epos ES1s, or would I be better trying a BBC studio monitor derived 'speaker? I like the Heybrook Quartets - should I wait until I can afford these? (Some time in the future I'd like to try my hand at building a valve amp and so

impressed with the valve amps I heard at the Bristol Hi-Fi Show. I could just about afford to get your K5881 kit now, but I don't think my Solos would be a good match. Also, I think I would like to try my hand at the Maplin valve amp kit, on which I could test my soldering and electrical skills, before I put too much money into a valve amp kit.

I would be interested to hear your opinions on my various options.

My hi-fi is kept in a room 4m X 5m with a bay window at the opposite end of the room to the 'speakers.

I listen to a wide variety of music from Rock and Blues to Classical (via Jazz); everything except House, rave and Disco which I enjoy when I'm "out on the town", but wouldn't want to bring home!

Have you any thoughts on doing an article on information which is now available via the electronic mail and Internet News. There are a number of computer sites, especially in the States, and news groups dedicated to hi-fi news, views and information, all of which are accessible in Britain via modem. I think many of your readers would be

interested in what is available. I got information on how to rewire my CD40 for a digital output from an Internet news group.

**Rob Nichols
Leeds.**

Congratulations on finding a job at last. We can't make sure you spend your limited budget of £400 perfectly, but we can hopefully steer you away from what I would consider to be mistakes.

I've used a Goldring 1042 and an Elite and, even though I like MCs, I significantly prefer the 1042, even if it is a bit warm and fulsome. The

Elite, in my view, has vague or smeared treble, due to an inferior stylus, even if it does come across initially as more up-front sounding, with good imaging. If you want to change to a budget moving coil, try an Ortofon MC15 Super MkII, which is a cracker.

If getting a CD player is a priority, perhaps to be able to use a CD collection you have built up in the past, then a good player might be the best investment at present, since a good DAC costs around £500 minimum. Rather than going for a stand-in like the Aiwa, try a good budget machine, like a NAD 501 or a Philips £D740 Bitcheck player. Get a demo if possible. Then at least you'll be able to listen to something half decent until you've the loot for something more ambitious.

Since you seem happy enough with the Quad 303, and it's a good workhorse, then perhaps you should stick with it, at least until the 'speakers are greatly improved. However, the 303 is warm and a bit woolly in its sound, being bettered sound quality wise even in its day. I do not recommend you buy another for bi-amping; this is a bad idea.

For £200 or so you can get a very decent modern loudspeaker and here I believe you should consider spending the other half of your budget. Harman Kardon LS0300s are a bargain at £200 and are sensitive enough too for a valve amplifier in future. Again, do try and audition first at a dealers, a close stockist being Bill Hutchinson hi-fi.

This approach spends your cash on good, modern budget products, ones that will last quite a few upgrades elsewhere. I don't think you should blow your money on mediocre dribs and drabs, even if they do look like bargains. You're just buying in more mediocrity. **NK**



NAD's 501 is a super budget CD player with a smooth sound.

though I do know how to wire one in). I am thinking of getting an Aiwa XC-333 which, at £100, is too good a bargain to miss. This would leave me £300 which I would like to spread around the rest of the system. Around £70 would get me a second 303 to bi-amp, £169 a QED Opto (Positron power units to be added when funds allow) or possibly a Dac-in-a-box, and the rest on a Goldring Elite cartridge. I like the tonal balance of the Goldring 1042, but I also like the better imaging I've heard with moving coil (eg. MC15).

it would be good to have the Quartets ready for this future upgrade).

Another option is to improve my amplification. I am very pleased with the Quad 303, which at the price was a great buy and a significant improvement over the Arcam Alpha 2 it replaced. However, it is very long in the tooth and I wonder whether I would be well advised to change it for something else, like a Moth 30 series power amp.

