Digital has truly come of age

Our old first generation friend, CD, is already looking decidedly like Old Hat. Super Audio CD and DVD Audio are with us, assuming you can find the titles you want (rather than the titles they want you to have) at a record shop near you, or indeed in a record shop anywhere. Music (and gadget) lovers can revel in the multitude of ways to store and play their (compressed) music, from home or portable hard disk players, hand-held memory card players, or the humble home computer itself.

So why do we fill our adverts (and our shop) with obsolete mechanical machines from a bygone age to spin huge discs at 33.3 and 45rpm with a sharp diamond on the end of a moving arm to read tiny squiggles in the vinyl? How quaint!

We have the largest selection of vinyl players anywhere in the UK (and possibly further afield too) - just a small selection on this page

More importantly, nobody assembles and tunes turntables like we do - to perfection!

Warning!

We have a huge selection of accessories for the vinyl enthusiast which can be purchased either by personal callers to our shop, or by mail order world-wide. Please consult our web site for product details, and how to order.

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email: mail@walrus.co.uk
web: www.walrus.co.uk
Fifteen years ago, anyone who expressed an interest in valve amplifiers would have been quietly spirited away to the funny farm. After all, tubes were the province of old timers reminiscing to their pub pals about the good old days, and solid-state was where the future lay...

How times change! Even a decade back, if you'd told me that a serious hi-fi magazine would one day devote an entire issue to the charms of the thermionic valve, I'd have eaten my turntable mat.

But here it is – inside this month's Hi-Fi World you'll find a wealth of tubular belles which show conclusively that valves are a worthy foil to solid-state. You'll find golden oldies (literally in the case of Leak's seminal Stereo 20 amp on p36), cutting-edge moderns (like Graaf's direct-coupled GM20 amp on p16), and some fascinating combinations of old and new (in Dynavox's DynaStation CD player on p22 and Musical Fidelity's Tri-Vista 21 upsampling DAC on p24).

Tubes have abiding benefits that transistors do not. Poorly designed valve product sounds like poorly designed solid-state – dreadful. But a well conceived valve circuit using proper passive components and suitably skilful output transformers will amaze. You'll be disarmed by the clarity, speed and insight possible. Just read our amplifier supertest on p11, and you'll see what I mean!

And just as one 'old technology' seems to be enjoying a second wind, so another is flourishing. Despite the runaway speed of new digital developments, vinyl is thriving and we're seeing a riot of new 'black plastic' players. Roksan's new Radius 5 turntable is one of the most significant of late, and on p50 you'll find out why it was this month's cover star.

Orelle is another name that hails from far back, and it too has recently reinvented itself. We loved the SA100evo amplifier last month, and this issue showcases the superb CD100evo silver disc spinner on p60. Add LJK Setright on 'how musicians listen to hi-fi', a wealth of leading industry figures on the joys of glass audio and an essential twelve page supplement on classic hi-fi, you'll find this issue positively unputdownable!

How we test the products

- Hi-Fi World has its own advanced test laboratory and acoustically treated listening room.
- Hi-Fi World has a dedicated in-house team of experienced listeners. We review thoroughly by extensive auditioning, rather than by quick-fire group listening tests.
- Hi-Fi World's engineering team designs a wide range of products in-house. No other hi-fi magazine is so expert and dedicated.

WORLD VERDICTS: This issue marks a change in our rating system, to make it clearer and better understood. As a rule we only review products we find interesting, so don't expect too many low scores. Likewise, five globe awards will be few and far between because there's only one superlative product of its type. The £ sign remains, as we often come across flawed gems that are great value for money.

WORLD VERDICTS: OUTSTANDING Simply the best.

GOOD Worth auditioning.

VALUE Keenly priced.
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David Price tries a new DVD-ROM/CD-R drive that's as small as it could possibly be...

This new universal hi-speed memory card reader/writer gets the treatment from David Price.

An external SoundBlaster for the cost of a few CDs? Sounds good to David Price!

Win a Denon DVD-2900 DVD universal player in this month’s great competition!

The World team get to grips with issues facing both the industry and hi-fi alike.

The perfect mix - excellent coffee, a comfortable sofa, and someone who really knows how to guide you through the world of hi-fi.

Look before you leap, or alternatively listen before you buy. These are the people to talk to.

Not a call to the spiritual, but a list of manufacturers detailing who makes what, and how to get in touch.

Spare yourself the frenzied riot as you struggle with the hordes to claim the last copy of Hi-Fi World in the newsagent - Subscribe today!

Our list of products that have stood the test of time.

Thinking of an upgrade or even a new system? Here's where to find our recommendations from the mass of hi-fi we've reviewed.

The definitive place to find classic audio components.

David Price looks back to the wonderful world of nineteen seventies parallel tracking turntables, in the shape of Pioneer's PL-L1000.
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SILVER DREAM MACHINES!
NAD’s new C521BEE CD player can be purchased in either the company’s traditional gunmetal grey finish or a striking new ‘silver’ Titanium, to match NAD’s award-winning low-cost integrated amplifier, the C320BEE, which is also now available in the new finish. The two machines cost £199.95 and £219.95 respectively. Look out for a review in next month’s issue, or if you can’t wait that long, then call 01908 319360 or click on www.nadelectronics.com.

MERIDIAN’S NEW G-FORCE
Meridian Audio has launched no less than a dozen new G Series products, which are claimed to “define new standards of A/V performance and full-system flexibility”. The range includes three basic families of all-new designs: four variations of optical disc CD and CD/DVD player/ transport/ controller - two with extended, preamp-like capabilities; four components including surround processor/ tuner, preamps, and a two-channel receiver; and three power-amplifiers including stereo and multi-channel models. The G Series products cater for those seeking ‘analogue’ systems using passive loudspeakers, and several arrangements of Meridian’s DSP digital loudspeaker models.

Each model boasts stunning new industrial design by the redoubtable Allen Boothroyd, featuring full-width, all-metal construction with Meridian’s traditional black-glass accents. The sleek finish, available in pearly silver or all black, is highlighted with an all-new user interface accessed by front panel or remote, rotary volume controls and flexible, customisable key layouts. The new G91 DVD Audio Player Controller (above), at £3,895, forms the heart of a high-performing, efficiently-integrated system, comprising audio/video disc player, stereo digital preamplifier, and AM/FM RDS/ RDBS tuner in a single component. The addition of a pair of Meridian Digital Loudspeakers or active speakers (or a G Series amplifier and passive speakers) completes an extremely effective two-channel A/V set-up. For more details, check out www.meridian-audio.com.

PLANAR PERFORMANCE
Rega has a new upgrade kit for its classic Planar 2 and 3 turntables, which it is now fitting to the very latest P2 and P3 models. The company says that, “the new P3 motor upgrade uses no active electronic trimming devices and combines remarkable cost-effective engineering producing extremely low vibration...

As our new motor assembly has virtually no vibration, it can be directly coupled to the turntable plinth using the latest in adhesive pad technology... (providing) a highly effective drive train from the motor pulley through the drive belt to the sub platter. This process reduces both wow and particularly flutter, resulting in more control accuracy and detail”. Go to www.reg.co.uk for more information.

TAG BACK ON TRACK
Following TAG McLaren Audio’s ‘strategic review’ announced on July 28th – which many industry insiders feared would presage the end of the marque – we can report the happy news that the company is to continue manufacturing at its purpose-built Huntingdon facility, although it will now focus on home cinema products and be ‘resized’ accordingly.
ART ITALIA
Since 1954, Italian audio specialist VIETA has been making innovative products, with the emphasis very much on style. Its Adagio Prestige model, for example, was exhibited in New York's Museum of Modern Art, as an example of industrial design. Its new Latino 5.1 Home Cinema Speaker System (£499.99) boasts extruded aluminium cabinets, Neodymium magnets, full magnetic shielding and unique VDC (Vieta Dynamic Controller) technology, based on psycho-acoustic studies to optimise the bass response in the amplified subwoofers. The Latino system includes the accessories necessary to hang the small wall satellites, which can also be mounted on the optional Latino Floor stands. Both 'speakers and stands are available in white and aluminium finishes. The satellites measure 140.4x106.8x101.4mm and weigh 874g apiece. For more information, call 01494 723 444 or click on www.vieta-uk.com.

BACK TO BASICS
The Micro Basic is the new baby in the Clearaudio range of phono preamplifiers. Ideally suited to starter systems, it claims "exceptionally high performance for the price". The power supply is kept separate from the chassis to allow high power supply capacity whilst keeping unwanted noise and distortion to a minimum. Hand-selected parts are used, and the circuitry is laid out optimally for high channel separation.

TWO PURE
PURE's new £159.99 EVOKE-2 is a battery-powered standalone DAB and FM radio. Its maple wood casework surrounds a pearlised white front with silver grille and control panel with scrolling LCD text display, station selection, tone and volume knobs and button controls for presets, band selection, display settings, power and auto-tuning. EVOKE-2 has integrated stereo full range hi-fi speakers and features a reflex port for enhanced bass performance. An optical digital output for DAB is provided, allowing connection to a hi-fi system with digital input or recording to MiniDisc. Stereo line-out is also available via a 3.5 mm socket for analogue output of DAB and FM. Click on www.puredigital.com for details.

PIONEERING STUFF
Following in the footsteps of its pricier DV-757i and DV-656 big brothers, Pioneer's new DV-565A DVD player features universal playback capability, supporting DVD-Audio and SACD high resolution audio formats. Another new feature is JPEG PhotoViewer that allows users to display digital photos from CD on a large screen. Available in silver or classic black, with an ultra-thin design, it spins all popular disc types and content formats including DVD-Audio, DVD-Video, SACD in both stereo and multi-channel format, CD, VideoCD, MP3, CD-R/RW and DVD-R/RW. Check out www.pioneer.co.uk for details.
THE NECK STEP
After many years producing conventional head and in-ear phones, Sennheiser has come up with its first ever 'neck band street headphone', the £29.95 PMX 60. It's claimed to be an upgrade to any personal music player, offering 'great wearing comfort with excellent sound and clean modern design'. A bass tube gives rich, full bass, in conjunction with the ultra-lightweight diaphragms for fast transients. A highly conductive OFC copper cable is included, along with the company's usual two year guarantee. Vital statistics are a frequency response of 18-21,000Hz, 24 ohm impedance, less than 0.5% THD and 55g weight. For more info, call 0800 652 5002 or click on www.sennheiser.co.uk. Whatever next?

NEW ACT
Wilson-Benesch's A.C.T. SILVER is a stunning high end loudspeaker boasting a wealth of novel construction techniques. Costing £8,400, this Sheffield made box boasts unique welded metal internal architecture, rigid alloy baffles, a carbon fibre monocoque chassis and wood veneers by Rolls Royce dashboard craftsmen! Claimed to be the first loudspeaker to be assembled entirely from metal and carbon composites, the 24 different materials used in its construction are said to provide the ultimate rigid structure. All the structural components used in the new A.C.T. are Carbon Fibre composite and metal 'engineering materials', and the front baffle and internal bracing are also metal. Bespoke options available in any colour or any veneer. For details, call 01142 852 656 or point your browser at www.wilson-bensch.com.