As I said earlier, I would like to try a valve amp in the future, since I was very

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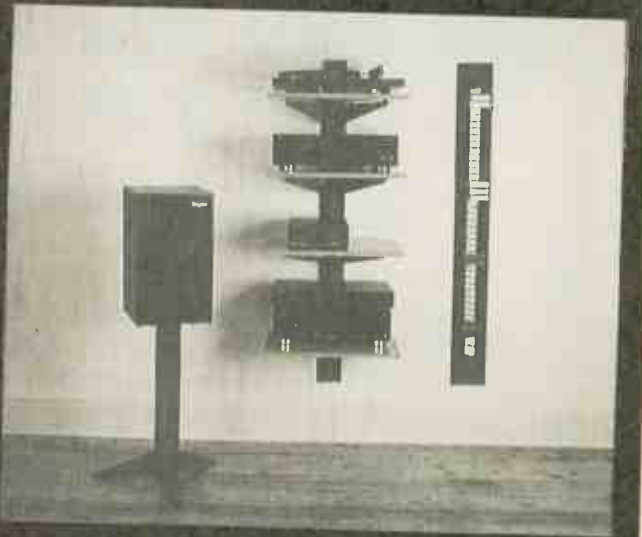
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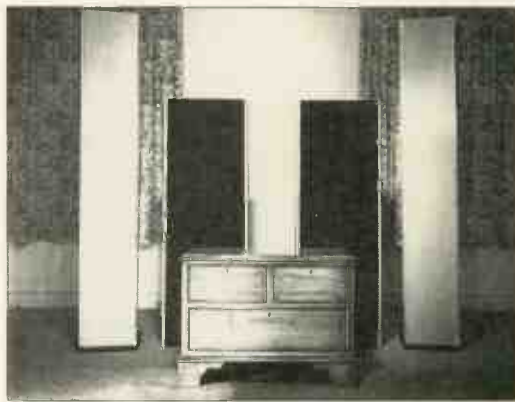
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WANTED: SHURE VSTV Hafler Ins: Sugden AU51P or YBA3. Selling: Shearme Phase I pre £450, Power £550; Voyd Valdi + Moth + Goldring Electra £475; Audio Innovations S500 £495. Tel: 071-730 1614.

PAIR LEAK Stereo 20 rebuilt and mono-switchable. Leak Troughline FM Tuner. Moth Series 30 Monoblocks and passive pre. Offers? WANTED: Keith Monk's record cleaner. Tel: (0223) 327 280 - answerphone.

QUAD IIs, 22 and FM2, recent Quad service, groove tubes, £370 o.n.o. Tel: 01280 817321 evenings.

WIFE WANTS Spare Room Back! Sugden A28 Class A amp £125, Quad 33/303 pre/power amp £125; Leak stereo 70 £45, Delta 70 £50; Marantz 2215BL Leak 1800, Pioneer SX-450 receivers £45 each, KEF Reference 104ab speakers £65, KEF Delta 2 speakers £45, Celestion Dittion 22 Speakers £60, Richard Allan Chaconne speakers £45. Guildford 0483 - 233952.

ARCAM ALPHA 5 CD £300. Gale 301 MK II Loudspeakers £175. Musical Fidelity B200 Integrated Amp £150. All boxed in excellent condition. Tel: (071) 652 1960.

MERIDIAN 203 DAC, excellent condition. £200. Tel: 0592 772806 (Fife).

UNWANTED INHERITANCE. QUAD QCII Controller. Quad FM3/30/303. Quad ESL Gold (Pair). Garrard 401/SME 3009/Plinth. All with original manuals. £600 o.n.o. Tel: 0633 614919.

MICHELL SYNCRO Turntable - RB250 Arm, Nagaoka MP-II Boron, 13 months old. Pristine condition, boxed £280 o.n.o. WANTED: Quad 44/405 MK2, must be in excellent condition. Tel: 0582 573286.

MICROMEGA SOLO II C.D. Player, top loader. Warranty to match, new £1,600 accept £825 o.n.o. Audioblast 8000A MK1 Amplifier, £160. Musical Fidelity Ref 4 speakers. Black, £400 new, sell £160. Tel: (0271) 46300.

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SPENDOR BCIII, custom stands and cables £600 o.n.o. Demo possible. Tel: 0689 874 438 evenings. Near London S.E.

ROYD TOPAZ £173, sell £85. Royd Sintra II £375 sell £299. TDL N.F.M. £119 sell £65. N.A.D. 306 amp 50 watts £329 sell £249. All as new. Boxed. Demo. Tel: 0865 59737. Steve.

GYRODEC RB300 Linn K18 £450. Revox A77 33/4 - 71/2 Dolby, cover remote control £475. Lecson API and AP3 pre/power amp £400. Yamaha cassette deck (wedge shape by Bellini) TC - 800GL £85. AR CD4 Player £60. All above very good condition. Stored last 3 years. Tel: 081-948 7694.

RADFORD STAI 5, SC2 pre power £390. Rogers cadet 2 pre/power £90. Cadet 3 pre/power £85. Garrard 401, SME 3009 £95.00 o.n.o. Pioneer PL12D £25.00. Reading (0734) 314269.

LESLIE SPEAKER Model 825 400W Two Channel Pre-amp. Two Speed Foot Control. Suit organ/disco. £250.00 o.n.o. Tel: 0323 411 807.

GOODMANS ACHROMAT 400s wanted. Working preferred but anything considered. Depending on response to this ad, may have pair of RB 35s for sale, excellent condition, £40. Tel: 081-777 8939 (anytime) Roy.

LEEK STEREO 20 original mint condition. Sounds superb. £225 Leek Vanoslope Stereo Pre Amp £45 Leek Troughline II Tuner £60 Linn Asak Mc Cartridge, little use £80. Akai Tape Deck £45 Offers invited. Please ring evenings 0629 733634.

KENWOOD M-76G 6 component mid system - cost £830 - absolutely as new with boxes £620 o.n.o. Also Hitachi music centre cost £450 as new £120 o.n.o. Tel: 0278 455165.

AUDION 300B signature (prof model) monoblocks. Audion Active Valve Preamp with Dual PSU. Audio Innovations Nova Transformer. Audio Note silver SP spk cable 4 x 1.5 mtrs. All as new, will split. Offers. Tel: 0635 36599.

LINN SONDEK LP12 black ash, Valhalla, mint, virtually unused with brand new Ekos MK 2 arm and K18 cartridge fitted last week with full service & set up. £1,395. Phone: 081-658 8091/0973-228 114.

NAIM 32/140, NAIM 32/Snaps/250 / Hi-Cap/72 MM MC Quad 34/405/2 Quad 66/606. Linn Kabers (rosewood) Naim I.B.L.s want latest spec. Oracle Delphi Michell Gyrodec. Garrard 301 Linn Akto. Linn Ittok. Rega RB250. Koetsu Black Linn Troika Linn K18/K9. All mint and boxed. Best offers secure. P.X. considered. Tel: 0742 486493.

QED DIGIT Modified, Rogers Cadet. Garrard 301, 401. Quad electrostatics. Leak Vanoslope Musical Fidelity B200 amplifier, MC2 speakers, Heybrook stands Heathkit valve tuner, MA12 monoblocks, Partndge and Magnequest SE300B OPTX. Tel: 0642 559543.

PINK TRIANGLE PT-TOO Turntable, with external power supply. SME Model 309 Tonearm and OTC-5 cartridge. Superb sound/condition. Cost £1,500 new, must sell hence £550 or best offer. Guildford (0483) 34599, Chris evenings.

LINN ISOBARK DMS Loudspeakers, black finish, immaculate condition, with Linn spiked stands. Awesome sound, can demonstrate. Original boxes. £975. Tel: (0487) 840023 (Cambs). Evenings.

NAIM SBL LOUDSPEAKERS, black, passive crossovers £895. EPOS ES14 Loudspeakers, walnut £200. Target sand filled speaker stands £30. Sound Organisation table £20. Mike Tel: 01799 530839.

ROKSAN XERXES Deck, Artemiz arm, black, excellent condition. Boxed £875 o.n.o. Free Shiraz cart not working worth £200 as your part exchange. Tel: (0903) 261931 Sussex.

STAX LAMBDA Signature Headphones. SRMT1 Valve Energiser. Mint. Boxed. £825. Revox G36 tape recorder. Superb. £495. Musical Fidelity P170. £300 P150. £175. 3A preamp £175 P180/CRPS £675. Exposure VII preamp/quality PSU £275. Linn. Valhalla (Black)/Ittok. Eroica. Excellent. £585. Quad ELS Loudspeakers. Bronze £300 Nakamichi 600 cassette £285. Leak Troughline. Stereo. Hard case. Superb £150. Sony SW1 Radio £90. Might P/X. Revox B77? Wanted Ampex or similar reel to reel tapes. Tel: 0225 868819.

301 STROBE GARRARD WITH MAT £100. BBC 301 £150. Strathclyde 305M SME 3009/11/1 AT155 LC £120. Rogers HG88 MkIII Amp & Tuner £200. Troughline Stereo £80. Quad II Control Mono £25. Goodsell Williamson Amp, KT66s, offers. Leevers Rich E141M valve mono studio tape recorder, swap for 3 head cassette or Croft Micro or FM4. Armstrong Pre & Monoblock power amps, excellent condition. Offers. Tel Liverpool 051 734 0965

MICRO SEIKI CD-M100 the CD player with the Analogue sound and the looks to please the wife. New £4,000, sale price £750. John 0276 62765.