UNDER COVER
Specialist hi-fi retailer Hi-FI Corner has launched a bespoke online home hi-fi insurance policy. Managing Director Colin MacKenzie says, "The majority of insurance companies today don't offer cash if your hi-fi or audio visual equipment has been stolen or damaged. Some insurers and loss adjusters receive advice from companies whose main expertise is selling cheap products at very cheap prices. Often a policyholder will be offered a voucher for a high street store where there is little hope of receiving decent replacement equipment. Hi-Fi Corner have therefore launched their own home contents and buildings insurance product, backed by a leading U.K. insurer... Quotes are available without having to go through a vast multitude of screens. By having only an online quotation system it means that premiums can be kept low. Our sister division works with the insurer backing the policy so we are very confident that anyone with decent equipment will not lose out to poor replacement advice". Details can be found at www.hificorner.co.uk/insurance.htm.

THE BEST OF BRITISH!
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Salisbury's most serious CD spinner to date!
CAMBRIDGE CD540
The ultimate in affordable digital esoterica?
CREEK T50
Like its predecessors, the best budget tuner?
MUSICAL FIDELITY kW
Yikes! Can its absolute power corrupt us?
EAR 890
Tim de Para's ultimate valve power amp?
Introducing an electrifying ‘first’ – a breakthrough for home entertainment. Now A/V sounds as good as NAD. For 30 years the critics have raved about NAD audio innovations. Winning awards has become something of a habit for us. Now you have the advantage of NAD sound quality in a more stirring, more emotion-packed A/V experience. Our engineers call it PowerDrive™ and it’s an NAD exclusive.

Film soundtracks truly come alive, music is maximized – suddenly your entire cinematic experience is heightened with sensational sound.

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Shown here: T562 DVD/CD Player and T752 Surround Sound Receiver.

www.nadelectronics.com
Valve amplifiers are invariably described as soft, warm or even coloured, but aren't necessarily any of these things. They vary enormously in their sound, covering a wide range of tonalities. One thing's for sure though, a good one calls into question "the transistor sound". In this month's supertest, we've auditioned some of the best ones at their respective price points, and thrown in Sugden's A21a pure Class A transistor integrated for good measure — to see how tubes stack up against the sweetest solid state has to offer. Noel Keywood does the technical stuff, while David Price lends an ear...

Because valve amplifiers are relatively simple in their circuitry, and there's not so much room for innovation, there are plenty of "back shed" jobs around. Most use poorly designed and constructed output transformers which hamper sound quality.

Old classics can fare poorly against modern designs too and again it's poor transformers that are responsible.

Get past all this to a good design, well executed and you simply find yourself with an amplifier not vastly different from a conventional transistor amp in performance, yet with a substantially different presentation. In a nutshell, you get a supremely smooth, natural sound that resolves the tonality and richness of vocals and instruments in a way that eludes solid-state, along with superb stage depth and openness.

Even amongst good valve amplifiers though, large variations of tonal quality exist. At one extreme lie conventional types using modern power output valves in push-pull configuration to deliver around 40 watts per channel. Configured much like designs of the 1950s-60s before transistors arrived, but with modern components that give them a significant advantage, amps like this are sensible workhorses.

Americans like their rugged yet linear KT88, a Kinkless Tetrode, whilst Brits can still enjoy the KT88, a Kinkless Tetrode, now manufactured in China and Russia. Good designs with valves like these give all the cleanliness of solid-state, together with the benefits of valves and, most importantly, they deliver plenty of volume with today's loudspeakers.

At the other end of the scale lie SETs, or Single Ended Triode amplifiers. These represent ultimate simplicity and purity. The triode in itself is deeply linear (little distortion, unlike transistors) and single-ended working eliminates the complexity of push-pull. There are big drawbacks, notably low power; most SETs produce 3-9 watts. Big single-ends can produce 18 watts or so, but are large, heavy and run hot. All the same, the latter in particular provide a sound that's quite beyond solid-state. Silky smooth, sweet, detailed and vastly atmospheric they're in a world of their own, but only real enthusiasts should consider residency, but we test a good one this month - Unison's S6.

A tiny but interesting category worth a quick mention is based around transmitter power triodes like the 211, 845 or fearsome 212. Using dangerously high voltages they can provide good levels of power and a degree of dynamism that's breathtaking. Reliability and servicing are such a problem these amps are impractical.

Because the output transformer is so difficult to design and — especially — build, there have been plenty of attempts over the years to eliminate it. So called "direct coupled" types often use an output capacitor. True direct coupling is potentially dangerous. A seemingly good idea, in practice a lot of compromises have to be made to achieve it and sound quality invariably suffers. There are some good solutions though, and we test one this month - the Graaf GM20. Another common distinction made in valve amplifiers is that between auto-bias and fixed bias. Auto bias is simple, eliminates adjustment and sounds good, especially at high power. Fixed bias gives more power but usually demands bias adjustment using a multi-meter, not the sort of thing most users expect to get involved with. Fixed bias amps overload much like solid-state — suddenly and unpleasantly.

A good valve amp is a wonder, but there are a few things to be considered before buying. Output valves have a lifespan of 3,000 hours or so. They should be replaced in pairs and this can be expensive. A push-pull amp has two pairs - and 300Bs can cost up to £ 250 apiece! Servicing and repair costs should be checked before buying, because as with some cars they can be steep. Labour, carriage of a heavy item and specialist parts like matched valves or output transformers can add up. All the same, tube heads swear by their amplifiers and there's no doubt that they're a great listen!
A solid-stater starting our great tube superestes? Yes! Some feel solid-state working in pure Class A, where the thing runs scorchingly hot - gets very close to a good valve amplifier. The A21a is known to produce tonal colour. So is a specialised solid-stater like this really any match for esoteric valve amps?

The little A21a - heat production apart - is totally conventional and has no fear factor attached to it. Better still, it comes with a phono stage option, a balance control and even a mono button. This doesn't just make sense of old Beatles tracks, with drums at left and vocals right (!), but it can be useful if you feed in a mono source from something like a TV.

There is one little drawback though; the A21a produces just 24watts per channel so it must be used with sensitive loudspeakers and, ideally, they should be 8ohm types. This means big floorstanders like the Revolver R45s we used, or similar.

Long and low, the Sugden is beautifully built by a company that pays little attention to what anyone else is doing. Its simple, milled slab of a front panel is superb and the controls work smoothly. At the rear lie gold plated 4mm binding posts. Long heatsinks either side radiate away the heat, there is no fan, so the amp is silent.

The A21a sounds quite unlike any other amplifier you'll hear. In a sense, it inhabits a nether world between solid-state and valve, and as such explicitly highlights the problems with both (although, it isn't without bugbears itself). Essentially, it's a tremendously clean sounding bit of kit, but that's not clean as in sterile, dry or clinical (which is traditionally what we think of when this epithet is used), but clean as in unsullied, There's so much music trying to get out of this amplifier, in all its full, wide, colourful glory - and mostly, it succeeds. Only the lack of power - which makes partnering to the right loudspeakers - holds it back.

The superb 1972 EMI recording of Rachmaninov's Piano Concertos in E sharp minor (op.1, vivace; Vladimir Ashkenazy) on CD shows this amplifier's supreme hear-through clarity. Although fine detail and depth perspective can't match the very best, there's still an almost 'glass clear' window onto the recorded acoustic with an unsettling lack of mud or clutter. There's a strong and propulsive bass, that's just a tad on the warm side, and a deliciously subtle and finely etched treble - but it's that gorgeously open midband that does it for me. By contrast, even fine, well respected rivals such as Cyrus's 8/PSX-R sounds nasal and congested. Best of all is the aforementioned tonal palette - strings have body and tone, brass has rasp and resonance. It's addictive, and for this one can forgive the Sugden its meagre power output and lack of physicality and impact. Exquisite, and a hard act to follow...

**MEASURED PERFORMANCE**

- **Power**
- **CD/tuner/aux.**
- **Frequency response**
- **Separation**
- **Noise**
- **Distortion**
- **Sensitivity**

<table>
<thead>
<tr>
<th></th>
<th>24watts</th>
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</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>6Hz-31kHz</td>
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<td><strong>Response</strong></td>
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<td><strong>Separation</strong></td>
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<tr>
<td><strong>Noise</strong></td>
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<tr>
<td><strong>Distortion</strong></td>
<td>150mV</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>190mV</td>
</tr>
</tbody>
</table>
The Unison S6 uses Single Ended operation, which eliminates crossover distortion, so it really is quite a lot different from the norm. - and pure Class A. Unison keep size down to manageable proportions, especially considering that there's no less than 28 watts per channel from three EL34s working in parallel per side. The amplifier is monstrously heavy, because the output transformers must contain plenty of iron!

The output valves and input double triodes lie under a neat, hinged grill. On the front panel are a volume control and input selector; the power switch is on the rear. The case is comparatively narrow, but deep.

There are four inputs, all at line level, plus a tape in/out with accompanying monitor switch. Unlike the Soro, if you want to use LP then an external pre-amp will be needed, valve or solid-state. Outputs are provided for 4 ohm and 8 ohm loudspeakers and, nowadays, even in the UK it is wisest to use the 4 ohm tap, since most - if not all - loudspeakers use 4 ohm bass units.

The S6 is a sonic step up from the Audionote Soro SE. It's actually a pretty close rival to the Audio Research Vsi55. Whereas the latter is a big, bruising American powerhouse of an amplifier, the S6 is an altogether more finessed and fragile Italian exotic.

The Rachmaninov disc was a revelation. Whereas the Soro gave a different presentation to the A21, the S6 gave a comprehensively superior one. From the opening bar, it's so open and uncoloured - much in the same way as the Sugden, yet more so.

On Mike Oldfield's remastered 'Tubular Bells part II', for the first time I could explicitly hear the full envelope of the notes from the opening keyboards, not just the attack but the decay too. There was a lot more detail and clarity, taking me right into the recording. While the A2la had a good stab at this, it was ultimately just a little looser and more veiled in the midband, but the S6 seemed relentlessly incisive. It was able to eke out oodles of very subtle detailing, and - importantly - string it together in a brilliantly cohesive way. Its genius was its ability to show the rhythmic accents of those keyboard parts. Its dynamic prowess was superb too - starting speed allied to real welly made for a very forceful and emotive performance. It has real bass power and punch to match its excellent grip.

The only downside is just a touch of brightness in the midband - and I do mean just a touch. The S6 has a 'well lit' upper mid, although it isn't actually bright or forward as such. The EL34 output valves are probably the cause, since they are known to be a trifle hard. Many will ameliorate this with vinyl and sympathetic speakers, so I wasn't particularly troubled by it. Overall though, the S6 is superb and something I for one would love to live with.

MEASURED PERFORMANCE

| Power (watts) | 28 watts |
| Frequency response | 6Hz-54kHz |
| Separation | 74dB |
| Noise | -75dB |
| Distortion | 0.55% |
| Sensitivity | 230mV |

VERDICT

Tremendously musical and light sound with real finesse and subtlety too. Fantastic value.