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MERIDIAN 203 DAC-7, superb first upgrade £230 ono, boxed in superb condition. Tel: 0254 812881 (eve) 061 773 9121 (X2945 day)

GARRARD 401 £150, Quad 34 £125, NAD402 £90. Musical Fidelity 2A £110. Dual CS503/2 unused £85, Koetsu tonearm. £175. All items in good condition. Most boxed. Tel: 0280 701145.

LINN LP12, Ittok, Trak + K9, 45 adapter, boxed, instructions £450; Rogers HG88 MkIII, fine integrated valve amp. £180; Armstrong 526 receiver £50; Cyrus 2 amplifier boxed, £80; KEF B110 drive units, unused boxed, £50 pair; Decca C4E, £50. Tel: 0121 706 2068 (Midlands).

LINN ACTIVE SYSTEM: LP12, Lingo, Ekos, Klyde, Kank, Kaim, Aktiv Keilidhs, two LK100s. Less than two years old, original cost £8,000, will accept £4,000, or may split. Wigan Tel: 0942 272187 (eve).

ARCAM DELTA 170.3 CD transport + Black Box 5 DAC (January 1994); Sync-Lock, remote; classic Arcam style and effortless sound; immaculate, boxed, save £500 on original rp: £650. Tel: 0608 811349. (Oxon).

ORIGIN OL2 SPEAKERS for sale in new Walnut finish, brand new, will accept £500. Tel: 0634 361640 (home).

NAIM NAT 02 tuner wanted, will pay £500 plus carnage. Tel: 010 3531 4591432.

CAMBRIDGE CD2 CD player: digital output, no box or remote hence £125; Thorens TD160 Mark II, classic turntable, includes Mission Solitaire cartridge, good condition, excellent sound, £85. Tel: 0480 460502 (Cambridge area).

LOWTHER BICOR 2000, balanced horn 'speakers' (mahogany) each with two new PM6 drive units, 98dB, incredibly dynamic and detailed sound, comparable 'speakers over £2K yours, £629, may p/x. Tel: 0274 545219.

SUMO POLARIS 100 wpc class AB solid-state stereo power amplifier, £375 ono; Art Audio VPI active/passive valve pre-amp, including phono-stage, £320 ono. Sage Digtirap £10. Tel: 01962 851802.

GARRARD 401 HOUSED in satin black plinth, SME 3009 S2 + fluid damper, Nagaoka MP11 Boron cartridge Goldring sound cones, excellent £225 ono. Anston RD110 Rosewood. Linn Akto, Linn K5, spare arm board, immaculate, £230 ono. Tel: 081 669 1088 anytime (Sutton/Croydon).

MUSICAL FIDELITY MVX-2 pre-amp, £950, Marantz CD94 with Tnchorp mod., £950, Spondor SPI 'speakers, £400, Spondor S100 monitors, £950 both with stands. Tel: 071 584 8494 (day) 071 352 1786 (eve).

SME 3009, no headshell, Ortofon arm and headshell, Ferrograph reel-to-reel, Truvox RE102, connoisseur BDI for spares, offers or p/x for Rega RB300. Tel: Patnck 081 443 4860.

LOWTHER PM6-A (Alnico), drive units, pair with Acousta, Blue Print £195 ono, new. Tel: 021 705 1060.

MARCONI SPECTRUM ANALYSER, Audio 110 MHz £650, TF2100 precision AF oscillator, £60; precision level meter/attenuator for above £40; Dymar THD meter £70, 25MHz digital storage scope £195; double-beam scope, £75, Marconi sig. generators to 470MHz £60. H/Packard RF generator to 65MHz, £55 TF 2700, precision RCL bndge portable, £110. Tel: 0344 27869.

ARCAM DELTA walnut veneer, £185, KEF Quattro (C10 and CS200 subwoofers), £165; Gale 301 Black Ash veneer, £170, Dual CS505, £65, AR18BX, £80, all boxed vgc. Tel 0257 263403 (Lancs)

WANTED SQ quadruphonic decoder, working condition. Please Tel: 0543 671265, anytime.

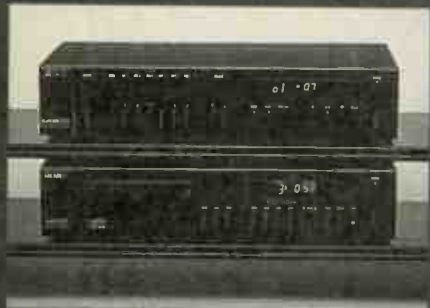
TANDBERG 3001 FM tuner, retail price £2,300, high spec sensitivity/selectivity sound, very good condition, working perfectly; official UK service available, £300, ex Dublin. Tel: 010 3531 4591432

SUGDEN AU41 pre/power, £350; Linn Helix c/w stands, £215; Mission 730 c/w stands, £140 (all mint); DPA PDM1 MkII, £220 (good); Mission 700, £100 (excellent). Tel: Michael 061 304 8400 (day) 0204 651540 (evening), can demo.

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FISHER STEREO with Garrard 401 turntable: all-valve tuner, thirty years-old, still good, offers invited.
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Call Richard on (01276 684561 anytime (Surrey).

MERIDIAN 200 (MK1) transport and 203 (DAC 7), both boxed and mint condition, buyer collects, £600 for both.
Tel: 0565 632796

GARRARD 401, SME 3009 arm with M75 ED cartndge on plinth; Leak Delta FM tuner; Armstrong 521 amp, £170, the lot, or ono.
Tel Tony, 081 535 6647 (day)

LINN LP12 CIRCUS, Naim ARO, Troika, £1,400. Exposure X1 pre-amp, £1,700. Naim SBLs, black, £1,350; Exposure V X-over + PSU, £750; Meridian 201, £500; SME IV, £500, all excellent condition.
Please phone: 01934 522 635

NAIM CD1 CD PLAYER, 2 years-old, little use. £1,200; Elite Rock 2, van den Hul rewired RB300 OC9 cartndge, five hours use. £700.
Tel: 0803 297691 (Torquay/South Devon)

AUDIO INNOVATIONS A500, new Sovtek valves, £500; Michell Mycro RB300, Goldring 1042, £350; original packing.
Tel Paul: 0702 467757 (Southend)

LP12 LINGO EKOS, boxed, excellent condition, £1350 ono, Roksan Xerxes, £495 ono*. Artemiz Arm, £375 ono excellent condition boxed
Tel 0903 261931 *free Shiraz cartndge not working, worth £200 as p/x.

LINN ISOBARIKS lead-filled stands, VDH cable, £950; Denon DCD1520; remote volume, audiophile quality, £245; Thorens TD160B £100; Rotel RT550 tuner, £35; Audioquest Topaz £30; Magnum MF250, 125 Wrms, £220; Yamaha KX630 cassette, remote/c, all excellent condition p/x.
Tel: 0206 861457 (eve).

STAX SPD 6/SRS classic electrostatic earspeakers, £50. Wanted; Afrosmosia sleeve for Quad 33/FM3 and excellent Garrard 401 chassis.
Tel: 0625 535299

LINN SYSTEM, black Sondek latest spec. £500; Lingo, £500; Ekos, £750; new Troika, £500; Kaim £900; LK280, £350 each; Active X-over, £600 Kabers Active, £700.
Tel: 0753 851429 (eve).

LINN SONDEK LP12, Linn Basik plus tonearm & Sound Organisation Table, £230; Linn Kans/Kan stands, £200; 'Dual' C808 tapedeck, £25; Naim Nait amp, £200.
Tel: 0892 862369.

WANTED: BEARD PIO1 amp.
Contact: J. Bos, J. Teulingslaan 95, Amstelveen 1187 SH, Netherlands.
Tel: 206458715.

MISSION CYRUS 782 'speakers black Ash immaculate condition, boxed with stands only 1-2 hours use, house move forces sale. Cost £400, bargain £300.
Welwyn Garden City
Tel: 0707 322962.

**STAX LAMBDA SIGNATURE headphones; SRM T1 valve energiser, extension lead, £395; Sony ST 700 ES tuner. FM/MW/LW 'Best Buy' 1987, £130. All mint condition.
Tel: 0752 773369 (Plymouth).**

COLLECTOR SELLING CLASS mint as new boxed Hi-Fi Revox 436 respected by Revox; Teac A3440 7.5"15" 10.5" reel; Quad ELS Black, protection boards, late model; Thorens 124/III/SME, Yamaha receiver CR1020. New spare for above.
For details.
Tel: 0202 823818.