UNISON RESEARCH S6 £1,625
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www.ukd.co.uk

NOVEMBER 2003 HI-FI WORLD & COMPUTER AUDIO
**AUDIONOTE SORO SE**

**VERDICT**

Satisfyingly smooth and fulsome sound that's best suited to simpler, gentler acoustic music.

The Soro SE looks much like any hi-fi amp, but it's a niche product for people who'd normally buy mass market kit for fear of the unusual.

Inside, you'll find the rugged Russian 5881 tetrode, three per channel, to develop a claimed 18watts running in single-ended (SE) output configuration.

The front panel carries all the facilities normally found in a modern amplifier, including balance, but not tone controls. The rear carries four ohm and eight ohm outputs.

For the price of a decent solid-state 'super integrated', the Soro attempts to give you a taste of something altogether more esoteric — and succeeds. Compared to our Sugden solid-state reference — which itself sounds quite exotic compared to, say, Arcam's popular PMJ A32 — the AudioNote is an extremely wild and esoteric experience. It has character and colouration in equal measure. It doesn't attempt to give A21a-style transparency, but rather is all about lavishing warmth and sweetness — that pure, good old fashioned, unreconstructed valve sound — on the listener.

Whether that 'sweetness' was actually there in the recording in the first place never really troubles the Soro SE.

The Rachmaninov disc gave an altogether wider and more expansive soundstage than the Sugden. It generally hung just behind the plane of the 'speakers, and pushed out into the room when required.

Tonaliy it was pure saccharine with just the smallest slice of lemon in the upper midband. Bass was warm, soft and voluptuous, midrange smooth and hazy and treble syrupy. Christina Aguilera's 'Can't Hold Us Down' showed a very subtle hardness in the upper mid, the Soro falling victim to this disc's acidic sonic balance — I suspect that with vinyl, you'd never hear it.

It was precisely with this sort of uptempo power-pop that the Soro SE performed least well — it still made a nice noise alright, but you could tell that the bass was struggling to keep time with the midband, and the need to kick our serious power to convey those electronic, synthesised bass notes proved troublesome at higher volumes.

Move across to Jackie Leven's 'Desolation Blues', and suddenly you had one of the more arrestingly atmospheric and moody renditions of the track I'd heard — by contrast, the Sugden seemed all too thin and matter of fact. That's the thing about the Soro SE — it's all about the valve experience. Whatever the music, you get a smooth, silky and sumptuous sound — whether it suits the song or not. As such, with simpler and less dynamic (read: more contemplative and moody) music it's stunningly effective, yet somehow loses the plot when asked to get physical.

By contrast, the Sugden is more consistent, regardless of whether it's Motorhead or Mozart. Where the Soro is coloured, the Sugden has more tonal colour. Buy with this in mind.

**MEASURED PERFORMANCE**

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<thead>
<tr>
<th>Power</th>
<th>10watts</th>
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<tbody>
<tr>
<td>CD/tuner/aux.</td>
<td></td>
</tr>
<tr>
<td>Frequency response</td>
<td></td>
</tr>
<tr>
<td>Separation</td>
<td>60dB</td>
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<tr>
<td>Noise</td>
<td>83dB</td>
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<tr>
<td>Distortion</td>
<td>0.4%</td>
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<tr>
<td>Sensitivity</td>
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The Soro produces a limited 10W per channel. The input stage gave a cleaner sine wave close at full output. It needs sensitive headphones if it is to go loud.

Measured distortion levels were high, but comprised mainly second harmonic. Valve amps get progressively more linear as level decreases though and the Soro was no exception, so providing it is not pushed too hard it should sound clean and clear.

Frequency response through the CD input was a normal enough 7Hz-24kHz and noise low. The amp has a very high input sensitivity of 85mV.

The phono stage needed just 14mV for full output, so it will work with high output moving coils. Equalisation was accurate and there is a fast roll off below 20Hz to suppress wow signals. The Soro will exhibit a little bias except when used with high output MM cartridges.

The Soro measured well enough in all areas and it has a good valve phono stage. Power output is limited. This is an amplifier for listeners, rather than headbangers. NK.
Audio Research seek to make best use of standard valve circuits and techniques, aided by modern solid-state control electronics. The VSi55 has remote control of volume, for example, and delayed switch-on. The chassis is strongly built and well finished, although it is folded with unwelded seams - an inexpensive and unlovely construction method.

This amp uses three 6N1P input and driver valves and two 6550EH (Electro Harmonix) output tetrode valves per channel, operating in push-pull. The amplifier switches on muted, so it’s silent and fear-free at start up. A line of green LEDs on the front panel shows the volume setting and input switching is via relays. The VSi55 has no phono stage on-board, it simply possesses an array of line inputs.

The rear panel carries 4ohm and 8ohm loudspeaker outputs, it also has sockets for bias setting with a voltmeter, since this is a fixed-bias amp for maximum power - it’s rated at 50 watts per channel.

Whereas the S6 is a very Italian design, which is brilliantly fast and lyrical with oodles of passion, the VSi55 is an altogether more muscular and formidable contrivance — like the Terminator! It is less subtle, less fluid and less graceful than the smaller, more nimble and fleet footed Unison Research but what the hell - it rocks! It thunders out vast amounts of power and punch with absolutely no sign of stress — enough to nail you against the back wall. Anyone who thinks valve amplifiers are limp-wristed designer accessories for 'hi-fi hairdressers' will be slapped down by this behemoth. Hell, even Naim owners will like it!

Amazingly though, it’s no big, clumsy, club-footed monster and has great depth to match its real steel. The Rachmaninov disc showed this to be almost the most commanding and authoritative of the group. Soundstaging is panoramic, somewhat akin to standing on a mountain top. Images project boldly out into the room and hang back for miles - the result being that the 'speakers largely disappear. Bass is very strong and grippy — although obviously more big-boned than the Unison Research, it’s less subtle and fluid and can sound ever-so-slightly plummy compared to the ultra tight, taut Italian. Still, we’re not talking fat splurging dollops of low frequencies, a la Audionio Soro SE here - it’s perfectly swift enough to keep time with the midband and make everything great fun.

The midband falls down slightly. Whereas the S6 is tremendously incisive and uncoloured the VSi55 is a little less finely etched. Rather, it prefers to deal with the big picture, taking the key themes of Tubular Bells' and firing them out of the 'speakers like a pump action shotgun. The major downside of the Audio Research is its treble, which isn’t bad but doesn’t have the smoothness, sweetness and detail of the Italian. Overall, it’s superb in a big hearted, powerful, straight down the line American sort of way.

### MEASURED PERFORMANCE

| Power (4ohms) | 49 watts |
| Frequency response | 5Hz-70kHz |
| Separation | 83dB |
| Noise | -92dB |
| Distortion | 0.014% |
| Sensitivity | 420mV |
| dc offset | 10μA |

**VERDICT**

Tremendous power allied to a wonderfully musical sound makes for a brilliant listen.

**Audio Research VSi55 £2,895**

SOLUTE SOUNDS

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w.absolutesounds.com
Stunningly capable product that combines superlative neutrality with fantastic punch.

Graaf achieves a standard of finish in its Italian Modena factory (close to Ferrari!) that is remarkable even by the best hi-fi standards. The GM20 is remarkable in other ways too: it's a direct-coupled amplifier with no output transformer or capacitor. Consequently, it has output protection circuits to guard against excessive d.c.

Rated at 20 watts per channel from its 6C33C triodes operating in push-pull the Graaf reportedly uses a Circlotron (1955) circuit, around which a small 6dB of feedback is applied to aid loudspeaker matching. Output impedance is high, so Graaf recommends loudspeakers of 8 ohms or more are used.

Valve bias and d.c. offset must be adjusted every 1000hrs of use. All valves are inexpensive, but the output 6C33Cs come as run-in, matched pairs from Graaf.

The amp can be run direct from any CD, SACD or DVD player via a passive preamp. It can be mono'd to provide 65 watts and better drive 4 ohm loudspeakers. There's a balanced input as well as normal (unbalanced) one, and the output is balanced by the nature of the circuit.

From the first bar of 'Tubular Bells' you can hear the incredible insight it has. Fantastically explicit, it throws out masses of detail in a way that leaves even the S6 wanting. If the Unison is a muggy spring afternoon, then the Graaf is a brilliantly crisp autumn morning – it sounds so much fresher and more tactile than even the S6. Yet, despite its supreme midband clarity, it is even smoother: There's no sense of the S6's slightly chromium plated upper midband – it's almost as if the amplifier itself just dissolves to let the music's inherent tonality shine out.

Christina Aguilera's 'Can't Hold Us Down' was a case in point. It's a forward and somewhat challenging recording, but the Graaf managed to scythe through the glare and hardness and get right into the groove. It was both better focussed and yet less tiring than the Unison. Amazingly however, it gives almost nothing away to the barrel chested Audio Research in terms of power, having masses of stomp and thump down in the bass. 'Can't Hold Us Down' is a highly syncopated bit of modern dance music, stopping and starting relentlessly and kicking out vast tracts of low frequency energy. The Graaf made a brilliant fist of it, with tremendous grip allied to amazing articulation. Basslines were wonderfully fluid yet ginned out with breathtaking power.

Up top, its treble is exquisite – way better than the Audio Research and usefully more atmospheric than the Unison Research. Violins were vibrant, wonderfully separated, full in body and natural in timbre – a breathtaking sound. Orchestras were presented with a scale and force quite unlike other amplifiers.

The GM20 is a stunning product, one that's both charismatic yet disarmingly self-effacing – it succeeds by taking you closer to the music than you'd think possible. Must be heard.

**MEASURED PERFORMANCE**

<table>
<thead>
<tr>
<th>Power</th>
<th>20 watts</th>
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<tbody>
<tr>
<td>CD/tun/aux</td>
<td>3Hz-82kHz</td>
</tr>
<tr>
<td>Frequency response</td>
<td>80dB</td>
</tr>
<tr>
<td>Separation</td>
<td>-103dB</td>
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<tr>
<td>Noise</td>
<td>2.3%</td>
</tr>
<tr>
<td>Distortion</td>
<td>300mV</td>
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<tr>
<td>Sensitivity</td>
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The GM20 has an unusual measured behaviour. There is quite a lot of distortion even at low power, 2.3% at 1 watt and less, and although its prominently second harmonic there's third harmonic too, as our analysis shows 1% full scale. The third harmonic strengthens with level, sharpening up the sound. The amp triangulates near full output of 20 watts, due to third harmonic, generating 4% total harmonic distortion.

The GM20 is not a low distortion amp by any means and performance worsens substantially into loads lower than 8 ohms. It must be used with 8 ohms or, preferably, more. Unfortunately, high impedance loudspeakers are usually insensitive.

Bandwidth was very wide, measuring -6dB at 30kHz and 1kHz. Noise was low and separation wide.