QUAD 22 power and pre amp set unused since recent Quad service (documented), £330.
Tel: 081 806 7289.

LFD LS2 LINESTAGE pre-amp, cost £1,100, sell £600; PSI power-stage, cost £650, sell £375; PA 1 power amp, cost £750, sell £450. Having to spend crazy money to better this sound.
Tel: 0884 32465.

QUAD III/22 CONTROL unit stereo valve amplifier, vgc, recently overhauled, £295; Quad 33/303/FM3 with Afrosmosia sleeve, vgc £299; Ferragraph series 7 hi-speed reel-to-reel, £95; Wharfedale Dovedale 3 pair, £50. All can be demonstrated.
Tel: Andrew on 0420 479343 eves/w/ends, or 0344 413203 (day)

MISSION 78 AMP, £95; Revolver turntable, Linn Basik LX arm, K9 cartndge, £100, Yamaha K320; cassette deck, £95; £345 the lot (cost £1,000)
Tel: 0746 766362 (Shropshire).

KT 66 VALVES for sale Marconi/GEC boxed, seven at £20 each or £120 the lot; Rogers Cadet 3, £60; Leak Troughline 3 Stereo 30 in case, £95, call Alan.
Tel: 01604 846465.

MICHELL QC power supply, new £225 ono; Tesserac Gyro power supply, new £305 ono.
Tel: 081 854 6738.

SPENDOR SP2/2 in Rosewood with Madngal (Mark Levinson) rewired inside + Fram stands A1 condition, £600 ono. Anston turntable RD 80SL with Alt 1 ADC arm and NAG mp10, cartndge £100 ono A1 condition. Decca London cartndge (maroon) needs retipping, £65.
Tel: 0482 831652.

FOR SALE PIONEER M-73 power amp class A/B switching, Rosewood end cheeks, boxed, beautiful condition, £350. WANTED, Carver M400A power amp Cube-shaped, must be good condition, no silly prices.
Tel: 041 881 1748.

LINN LP12 Lingo, Akito, K9, 2 years use, £650 ono; Denon POA6600 monoblocks, 2 years use, £650 ono; Counterpoint SA6 valve m/c stage, £200; Audioquest Emerald interconnect, 1m pair, £100.
Tel: 0782 415 699.

SONUS FABER Minima Amators, £100; AVI 250wpc poweramp, £900; Audio Research LSI, £750; Orelle CD10T/DA180, £875; Orange valve pre-amp, £400; Huygens stands, £110, half-price Mardngal/Deskadel cables.
Tel 021 427 6661 (Roy)

ROKSAN XERXES deck with Rega RB300 arm, excellent condition, £325.
Tel: 021 350 0744.

REVOLVER TURNTABLE with Linn LVX arm and Linn K9 cartndge, mint condition, £130 ono; WANTED, Audio Technica AT OC3 cartndge.
Tel 0245 267872, or 0585 491353.

RADFORD STA 25 with SC22 control unit, excellent condition £450.
WANTED single mono Armstrong A10 Amplifier, also Technics EPA 500 arm or arm tubes and Decca SC4e cartndge.
Tel: 0533 626508 (anytime).

**MISSION DAD 5 CD player, boxed as new £100.
Tel: 0703 328573 (Chris, Southampton)**

MUSICAL FIDELITY TEMPEST amp and matching CD2 CD player, cost £650, £250 mint, prize win.
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Tel: 071 372 3724

JBL 4X L-100 monitors, Signature series, £395 pair; Tannoy Chevening, HPD 295, £275 pair; Rogers 2-way export monitors, £195; Yamaha B-2 power amp, massive dual supply, £495; Thorens TD-126 Mk4, Thorens arm, brand new, £295; Vitavox S-3 drivers, new + Vitavox Radial horns, used £595
Tel: 071 625 8966.

NAIM/LINN buy sell: 52, CDS, 250, 135, 140, SBL, ARO etc.
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QUAD 606, £400; Equinox pre-amp, cost £1,800, sell £650; Ruark Talisman speakers, £500; Pink Triangle Ordinal DAC, £530; Micromega T Drive T DAC, £1,400.
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**AUDIO INNOVATIONS series 300 Mk1 integrated valve amplifier, fitted with upgraded valves, mint condition, boxed, only £200. Absolute bargain hence no offers.
Tel: 01403 254992 (after 6pm).**

SNELL E11 speakers teak with Pirate stands, excellent, boxed, £600
Tel: 0255 675115

REGA ELA Loudspeakers, £265; Cyrus 3 amp, £360, or exchange for Nait 3, both mint boxed as new.
Tel: 0638 508193 (eve until 10pm)

PAIR SUPERB LOWTHER Acousta horn speakers (walnut), original (Alnico) PM7 units, £375; Garrard 301 mint, £150; Troughline tuner, perfect, £75; Quad and Leak valve sets. Phone for details.
Tel: 0364 72153.

NAIM NAP 135 monoblock amplifiers, great sound, excellent condition, All leads, original boxes, £1425 (pair), Surrey.
Tel: 0372 452529.

DPA PDM2 two box DAC complete with Deltran clocking unit, £1,600 ono.
Tel: 0883 653165. (Surrey)

NAIM NAP 135 power amps, excellent condition (boxed), old style case can demonstrate or deliver (cash sale). Price £1,325 ono
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CROFT MICRO A PRE-AMP with series five power amp, £500. Will not split, no offers Please phone Steve.
Tel: 01922 640737 (Walsall, West Midlands).

AUDIO NOTE SINGLE-ENDED 300B amplifier, as Kit One, £750 as kit, will sell for £680 Complete and in perfect condition Croft Micro A pre-amp, £160.
Tel: 092872 4589.

TOWNSHEND ROCK reference Excilber tonearm, boxed, just serviced by manufacturer, £2,200; B&W Silver Signature 'speakers mint complete with State Audio stands, cost £6,000 accept £2,800. Concordant Exquisite pre-amp, £1,450; Alphason 4 tier Rosewood rack, £140; Roksan Xerxes RB300 supply 3, £495.
Tel: 081 450 7384.

MONOBLOCKS 2 PAIRS; one pair Denon POA4400A, 140 watts each, boxed as new. £450 (cost £900); one pair Sugden PI28 vgc £300, both can be heard (bi-amped?).
Tel: 0634 365153 (Kent).

HFV KLS-I 3-WAY speakers, oak veneer, 18mm MDF cabinets, external crossover, boxes, silver-plated cable. Too large for new house, excellent condition, £335.
Tel 0902 374786 (Wolverhampton).

WANTED TRIO L-07D turntable, working or not. Also spares, accessories, packaging etc. for same. Good prices paid.
Tel: 0782 680 376.

AUDIO RESEARCH V 70 power amp (black) mint, £2,700; 5 metre pair sterling silver interconnect £100
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KEF 104/2 ROSEWOOD Reference series, vgc (new £1,000) asking price £600 ono, can demo. Deliver within reasonable distance.
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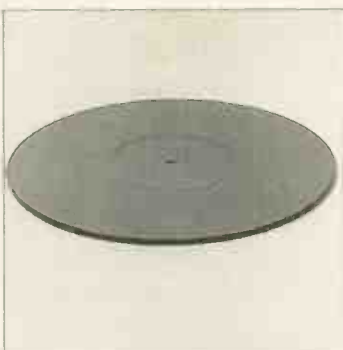


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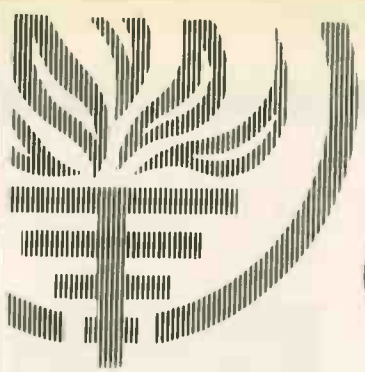


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You will have seen in the December '94 issue of **Hi-Fi Choice** a free to enter competition run by **Electrocompaniet**. (advert page 52) Please ensure your cotton buds are returned to Norway **by 31 January '95**

This issue of **Hi-Fi World** offers a repeat opportunity, **Electrocompaniet** advertisement (see page 40 of this issue) your cotton buds from this issue must be returned to Norway **by 31 March '95**, winners of both draws will be notified by the countries official distributor, countries with no official distributor, the winner will be notified directly from Norway.

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AUDIO RESEARCH SP-8, £700; Quad 606(II) and Quad 34, £650; NAD Monitor pre-amp, £90; Leak Stereo 30 plus amp and Troughline stereo tuner, £140.
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IMPULSE HORN H4 speakers, £550 ono or swap for Epos ES14 plus stands; Townshend Rock turntable with Roksan Tabnz arm with Isoda interconnect cable £350 ono.
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NAIM NAIT 3, 2 months old, £400.
Tel: 0235 765986.