The Graaf produces more distortion than conventional valve amps, especially at low levels where valves are usually very linear. It's a distinguishing feature of the GM20 and one that doubtless will affect its sound. NK
If anyone tells you that valve amplifiers are necessarily ‘warm’, ‘woolly’, ‘rose-tinted’ or ‘coloured’, then they obviously haven’t heard this little lot. Here is conclusive proof that tubes can sound just as different as transistors — in fact, I’d say the differences between the Audionote Soro and the Graaf GM20 are easily greater than, say, Sugden’s A21a and Arcam’s FMJ A32. The fact is that whether an amplifier uses valves or not does not prescribe its sound. Rather, it’s the fundamental circuit topology, type of tubes, make of types and the quality of the output transformers which determine the sound, and not simply the fact that they glow in the dark and make a clicking noise when you switch them on or off.

All amplifiers — either solid state or tubular — are compromises. Each one is a particular take on the eternal price vs. performance dilemma. In the £1,000 bracket, you have a wealth of choice. There are lots of ‘super integrateds’ from the likes of Cyrus, Naim, Arcam, Myriad etc al, and the Sugden A21a is probably the most charismatic. It’s not the best all rounder at the price, but given the fact that you have a smallish room and sensitive loudspeakers, and you value transparency and finesse over power and punch, then it’s the best you can do. It doesn’t sound like any other tranny amp I’ve heard, but then again it doesn’t sound like any valve amp either — so it’s a fascinating foil to the likes of Naim’s Nait 5 (on the lean and punchy side) and the Audionote Soro SE (on the warm and sweet side).

Indeed, the Audionote Soro SE is essentially a ‘my first valve amplifier’ — it’s a great way in to the world of glass audio, and has real merit. If you’ve never heard a tube amp before, but have formed an idea in your mind from anecdotal information, then this is probably the closest you’ll get to how you imagine it. Yes, it really is warm (and all the other clichés at the top of the page). Put simple acoustic music on at relatively low levels and users of even very tasty transistor amplifier users will be surprised at its wonderfully beguiling and enveloping sound — they’ll think, “hang on — why is this so good?” Put thumping, kicking dance music on and it trips over itself and betrays its budget status, however.

The trick is to buy it if it suits your music tastes and system, but leave well alone if not.

Moving to the Unison Research S6, and here you have a reasonably powerful product with exquisite styling and the ability to play any music and make it natural and enjoyable. It’s very engaging, lucid and lyrical — yet has plenty of punch and grip in the bass, commanding soundstaging and fine dynamics. It does both the musical stuff and the hi-fi stuff so very well that many will wonder why they should ever spend any more... This, allied to its delicious styling and fine build make it the best value for money in the group by far.

The Audio Research is slightly less accomplished in the midband and treble — there’s less incision and finesse — but it still works better overall than the Unison Research thanks to its tremendous power and scale. As I said last month, it’s ‘valves without tears’ — you get much of the excellent liquidity and musicality of the S6, but with wall shaking, flare-flapping levels of power. It will drive any modern loudspeaker reasonably loudly, and if you have a decent high sensitivity design (as indeed you should), then it will be the life and soul of your party.

This leaves the Graaf. For me, it is easily the best here. Take the strengths from both the Unison Research and the Audio Research and sum them, then multiply by two. It has tremendous power and articulation, allied to a startlingly clean and clear midband. In a sense, it sounds as stark and ‘transparent’ as any high resolution transistor design, yet lacks the inevitable ‘mush’ or ‘clang’ of solid-state. It is a resounding answer to those who trot out those aforementioned valve clichés — sit them in front of this and their jaws will be on the floor! Factor in a quality of finish that would shame an SME Series V (yes, really) and the look of those incredible 6C33C triodes glowing away, and it’s a stunning thing to behold. Funnily enough, its brilliantly clean and open nature is somewhat reminiscent of Sugden’s A21a, albeit on a far grander scale!
Put a power transistor alongside a valve and consider the differences. One is miniature, the other massive. One is very solid, the other has a deep vacuum. One passes current through semi-conducting materials, the other through nothing. So perhaps it’s no surprise they should sound so different, since differences could hardly be greater.

Valves are an audio amplifying device with no dielectric, very low current density and excellent linearity, so it’s no wonder transistors can’t compete. In real life of course, people want amplifiers of small size, low price and good reliability and in these areas advantage swings back to solid-state. All the same, valve amps have a big following and good ones demonstrate truly beguiling qualities.

THE PROS

A liquid sound, spacious, soft and warm are all descriptions you’ll find accompanying valves - and there’s some truth in all of them. A valve amplifier can provide a sound that is seemingly more natural (i.e. liquid) than solid-state amplifiers, lacking their hardness and graininess. Valve amplifiers also bring a sense of spaciousness to the sound, a stark contrast to the flat one-dimensional frontal imaging that a solid-state amplifier typically produces.

Feedback has a lot to do with this. As it is applied, so the sound tightens up and shrinks backward toward the plane of the loudspeakers.

These days the notion of ‘zero-feedback’ and ‘low-feedback’ have crept into transistor amplifier terminology as designers wrestle to improve their sound, lessening the sense of flatness and compression that heavy feedback brings. Unfortunately, reducing feedback increases distortion so there’s only so much leeway available with transistors. Valve amps have inherently low feedback, even when there is no output transformer and as a result usually sound dimensional.

Soft and warm! Not necessarily — a good modern design running 6550s or KT88s will sound as lively in its balance as any transistor amp. Historically, output transformers have been a cost burden in commercial amplifiers that limited their quality. They overloaded early at high frequencies and this gave rise to the soft, warm tone. It also made for treble muddle. Unfortunately there are still lots of mediocre output transformers around, since their design and manufacture is difficult, which complicates the task of choosing a good amplifier. Those that are well designed, however, are fully able to reproduce all audio frequencies, up to full output, and they sound neither soft, nor muddled.

And finally I must mention timbral resolution, or the ability to clearly reveal the difference between a violin and a cello! Not only do valve amps reveal tonal colour in instruments and singers, they also bring a tonal palette to music, something transistors swamp. All electronic components contribute to degradation here, giving the valve amp, with its low component count and lack of solid-state devices, an audible advantage.

THE CONS

Whilst a good valve amplifier can bring a sense of relaxing naturalness to any hi-fi system that’s a joy, there remain difficulties. Reliability isn’t always so good. Valves can fail and on rare occasion mains transformers and cathode resistors can burn out. They shouldn’t of course, but it only takes a batch of wire to have poorly applied insulation, or such like, for a transformer to burn out due to the high continuous load it’s under. Most are over-specced these days to avoid such things, but valve reliability can be variable, varying between batches, manufacturers and even local political problems! It’s best to be aware of this before buying, since if one output valve goes ‘phut’ in a push-pull pair, a matched pair is needed to replace both. This can cost from £20-£300.

Valves have a lifespan of many thousands of hours, after which they should be replaced. Reckon on 3000hrs for power triodes, around 4000hrs for later pentodes and up to 10,000 for small signal valves. But as designers of experience note, lifespan depends upon how hard a valve is driven. High power output from an amplifier with a specific valve type means the valve is being canned and will have a short life. Even toughies like the 6C33C regulator can exhibit very short life if driven too hard. Whilst this may not matter with inexpensive 5881s, it will matter with 300Bs in push-pull pairs. So acquaint yourself with valve costs!

There are eighteen factories worldwide producing new valves, situated in Russia, America, East Europe and China. New versions are appearing all the time, often better built than ever before. Also, NOS (New Old Stock) is available, meaning unused old stock. What’s for sure is that valves are not going out of production; quite the reverse, they are coming back into production, like Western Electric’s new KT88 for example (designed in Hammersmith, built in America). Warehouses and dealers are now common, so availability is rarely a problem and prices are reasonable, having come down steadily over the last decade.

Some amplifiers need bias adjustment. This requires a multimeter. These days good ones are cheap enough and the owner’s handbook should tell you how to twiddle. Also in your toolkit you need to keep fuses of the right rating, since if the fuse is run close to its limits for safety reasons, a few may pop out at switch on before one...
holds. Mains fluctuation can be responsible for this. If there are internal fuses, then find out before buying. Failure here could mean return to the dealers and a lot of hassle. Whilst valve amps can and usually do soldier on for years reliably, it's best to be realistic about the fact that they can also get temperamental. Repair isn't difficult though.

THE ETERNAL DILEMMA
Loudspeaker matching is a grey area. Nowadays, even in the UK loudspeakers commonly use 4ohm bass units, allied to 8ohm tweeters. With these it's best to use a 4ohm output tap. The rule is: run the speaker from an output impedance lower than the 'speakers quoted nominal impedance, commonly 60ohms in the UK. Loudspeaker sensitivity needs to be 87dB SPL at least for 40watt amps, rising to over 90dB for 20watt amps. Go for big, sensitive floorstanders, rather than small insensitive bookshelf types and listen carefully before buying, especially to bass quality. Bear in mind that big reflex cabinets are often lightly damped at low frequencies, relying upon the electrical damping applied by a transistor amplifier to pull them in line. With a valve amp bass may get floopy, in which case try using the foam port bung often supplied these days to tighten them up. Bass control depends upon the balance between electrical to acoustic damping within the loudspeaker. Where it does not, such as with a Quad electrostatic, valve bass is usually more lithe and expressive than solid-sate bass.

Finally, don't forget heat and safety. Big power amps will warm the room. Output valves can burn and dangerous voltages exist inside valve amps. Where children or pets roam it's best to use a cover over the valves, or place the amp on a sturdy shelf out of harms way. Valve amplifiers aren't the easiest things to live with. All the same, they bring to any hi-fi system a naturalness of sound that eludes transistors. Anyone wanting to relax in front of their system for hours of endless listening should consider one.

Name that Tube

But what to choose? Push-pull types, meaning most of them, are traditionally most sensible, giving plenty of power from a manageable large chassis.

Highest power is provided by fixed-bias working, but then bias needs adjustment. A sweeter sound comes from auto-bias (self-bias) and this technique eliminates the need for adjustment too.

More pure are single-ended types, but they usually have little power. However, in our test this month Unison's excellent S6 manages a massive 28watts per channel from single-ended working – impressive.

Then there are the SETs, or Single-Ended Triodes. These invariably use a quality valve like a 300B and are in a world apart for naturalness and smoothness of sound. It's worth listening to a good Single-Ended design before working down to something you can afford, not the other way around. Budget valve amps can be sufficiently mediocre to suggest any benefits aren't worth the hassle. And bear in mind that valves can sound quite different from one another. Here's what to expect:

EL34
When RCA of America developed the 6L6 beam tetrode power output valve and patented it, European Philips—who had been manufacturing valves as long and illustriously as anyone, had to find an alternative. They came up with the EL34 power pentode, released in 1953. It's a tall, slim but inexpensive valve very suited to the need of the day, notably high power from a small package. With good gain and useful anode dissipation, a mono amp could be built using two EL34s in push-pull and one triode/pentode ECF80. It would give around 40watts. This made the EL34 a sensible valve to use in commercial amplifiers. Mullard (owned by Philips) versions are good, but others less so and cannot be run so hard. The EL34 sounds a little soft and warm, but also a little clanky in the midband. It's a good valve, if not the ultimate.