FOR SALE PR TANNOY Oxfords, £100, PR Rogers L55s, £75, Nait 2 amp; £250, PAS-02 passive pre-amp Penny and Giles pot, £150, Hart phono amp with power supply, £75 ono. R Dadson, 27 Sydney St. Folkestone, CT19 6HG

NAD 7120 stereo receiver, 5330 CD player (slightly marked), 6050 C cassette deck, all good working condition and value at £50 each; Monitor Audio R252 speakers £50 pair Tel: 0482 898322. (Hull).

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IMPULSE HORN H4 speakers, £550 ono, also Townshend Rock turntable with Roksan Tabnz arm, £350, both excellent condition. Phone after 5pm Tel: 081 658 2490.

QUAD SYSTEM, 67 CD player, 66 tuner, 66 preamp + remote, 606-2 power amplifier, £2,000 ono, months old; Triangle floor standing speakers (on offer), rebuilt Garrard 401 turntable, £125 ono, Logic turntable + Datum arm and cartndge, £100 ono; Project 2 turntable + arm, £75 ono; various speaker stands and cables.
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BLACK LINN LP12 Valhalla/Fidelity Research FR 64 tonearm vgc. £495 ono; Counterpoint SA20 power amp; Hybnd 420 w/cd 4ohm 220 wpc 8ohm. Immaculate, £780 (new £3,000);
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LEAK SANDWICH Mk II speakers, excellent condition original boxes and interconnectors. £120; Leak Troughline Tuner 3 vgc. mono £100; Wharfedale Isodynamics headphones, £20 ono
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ART AUDIO VP I valve pre-amp Golden Dragons, Pearl Coolers, £250. Blackhead MC transformers (by Tim de Paravicini), £50 Eroica and Orfon X3mc cartndges, offers
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LINN BASIK turntable, arm and K9 cartndge, barely used, £300.
Tel: 0248 351193 (eve. Bangor)

MISSION CYRUS 2, £195, Nakamichi BX1, £195; Linn Index speakers £200, Technics SL-P220, £125 Goodmans Acromat 100 speakers £100; Castle Richmonds, 65, Dovers £145 (rosewood) Leak 2200, Stereo 70, Troughline (stereo), Sandwich speakers, £265, the lot, Garrard Turntable, £35
Tel: 091 3873205 (anytime).

SME V GOLD new boxed £1,195. Quad II (pair), £295, Quad 22 pre-amp, £25, Quad 4 pre-amp, £165, Musical Fidelity A100, £165, Quad ELS (serviced), £350, Leak Troughline II (stereo), £165.
Tel: 0444 459196.

CROFT BEST EVER, the Mega pre-amp from Nottingham Analogue for £3,600, extra large power supply and separate pre-amp box £2,050 ono. Leak stereo 20 and pre-amp, £220.
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WANTED ROGERS CADET II. Contact: Lars Berggren, Lohegatan I B, S-633 55 Eskilstuna, Sweden.

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DPA DSP 50S 3 box pre-amp, disc stage and power supply, £625 (£1,320), LFD PA1 power amp, £425 (£999); Creek T40 tuner £100. Answerphone.
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ARCAM DELTA 90 2 amplifier, Arcam Delta 80 tuner, Arcam 70.3 CD player, Castle Chester speakers, all boxed, very low use, only just over two years old mint condition, £1,300 ovno.
Tel: 0564 770429.

BEREAVEMENT SALE of Quad system: 606 power amp, 44 control unit and FM4 tuner, £750. Also ESL-63 Electrostatic speakers, £1,500. All in excellent condition.
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LINN KAN II, bi-wired walnut with Linn stands immaculate, £295, plus Linn speakers cable K400 2x6 metres, £75 and K20 2x9 metres, £45, both bi-wired; current prices per metre £14.95 and £5.95, respectively.
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AUDIO NOTE ANJ speakers (walnut) as new, £325, Lowther Acoustas, new PMA drive units, £250; Nagaoka TSI I cartndge unused, £25; Empire 000 MkII cartndge unused, 320.
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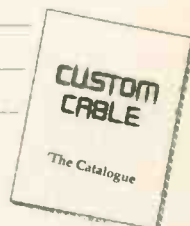
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