6550
This is a stocky beam tetrode, developed by Tung Sol of the U.S. and released December 1954. Designed to give reliable service as an audio power output valve, it has low distortion and is popular in the U.S.A. Even today manufacturers like Audio Research prefer to base their amps on the 6550, because for them reliability and consistency are almost as important as sheer performance. Sound quality is very good, with a leaning toward dryness. All the same, 6550 amps well designed will have good dynamics and plenty of bottom-end slam. Expect around 40watts from a pair of 6550s in push-pull, using auto-bias.

KT88
GEC released the stocky looking KT88 in 1957, on the heels of their KT66 and KT77. The 88 is a power beam tetrode for audio use, the K standing for Kinkless, or lack of a distortion producing kink in the valve's performance characteristics. GEC published arrays of circuits around the KT valves and the KT88 is good for 45watts in push-pull configuration, with auto bias, a little less for longer life. With fixed bias it can deliver 55watts or so. Now back in manufacture at various factories around the world, the KT88 gives a super-clean sound that's quite shiny and almost transistor like. It has plenty of bottom end power and comes across as both fast and clean, in a good circuit. It's a fine power valve and a good choice for those who want the best of both worlds.
Introducing the latest addition to the Series 5, the Naim AV2 (Audio Video) processor. It not only enhances anything you listen to, it makes everything you watch come to life. People talk about 'Surround Sound', at Naim we immerse you.

THE ULTIMATE ENTERTAINMENT SYSTEM
5881
The 5881 is a rugged Russian beam tetrode designed for audio use. It is listed alongside the seminal RCA 6L6 (released 1936) and is also similar to GEC's KT66 — all are beam tetrodes. However, the 5881 from Sovtek is inexpensive, very well made, reliable and can take a beating. Unlike many 6L6s, its anodes won’t glow until things get really bad! It’s a really good general purpose audio power valve that gives a nice, clean sound. Perhaps not distinguished in any area, it nevertheless avoids the clunky colouration of poor EL34s and if accompanied by a decent thermionic supply can distinguish itself. The 5881 is a good choice for anyone wanting a reliable, inexpensive valve amp that delivers excellent results. It will give around 22 watts in push-pull, with auto-bias, a little more if pushed hard.

300B
First look at the price! 300Bs can be had in matched pairs for £200 or so. Individual valves usually coming in around £90. That’s a lot of money for one valve, enough even to convince original manufacturers, Western Electric of the USA, to re-open their plant (see www.western-electric.com), using any original employees still alive today! For a pair of WE300Bs you will pay £450, if you can get them. They are in heavy demand, and it’s hardly surprising for this is one of the best audio power triodes available. All the same, £900 just for a set of super-linear output devices is awesome. It’s enough to make any transistor manufacturer want to pack it all in, especially in light of the fact that the 300B is historic, appearing in 1938.

Yes, this is one simple valve; it doesn’t even have a cathode, so hum is a problem. But triodes are inherently linear, producing little distortion, and this one can deliver power, having 40 watts anode dissipation. A pair in push-pull with auto-bias manage around 28 watts if not pushed too hard. 300Bs are about the best you can get for creamy smoothness, a liquid delivery and a degree of mid-range insight and timbral resolution able to bring vocals to life. Hum, a high price and often poor support circuits (output transformers, power supplies, etc) all compromise its attractiveness and abilities, so beware. All the same, this is a classic.

6C33C
Something of newcomer, the 6C33C is strictly a Soviet valve, neither developed nor manufactured in the West. It is made exclusively in Ulyanovsk and had never been seen until the 1970s when samples started appearing, variously from Russian trawlers in Europe and a MIG 25 fighter that landed in Hokkaido, Japan in 1976. It’s a peculiar valve, structured to possess low impedances, so it can work with reasonably low voltages. Inside the bulky envelope lie two triodes strapped in parallel. With an anode dissipation of 60 watts it can handle almost double the power of a 6550. As a result this triode is becoming popular. Better still it is inexpensive, being priced at £25 apiece or so. However, close electrode spacings make consistency difficult to maintain and consequently matched pairs are needed for push-pull working, which raises price a little. With a vivid orange glow and short, stocky structure the 6C33C is something of an eye catcher. Although not developed for audio, it is well suited to this application. Sound quality was solid and well balanced in the GM20, with fabulous detailing.

211 & 845
These are transmitter triodes equipped with heavy duty graphite anodes. Best described as providing a sound that makes a Naim cower, they also need thousands of volts in the power supply to work properly and really are too dangerous for domestic use unless precautions are taken. The 211 first appeared in 1919. The 845 is a high power version. In push-pull they deliver 60 watts or more, depending upon anode volts. Anode dissipation is actually double a 300B. Absolutely fabulous in sound quality, likely due to the graphite anode, they are at present best dreamt about.
This is the most madcap hi-fi separate we’ve seen in years - and in specialist audio that’s really saying something! Dynavox’s DynaStation is a CD player with a difference, says David Price...

First set eyes upon this delightful creation at the Frankfurt High End show, some six months ago. I couldn’t help but go straight up to Dynavox’s Ulf Moning and ask — nay, beg — for a review.

"But we haven’t got UK distribution yet", he protested. "That’s okay," I said, "surely readers can buy direct over the website?" Well, he conceded this, then explained that average hi-fi buyers wouldn’t like the “analogue-style sound” this machine produced. "True," I agreed, "so when can Hi-Fi World review it, then?"

Answer came there none, until I got an e-mail from Ulf a few weeks later, and hey presto — here it is, a few months later (who said Germans are efficient?). So, all the way from Birkenau, Germany for the princely sum of 1,490 Euros — just under a thousand quid, the ‘totally bonkers’ Dynavox DynaStation! Please be upstanding...

Eagle eyed readers will have spotted the tube analogue output stage (two EL34s in triode mode) and the tube rectification courtesy of a single GZ34 (nothing gets past you!), but what is less obvious to the naked eye is the transport. Don’t tell me — it’s another CD-ROM, or maybe even a DVD-ROM? Well, stranger than that — this is actually the very same disc spinner that can be found in a Sony PlayStation! How so? Well, the boffins at Dynavox were playing around, souping up their own personal games console with tube output stages and rectification (as you do...), and found that it actually sounded rather good. Thus was born this bit of kit.

The weirdness continues. There’s no display — something I for one do not mourn (in fact I rather like it), and yes — the Dynavox boys did tell me it sounds better without one — which is perfectly understandable really. Just ask all those LP/12 owners who’ve disconnected their power LED... Furthermore, because the PlayStation doesn’t have a CD-player style row of transport keys — in fact, it’s joystick operated — so the DynaStation has a control layout that replicates the games console’s logic with natty little miniature switches. This, in conjunction with the variable output level control — which looks like it’s been ‘liberated’ from a nineteen fifties Cossor tape recorder — gives this CD player a distinctly unusual appearance.

Although it’s no oil painting, it’s a refreshing antidote to the swanky silver brushed aluminium boxes you’ll see at your local dealer — it’s a sort of audio ‘anti-cool’ style statement which really works, in my humble opinion. All visitors to my house during the review period looked straight past the symphony in Perspex and magnesium that is my Michell GyroDec/SME IV, and pointed at the Dynavox as they exclaimed ‘what is THAT?’ Essentially, the guys loved it and the girls hated it with a passion — which, following my ‘hi-fi rule of thumb’ automatically means it sounds brilliant. (That’s the review done, we don’t even need to power it up...)

But it’s more than just a dour, grey, utilitarian looking bit of hardware with three glowing bottles — it’s (surprisingly) brilliantly tactile to use and almost feels like you’re...
playing a turntable. The top loading transport has a really big, heavy lid which you have to lift up to change the disc, and then it clunks down again. The switches are undeniably novel on a digital disc spinner. The audio output level control reminds me of my grandfather's workshop. The tubes glow and 'clink' as they warm up and cool down. It's a veritable festival of the senses. Oh, warm up and cool down. It's a good as an equivalently priced bit of British kit, such as Meridian's 507 which I had standing by as a reference! Answer: no, but it's very different and so much so that it's almost unfair to compare them. Just like many other Brit rivals, the Meridian is about neutrality, detail, scale, proportion and insight. The Dynavox is most assuredly not — and doesn't claim so to be. Rather, it's 'making a nice noise' — a role which it performs with consummate ease. I realise that my last statement may have some of you contemplating the inherent contradictions of the postmodern condition (what — digital with 'designer colouration?'), but what the hell! If BMW Minis — bigger than an old Austin Maxi — can roar through Roman tunnels in the new Italian job move, then digital is allowed to sound like analogue, I suppose!.. And when I say 'sound like analogue', I really mean sound like the popular (mis)conception of analogue as 'big, fat, warm and woolly'. Analogue is not necessarily any of these of course, but that's another argument for another day.

The Pixies was the first disc to grace the DynaStation. 'Debaser' is not a famously relaxing track, but it was this time. Essentially, those tubes invest the bass with oodles of warmth and plumpness. Even though — at the time of writing this - the dark nights were drawing in, I suddenly felt a warm breeze wafting aloft (and no, it wasn't the afterglow from the Graf GM20 I'd just reviewed). This player is seriously coloured. The bass is far too sumptuous, even for The Pixies — but it sounded good, though. Next on was Kate Bush's 'Moving', and again we had a rich, warm sound with real smoothness to Kate's voice. The hi-hats were velvety, and those crashing piano cadences beautifully sonorous. Soundstaging was wide — artificially so in my view — and the whole sound truly vast.

Switching back to the Meridian bought oodles more detail, a far more architectural approach to the recorded acoustic and real air and space in the treble. It was also better at dynamic light and shade, and more capable of communicating the song's accenting and Kate's voice's inflections. It was altogether a more accomplished performer — yet it didn't really sound any nicer, though. See what I mean — the DynaStation simply puts the music through a kind of 'analogue signal processing' (thanks to its tube output stage and rectification), and invests it with breadth, depth and scale that — to be strictly accurate — may not really be there. The same thing was obvious with a DG pressing of Beethoven's 'Pastoral Symphony' — it was all larger than life. The DynaStation isn't incisive, and after a while its lack of 'differentiating detail' does rather leave the listener in a state of indifference if they're deliberately listening for nuances within the recording. If however, they're deliberately listening to the music within the recording, then that's another story — it's a great bit of kit for this role, at least. So there you have it — if you want scale allied to warmth and ease, then this is a truly fascinating possibility. If it's accuracy, analysis and articulation you seek, then look elsewhere.
Musical Fidelity's Tri-Vista range - launched to mark the company's twenty first anniversary - has given us some truly charismatic hi-fi components, the latest of which is the 'Tri-Vista 21 192k upsampling valve DAC', to give it its full name. It bears all the hallmarks of its illustrious brethren; not the least of these being its weight, which is hefty 13.5kg. Inside reside 24bit Delta-Sigma (Bitstream) digital convertors in dual differential mode, using 8x oversampling and capable of upsampling to 192kHz. Then there are the trivistor tubes (four of them), glowing away, along with the unit's feet outside. As per the Trivista SACD player that DP reviewed some months ago, the feet start out red, move through to amber and finally glow blue when the unit is fully warmed up. This takes about half an hour - and while it will happily work from cold, it is worth the wait.

As one would expect with a hi-fi separate at this price, it is beautifully built. The solid, brushed aluminium face plate sports only a small power button with a blue LED to tell you it is on, and five further LEDs, all blue, to show sampling rate (96 or 192), input (coaxial or optical) and finally one to show that it is locked onto one of these inputs. The Tri-Vista will automatically select an input when it detects a signal.

The rear panel sports coaxial and optical inputs, one set of RCA analogue outputs and a digital output should you require it. Another small button, this one black, resides on the DAC's rear to switch between 96k and 192k. There is also some venting on the top of the unit through which you can watch the valves glow, and see some ominously large heat sinks attached directly to the circuit board.

SOUND
Partnered to my trusty Arcam CD72 acting as transport, the first thing you notice about the Tri-Vista is its huge soundstage. The music comes from way outside the loudspeakers, and crashes down in a great wall of sound that fills the room effortlessly. Instruments are well placed within this, standing rock-solid with plenty of air between them. This combined with the astonishing amounts of detail that this DAC pulls from a recording, really takes you to the heart of the performance. My entire system, loudspeakers and all, seemed to disappear, the music seemingly appearing magically from thin air. Remarkable stuff!

Whatever I played, the Tri-Vista handled it with ease. Large scale, difficult pieces such as Metallica's...
Joan Osborn's 'Early Years' (a work). With Handle's Messiah, I felt forty-five piece San Francisco to not just play music, but to actually enjoy the music. This gives it the uncanny ability of intimacy and a beautiful sense of acoustic pieces, such as the MTV Chorus. This is not to say that the orchestra no less! left the DAC completely unruffled. It simply reached down, took in all the detail it could find and spread it out expansively.

Indeed it thrived on large scale works. With Handel's Messiah, I felt that - if I'd wanted - I could count the voices from the Hallelujah Chorus. This is not to say that the Tri-Vista is only for those who like it loud and proud, however. With softer acoustic pieces, such as the MTV unplugged albums, the Musical Fidelity is able to produce a real sense of intimacy and a beautiful musicality that really allows you to enjoy the music.

Indeed, the Tri-Vista positively drips with detail, and it's precisely this that gives it the uncanny ability to not just play music, but to actually put you at the venue where it's being played. With Pavarotti's 'War Child' album, I believed that I was in an open park in Modena, whereas, with Joan Osborn's 'Early Years' (a collection of live recordings from her early days on the New York club circuit) I felt as if I was in that very venue, where I could almost smell the cigarette smoke.

A popular sentiment amongst the great unwashed is that valve devices are coloured, but this DAC shows little sign of this. Rather, it is unsullied by the inadequacies of your analogue solid-state analogue output stage and as a result lets the listener enjoy the music more, with less stress and strain. Duly, where I had reached for an album to listen to a specific song, I would simply end up listening to the whole album, even songs that I had never been overly fond of, made me smile from ear to ear.

I threw everything I had at this DAC to find something that didn't sound good on it, and opted to find a song I really hated to see what would happen. After much searching I found Extreme's 'More Than Words' and slipped it on. With predictable consistency, the Tri-Vista made it sound really rather good. Detail on the acoustic guitar was breathtaking, showcasing this converter's superb attack transients and self-effacing lack of coloration. 'Requiem' by The London Boys displayed its fine timing and inherent musicality. Whatever I threw at it - from Metallica to Mendelssohn, Snoop Dog to Shania Twain - it sounded great.

Surely there's something you didn't like about this DAC, you cry? Well if I was being picky, with all those LEDs and the glowing feet, the Tri-Vista gives off a lot of light, which, if you like to listen to music in the dark, could be distracting. I also noticed that when I turned off the DAC, I got a little speaker pop, so it's worth remembering to turn off the amplifier first. To summarise then, Musical Fidelity's new Tri-Vista 21 may seem fairly expensive, but in fact, a real hi-fi bargain because you can put almost any transport with it, and it will still amaze.

The convertor likely mutes at digital level -122dB, further down the range, at -60dB the Tri-Vista managed a low 0.33% with CD and 0.02% with 24bit DVD. This helped toward an EIAJ dynamic range figure of 111dB, about the best possible.

The converter likely mutes at digital zero, giving -112dB noise with CD or DVD. Channel separation is high. Output was a nominal 2.2V.

The CD (i.e. 16bit/44.1kHz) response exhibits just a slight roll off at high frequencies, enough to ensure the player's sound is not sharp. At 96kHz sampling rate with DVD response extended to 45kHz.

With CD and DVD this DAC measures well - it's very linear. NK Frequency response CD DVD 5Hz-21kHz 5Hz-45kHz

Verdict
Superbly neutral and expansive sound makes this an excellent upgrade to any mid-price CD player.

Musical Fidelity
Tri-Vista 21 £1,200
www.musical-fidelity.co.uk

The Editor Says:
Having added the Tri-Vista SACD player - one of the best sounding digital disc players I've ever heard - it was with no small degree of interest that I tried this bit of kit. It's essentially the digital and analogue sections of the aforementioned masterpiece, but with a better DAC and upgraded power supply. I could hear the very same smooth and neutral demeanour, vast stage and brilliancy. It's so musical that it makes the analogue output stages attached to most sub £2,500 CD spinners seem constrained and compressed. When aspirated by a very respectable mid-price machine like Meridian's 507, it delivered much greater scale, dimensionality and a good deal more refinement and poise. But the real trick is when you plug it into a budget machine such as Marantz's CD6000 OSE - the transport of this £300 machine is good enough to exploit much of the Tri-Vista 21's talent and the result is a cracking £1,500 CD spinner. A brilliant argument for staying with stereo!
Hi-Fi Computer Audio Competition rules and conditions of entry

1. Only one entry per house hold.
2. Multiple entries will be automatically disqualified.
3. Purchase of the magazine is not a pre-condition of entry.
4. No correspondence will be entered into.
5. The Editor's decision is final.
6. No employees of Audio Publishing Limited, or of any companies associated with the production or distribution of the prizes may enter.

Hi-Fi & Computer Audio World Competition rules and conditions of entry

Here's your chance to own what's undoubtedly the best sounding mid-price DVD universal player of the moment! Denon's DV-2900 plays DVD video to a high standard, spins audio CDs with no small degree of skill, and positively shines with SACD and DVD-Audio discs. Last month, Dominic Todd was given the lucky job of listening to it, and here's what he said:

"It would frankly be easier to mention what this machine doesn't do, but here goes anyway! It will play DVD video, SACD and DVD-Audio discs, plus of course plain old CD. Furthermore, it also does DVD-R and MP3 CD playback, and even JPEG discs for showing digital pictures on TV. Significantly, it is the first Approved PAL Progressive Scan player from Japan. This works in conjunction with a component output to create a more stable picture. The effect is rather like switching from a 50 to 100Hz TV, although the technology is very different. Also included is a built in Dolby Digital/DTS decoder, and every type of connection needed including a SCART for those who must use this compromised connection...

The internals show real promise. "It's good to see such a solid chassis for a DVD player, with a quality of finish which really is beyond reproach..."

Even in two-channel mode this player had a wonderful sense of depth, but what impressed most was the bass. This had a solidity to it that vinyl owners will be familiar with, but would hope for... Indeed, high praise is a suitable phrase for the Denon's performance in general. For straight DVD replay, it easily matched £850 is a lot of money for one component, yet I can think of few better ways to invest it than Denon's DV-2900."

If you'd like to win this superb bit of kit, then all you have to do is answer the following four easy questions. Send your entries to: November Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.

Competition Questions

[1] What format doesn't this machine play?
[a] CD
[b] SACD
[c] DVD audio
[d] LP

[a] The first Approved SACD player from Japan
[b] The first Approved PAL Progressive Scan player from Japan
[c] The first appearance of a brushed aluminium fascia
[d] The first deployment of a DVD transport

[3] What about the Denon is 'really beyond reproach'?
[a] Its build quality of its feet
[b] Its quality of finish
[c] Its number of fascia buttons
[d] The lustre of its back panel

[4] High praise was DT's 'suitable phrase' for what?
[a] Its own abilities as a writer
[b] His own abilities as a writer
[c] His skills at car control
[d] His mom's apple pie
[e] The Denon's performance in general

November Competition Hi-Fi World Magazine Unit G4 Argo House The Park Business Centre Kilburn Park Rd London NW6 5LF

Great Giveaway

WIN DENON'S SUPERB DVD-2900 DVD UNIVERAL PLAYER IN THIS MONTH'S GREAT COMPETITION!

GREAT COMPETITION!

...to Mr. Peter Summers of Wythenshawe, Manchester, the winner of our September 2003 competition. A Cyrus 6 integrated amplifier is on its way to you!
Sevenoaks Sound & Vision stocks a wide range of Hi-Fi separates, DVD players, amplifiers, speakers, plasma screens, LCD televisions and projection systems from all the leading manufacturers.

From starter systems to custom designed multi-room and home cinema installations, our friendly staff are available in all outlets to advise, demonstrate and guide you through the home entertainment jungle. If you're interested in home entertainment and want to avoid the confusion, contact your local Sevenoaks Sound & Vision outlet and experience more.

0% interest free option* is available on most products.

*Written details on request. Licensed credit brokers. Minimum balance £400. Subject to status.

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The WEYBRIDGE store at 43 CHURCH STREET, is now open. For opening hours and more information, please telephone 01932 828525 or visit our website.

- **STAINES MID-OCTOBER**
The new store at 4 THAMES STREET, STAINES, MIDLESEX, is due to open in mid-October. Please call 01784 460777 to confirm before travelling or visit our website.

- **OPENING SOON**
Subject to legal completion, we will be opening a new store in Ealing (North London).

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"Compared with a £200 CD player this deck sounds remarkable: dig out your vinyl and give the Xpression a spin."

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PLEASE ASK IN-STORE FOR DETAILS

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99 POWER AMPLIFIER
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You'll have gathered by now we love the Evolution 30s. They're beautifully made and great all-rounders."

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Cyrus has been developing high performance hi-fi systems for nearly 20 years. Today their upgradeable, modular product range includes multi-room systems, home cinema and some of the world's finest hi-fi systems. Cyrus products are hand finished, half size die-cast enclosures and include a hidden digital command system that allows simple operation of any size system.

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DENON D-M30 was exemplary, as its three What Hi-Fi? Sound and Vision Awards clearly show. The D-M31 is even better, making it phenomenal value for money."
SOUND & VISION

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**NEW STORES**
*This store is due to open mid-October, please check before travelling*

SEVENOAKS WEBSITE

WHO ARE SEVENOAKS?
Founded in 1972, Sevenoaks Sound & Vision is one of the largest and most successful Hi-Fi and home cinema retailers in the country. Each Sevenoaks Sound & Vision outlet stocks a wide range of quality products, covering all categories of specialist home entertainment, from Hi-Fi separates and systems to DVD players, widescreen plasma televisions and projection systems, all at highly competitive prices. Friendly staff are available in all stores to advise, demonstrate and guide you through the home entertainment jungle.

NEW OUTLETS
We are pleased to announce the Weybridge store is now open and the store in Staines is due to open mid-October. We will also be opening in Ealing (North London) - Subject to local completion.

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Sevenoaks Sound & Vision's Custom Installation Service enables the integration of a home cinema or hi-fi system into your home as neatly and seamlessly as possible. All electronics can be hidden away, speakers discreetly mounted either in the wall or ceiling and the complete system operated via remote control.

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In the event you can find the same products at a lower price, please bring it to our store managers' attention. We will always endeavour to offer you the best deal.

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Ever wondered what top audio industry insiders think about the great valve debate? David Price talked tubes to a variety of hi-fi luminaries, and here's what they said...

KEN ISHIWATA
MARANTZ

I do own many amplifiers and of course some are tube types. Today's speaker systems are too current hungry, so I tend to use (my own design of) valve pre-amps and transistor power amps. Of course I also use the original Marantz Model 7 sometimes. I can't say valves have particular sonic benefits, since one design can sound so different to another, just like transistors! With good design, valves can create a beautiful atmosphere like a sophisticated lady with little bit of makeup! As for the drawbacks, again it entirely depends on the design — but the main thing is that many tube amps can't drive modern current-hungry loudspeakers.

Valves are especially suited to audiophile applications, because of their noise! If you design well, this noise will create a special atmosphere which transistor amplifiers can never have, plus an emphasised 3D effect! The downside is that the standard of valves you get today just isn't the same as back in the nineteen fifties and sixties. So you must measure each valve and find good specification, matched ones otherwise you won't get the quality you originally expected!

I love the midband of the original Marantz Model 7 — it is exceptional and I have to say... has a very sexy voice! The Marantz Project T1, which is still available, is extreme provocation! I also adore the original Macintosh 275 Power in combination with the Marantz Model 7 Pre driving JBL Paragon loudspeakers. Ultimately though, my favourite tube amp is the original Marantz Model 7 produced in 1965 and 1966, along with a Mark Levinson Model 20.5 Power - this combination works!

PETER COMEAU
MISSION

"My favourite valve amplifier, which is also the one I currently run, is an EAR 509. I love it because it is accurate and delivers high current for good loudspeaker control. The sonic benefits of valves include the soft way they clip, their musical character and even their dynamics in the right circuit! The downsides are that the harmonic distortion can add extra 'warmth', and valve amplifiers are in practice over reliant on transformer design and build quality. They have various electrical benefits, including excellent recovery from overload, and the fact that their high voltage power supply design allows easy incorporation of high capacity power reservoirs. Of course, they're problematic inasmuch as they get hot, wear out, are fragile and bulky. Also, the impedance mismatch to speakers requires output transformers which are generally poorly designed and restrict power bandwidth and current output."

ALEX GARNER
TANNOY

"I do not use a valve amplifier at present, as I prefer my LFD amplifier which is beautifully neutral and refined. Back in the late sixties, my first valve amp was just one Quad II power amplifier which I bought as a student. I then built the 'other half' to go stereo using a less well specified Mullard S/10 design! Then I encountered the 'reason for valves' by discovering an 'Orange' guitar amp made by the late Matt Mathias in Huddersfield. This was an incredibly stable, near open loop design to get the fast attack sound of lead and bass guitar strings. Using 2 of these with 'straight through' equalisation settings gave an incredibly fast sounding sound system.

For fast transients a 'speaker needs a large voltage swing with minimum negative feedback around the amplifier. Good valve designs can provide this. The problems aren't the valves themselves, but the output transformer doing the impedance matching to the speaker. Even if the output transformer is included in the feedback loop the strange hysteresis antics of semi-saturated iron cores play havoc with the stability of the whole amplifier. Of course higher powers are restricted because it is impractical to generate the high voltages required, to provide valves with the large size cathode and anode plates needed to get a sizeable flow of electrons and the sheer size, weight and cost of the output transformer core cross-sections required to ensure unsaturated operation.

Valves are good for audio applications because they're inherently linear voltage amplifying devices over a wide voltage swing. This means minimum feedback is required to linearise the frequency domain response and the sound quality is typically 'light, airy and detailed'. Again, inherent linearity without much feedback means that they perform well in the time domain with minimum phase.
behaviour leading to a fast and punchy sound. The trouble is that they have limited power for insensitive speakers. They are fragile and they deteriorate slowly with time as the cathode degenerates in its ability to supply electrons in the required quantities. Again the issue of the quality of the output transformer is paramount in their suitability for audiophile applications and very good output transformers are very difficult to design, and manufacture with consistently good quality sound.

My favourite valve amp is a 500 watter with KT88 paralleled and bridged open loop design by Matt Mathias, which we used for life testing speakers using pink noise for continuous 300 hour periods! No solid state amplifier would survive this punishing treatment until Crown (now Amcron) paved the way commercially, and forced air cooling became common place. The bridged KT88s always sounded so much better though...

My best valve isn't actually an audiophile one, although it can be run with strapped grids to act as one. It's an RF power pentode, the 807 with top cap anode. Nothing can replace the sheer awe and terror that a pair of these can instill in the beholder when sitting with 1000 volts on each anode pumping 120 watts of RF power into a long wire aerial with anodes just glowing a dull red colour and displaying a mild blue hazy fuzz around the tops of the valves on humid days!

Ultimately though, the all time classic has got to be the Classic has got to be the Quad 11/22, the pinnacle of great sounding, affordable separate pre/power valve amps

ALEX GARNER, TANNOY

My all time classic has got to be the Quad 11/22, the pinnacle of great sounding, affordable separate pre/power valve amps

My favourite tube more than 25 years ago.

ANTONY MICHAELSON

MUSICAL FIDELITY

"I believe in the sound of tubes, and the fact that I've sold 35,000 X-10Ds, 1,500 X-PREs and 18,000 X-CANs is a testament to this! It's probably more than all other tube amplifier manufacturers put together...

However, I also believe in making reliable and affordable products too, which is why we've moved to hybrid designs such as the Trivista 300 integrated. I personally use at home. I think tubes sound more human — you can do incredible things with them, but I don't think they suit power amplifiers simply because of the way modern loudspeakers are designed — they're too power hungry. I think any serious hi-fi amplifier needs at least 150W these days — like it or not...

Of course, tubes have many electrical benefits — they're much more tolerant and inherently very linear, and also enable the use of far simpler circuits with far more direct signal paths. Although you can get reliability from a small signal tube, the trouble is with output tubes which have an unsatisfactory failure rate — often as much as 20%. This is unacceptable, and effectively what killed off one of my earlier companies, Michaelson Austin. There are other problems too — you can't properly get low phase shift, a high damping factor, and there are problems with getting decent output transformers — they're so expensive! Badly designed tube stuff sounds rich and cloying, overblown and blousy — which is the common perception of tubes by the general public. You're also always fighting noise, too.

As for my favourites, I adore our home-grown Radford STA25, but I think the US made Macintosh 275 is the quintessential tube design — it has everything really, it's astonishing in its linearity and neutrality — it's as good as tubes can get!"
Leak Surprise!

So you’ve read our tube supertest and marveled at some seriously mouth-watering modern valve amps, but what of the classics? Noel Keywood has played with a few in his time, so who better than to try Classique Sounds’ rebuilt Leak Stereo 20 power amplifier? Did this seminal bit of British kit go up in his estimation - or up in smoke? He takes up the story...

just the smallest interest in valve amps will surely lead you to the old classics, and all that surrounds them. Much like running an old Land Rover, you’re faced with basics that are either completely unacceptable for reasons of safety and convenience, or delightful for their old(e) world(e) charm. But with vintage valve amplifiers, you may also be intrigued by tales of superb sound quality, as well as high second-hand prices.

Here’s a look at a popular oldie, the Leak Stereo 20 power amplifier. There are plenty washing around, especially now people realise they have value and shouldn’t be consigned to the skip. But just how valuable is an amplifier like this? And does it stand up to modern day valve and solid-state designs?

A lot of people, especially those who have been there and done that, are sceptical. Old buffers will nod their heads sagely and warn you away. Well, I switched on to a flash and a loud bang with this one, which blew two 13A fuses and tripped a fast circuit breaker, so perhaps they do have a point! Or perhaps not?

In truth, a lot has changed since this model, launched by Leak in 1958 from their West London factory, was the latest and the greatest — especially loudspeakers. Nowadays you can buy a large, high technology loudspeaker sensitive enough to shake a room from a few watts. I use Revolver’s R45 with valve amps — and it can turn a mouse into monster. Driving a loudspeaker like this, an old classic with limited output will be given new freedom to express itself. It’s one good reason an old valve amp can sound better now than it did in its time.

At the input end of things you can get an array of preamps nowadays, passive, valve and solid-state to feed a valve amp like this with a pristine input signal, from CD, DVD, radio or whatever. Its abilities, such as they may be, are better revealed by a good, clean source signal. And because all silver disc spinners produce 2V maximum and most valve amps need half this there are no matching problems.

Finally, you can also get virtually all the components needed for repair and their quality will be superior to the originals. Replacing old with new, you soon start to become acquainted with changes they make to the sound, especially in clarity. Put all this together and you can, if you wish, end up with an old classic of astounding performance, at a great price.

The trouble is, if you replace old parts with new then the amplifier ceases to be a true original. This is renovation, not restoration, and arguments soon break out amongst the cognoscenti, or cantankerous old gits, about ruining the nation’s heritage and all that. I mean, would you really install Ikea furniture in Windsor Castle? Perhaps not. I wince at the sight of modern electrolytics clad in garish blue plastic in place of the old, bare alloy originals, sitting in an old classic. It’s not exactly sensitive renovation. But often the latter are beyond redemption and must be replaced if you want to use the amplifier seriously rather than look at it.

To maintain value, however, you should restore rather than renovate, which means finding new old parts, or serviceable old parts. This can be fun and there are many sources, including repair shops, vintage hi-fi fairs, internet traders and auctions like eBay. Having obtained old parts you will then need to ensure they
work properly, meaning some knowledge of leakage currents and a means of measurement. Maplins and suchlike carry appropriate test equipment.

The issue of restoration against renovation raises a dilemma. If you want to use an old amp then it may be best to replace old with new, but if you want to sell it then you should ideally replace like with like. Most people will end up somewhere in between I suspect and it’s probably best to try and use visually similar modern parts in as far as possible. Finding and fitting them is a challenge that can alternatively be left to experts with knowledge and experience in the field.

THE CLASSIQUE PACKAGE

So what did I get with my Classique Sounds rebuilt Stereo 20? I got a chassis in good physical condition, free from rust and damage. It came packed in a confectionery box, cushioned by newspapers, with the valves wrapped in plastic bags! Not an auspicious start perhaps, but not untypical. The bottom cover was missing, exposing 334V of HT on the Stereo 20 — and again this is not uncommon. For safety and completeness you need the cover, something to bear in mind when buying. It would be difficult to replicate Leak’s original, but perforated plate or even expanded zinc mesh can be cut and fitted. Rubber feet were needed on mine to raise it up and let air flow beneath.

Unwrapping the valves revealed a complete set of original Mullards, the best you can get. Mullard became an offshoot of Philips and produced excellent valves. This Stereo 20 even had an original Mullard GZ34 rectifier; modern manufacture GZ34s aren’t half as good, but then, the Stereo 20 doesn’t demand much from its single GZ34. With no fewer than eighteen valve manufacturing plants worldwide doing nice business making new versions of old valves there’s no shortage of supply nowadays, and new valves of the sort used by this amplifier are inexpensive. A GZ34 costs approximately £15 and new EL84s cost £20 or so as matched pairs.

However, new old stock (NOS) as fitted, especially Mullards, can be expensive — reckon on £50 for a GZ34 and anything for matched EL84s, if you can find them — and this amp had two pairs. They add to the value of the amplifier, of course, and sound good too. So the valve complement on this amp was about the best.

Most of the original components had been replaced, but not those that show, including the two power supply electrolytic capacitors, rated at 32uF+32uF (350V min.) each. These looked original. The output transformers have 4ohm, 8ohm and 16ohm taps on top, selected by moving a small bridging plug. There were modern, sturdy, gold plated input phono sockets in place of the old ones. Similarly, the output sockets had been swapped for modern 4mm posts that accepted bare wire or 4mm plugs. It was a sensitively wrought conversion with excellent soldering — if a need for cleaning to remove splatter — that made the most of the amplifier.

SAY A LITTLE PRAYER...

I plugged in the valves, then the mains lead, noting that the insulation of the inner wires were exposed leading into the Bulgin plug, which does not meet wiring regulations. If something was to result from this an insurance company wouldn’t be much interested. Bulgins are fiddly to wire and people tend to cut the outer insulation back to make the process easier. I was soon to rectify all this though.

The amp was placed on a fireproof marble slab and hastily connected to the mains. I always offer up a little prayer at this point because it isn’t uncommon to hear intense fizzing and crackling sounds, accompanied by smoke and a nasty smell. The wise and experienced carry out a range of checks with a meter to ensure there are no primary or secondary shorts, that the chassis is grounded for safety and then bring the thing up on a Variac with a meter monitoring the HT line. I assumed this amp had been run and checked so plugged in and was met by a flash and a bang. The wires in the Bulgin plug were weak and positive had parted company with the screw post and said hello to earth.

Luckily this did not affect the amp itself, but it did expose the fact that a cheap blue mains plug attached to the other end of the lead had been fitted with a 13A fuse no less — a very bad idea with old kit like this
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(the amp's own fuse was correct at 1A). It underlines the need for care in all areas, and shows just how old classics can be a little bit dangerous if you're not careful. I put in a 3A fuse and the Stereo 20 then lit up perfectly and we were away!

SOUNDING OUT

This amplifier is a twin channel version of Leak's TL12, a 12watt mono power amplifier first released in 1948 no less. With the coming of stereo Leak brought out the Stereo 20 and it's still a popular amplifier with enthusiasts today. With 10watts per channel from a pair of EL84s working in push-pull the 20 is no powerhouse by current standards, but the upside is the HT isn't fear-inducing at a modest 330V, and all parts are inexpensive and obtainable as a direct result of low volts. So the Stereo 20 is a good practical choice. It has an octal input socket that also carries power out to an accompanying Leak preamplifier. This will be redundant in most cases, but if you do have a pre-amp then at least preserve it. Sound quality is usually a bit messy to say the least, but it proved staggeringly good at the price after we'd got it on.

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The Mullard EL84 output pentode may not be a powerhouse but it has a great reputation for sounding sweet, unlike the EL34. It's well deserved too and this is another reason the Stereo 20 is popular. Mine sounded glorious straight away, manifestly displaying every property valve amps are prized for. It was wonderfully smooth sounding, enormously spacious, silky to the ear in every respect and perfectly forthcoming even in bass delivery. But then, the Revolver R45 delivers big bass from a couple of watts (4ohms) and its tweeter isn't backward in coming forward. This sort of balance suits old classics in my view, unless you want the old sound. If so, then you could well try large Ruarks, but their treble is forthright too, or warmer sounding Castles, which are extremely revealing. Otherwise there are Lowthers and similar, but then don't expect extended bass. Do not use small loudspeakers, because they are insensitive.

An unrecognised benefit of amplifiers like the Stereo 20 is the valve rectified power supply. This accounts for much of the silkiness. It doesn't have a smoothing choke, just a 100ohm resistor, but it all works nicely.

Running an old classic is a satisfying experience, there's no doubt. Perhaps it is only for those with an appreciation of such things; not everyone thinks there's merit in yesteryear, but at the same time it's best not to underestimate the degree of interest either. It has improved availability no end, of the amps themselves and of components too. Where ten years ago new valves and high voltage electrolytics were virtually extinct, now they've again become almost commonplace, making sensitive renovations like this possible. Make no mistake, this Stereo 20 offers an entirely different take on music to a solid-state amplifier and it's nothing other than very satisfying to listen to.

Well worth a try if you interested in using a superb classic, because you get not just old world charm, but superb sound quality too. And, the way things are going, you might be able sell it after many years for a profit — not something you could do with a modern amplifier. Although not cheap, this amp is still a bargain.

THE EDITOR SAYS:

You'd be amazed how up to date a well fettled Leak Stereo 20 can sound — they're not from the Quad II school of syrupy coloration and gutless power delivery. Match a '20 to any sensibly sensitive loudspeaker and you'll get a truly fast and involving sound, that's smooth and even with real tonal colour, yet decently lean and tight too. They're a brilliant 'starter classic' if you're into old skool tube amps, but dull want to get too radi-

**VERDICT**

This superbly capable classic can show the moderns a thing or two, but we weren't totally happy with some aspects of the rebuild...
Billy Woodman founded ATC in 1974 with the intention of building the very best loudspeakers available. He started by building and supplying drive units to manufacturers, and after a few years began supplying studio monitors built to exemplary standards. Indeed, at the second Cunard Hi-Fi show I visited his room and was stunned at the dynamic range of the system. Since then, the company has acquired an enviable reputation due to hard work and an extremely professional approach and engineering excellence.

The ATC SCM12s you see here are intended to be used as near field monitors. They measure 220mm wide 255mm deep by 390mm high. The model designation gives us the internal volume of 12 litres. The SCM12 weighs in at an impressive 15 kilos, which is extremely heavy for such a small box. The cabinet is manufactured from medium density fibreboard and sports two pairs of high quality 4mm terminals on the rear panel - one for the bass/midrange driver and one for the tweeter - and are joined by removable gold plated strips. This type of arrangement allows for biwiring or bi-amping.

The cabinet is covered on all sides with well-matched veneer except for the baffle, which is finished in a flat black surface. The drive units are recessed into the baffle. Inside the loudspeaker there is a balance veneer to stop cabinet flexure, especially on highly modulated signals. The rear of the baffle has been sculpted around the bass driver, to try to obviate any air pressure build up which would interfere with bass-unit linearity. The bass/midrange driver has a diameter of 150mm, and is fitted with a large 75mm soft centre dome to enable a much better midrange performance. The material used is again unusual, as it is a heavily doped polyester cloth. The magnet is massively built and is 177mm in diameter using a short voice coil in a long magnet gap to enable the unit to respond faithfully to the input.

The spider has also had the research and development team's attention - producing an unusual solution to the problem of returning the drive unit to rest without distorting the cone assembly. The loudspeaker has a die-cast chassis. It is the same bass driver as used in the rather larger (and more expensive) SCM20.
The treble unit is a 1-inch soft dome type. The crossover is mounted on the rear panel and is populated with high-grade components. The loudspeaker grilles are of the push fit type and are covered in a tasteful blue open weave material with the ATC logo adorned on the bottom left. The grille panels also have the same sculpting around the inside of the opening (to try to avoid diffraction) as the baffle around the inside of the opening (to weave material with the ATC logo covered in a tasteful blue open weave material with the ATC logo adorned on the bottom left). The SCM12 has a claimed frequency response of 80-12000 Hz, within 2dBi. This loudspeaker is capable of accepting 300watts RMS and has a quoted efficiency of 85dB per watt [see our own measured performance - Ed]. The impedance response is said to be a very stable 6.8 ohms, meaning it should be an extremely easy load for an amplifier to drive.

This loudspeaker can be used in the single wire,bi-wire or as a bi-amped passive loudspeaker. The ATC SCM12 is an elegant loudspeaker tastefully presented. It is built to a very high standard of finish and engineering. After a phone call to ATC I discovered that there is no difference between studio monitors and domestic versions save for the finish and termination! Professional cabinets are painted black and have any type of connectors the client requires.

**SOUND QUALITY**

Very rarely do pieces of equipment perform well straight from the box, but this is one such product! I always check and test any component before introducing them into my hi-fi system. The loudspeakers were sited atop 24inch hardwood stands approximately 108 inches apart. The stands were sited on top of paving slabs and were mass loaded to stop the stand from moving when the loudspeaker was moving whilst in use! Experimentation was the order of the day to find the “sweet spot”. Having duly found the place where the loudspeaker performed at its best in my living room (17 inches from the rear wall with a heavy toe in) serious listening began.

The first source to be chosen was the tuner, so I could hear live speech from the BBC – always a stern test for a loudspeaker’s mettle. Radio 4 was dialled in at news time, and I was delighted to hear the Beeb’s typical acoustic signature. The news reader’s voice was brilliantly clear and distinct, with very little trace of chestiness. A good start, so I progressed to silver discs. First on the CD player was Beethoven’s violin concerto with Hilary Hahn as the soloist. What sprung out of the speakers was not what I expected. The stereo image was enormous, with vast swathes of depth and width that seemed to make my listening room twelve to eighteen feet wider than it really is. The string section had an impact I have only heard at live concerts.

Next on was some classic rock music courtesy of Frank Zappa. I found ATC’s imaging precision to be quite superb – it was as if I was hearing Evelyn the modified dog for the very first time. Drive from the bass guitar was accentuated by the slap of the kick drum, showcasing the SCM12’s superb attack transients. The dry sound of Frank’s voice sounded so real I had to check where I was, once again confirming the ‘speaker’s fine neutrality. Over the next three or four days I played every type of music I possess, and found them to have the ability to transport the listener to the location where the music was recorded. At the price, they’re very hard to fault – with possibly a slightly dry tonality being the only quibble for domestic users, but then again this is just what you need for monitoring activities – the task for which these boxes were evidently designed.

Overall then, the skill of the SCM12 is its combination of transparency and transient attack, which is rarely found until you progress to much larger monitors. It’s able to open the listening window very wide, to enable one to fully understand the emotional impact that the composer intended. I listened to every signal source in my system and was consistently impressed at the even-handed way these loudspeakers presented the signal. After our extensive group test of standmounting ‘speakers last month, here’s another design to put at the top of your shortlist.
CLASSIC OMISSIONS

Thanks for your fascinating list of ‘World Classics’ hi-fi equipment. However when I read it, I realised you had left out my entire system. How dare you! You asked to be told about what you have overlooked, so here goes:

[a] Turntable: The Cj6 I, made by one of the nicest people in hi-fi, Colin Walker, rates a mention as an intriguing effort at making an almost high-end turntable at a mid-range price. The Cj6 I got lost in the collapse of the turntable market when CD arrived in the early 1980s but it was a very interesting design, looking surprisingly similar to many of today’s high-end exotics. Walker got rid of the resonance and cost problems of plinths by stripping the assembly down to its bare essentials and making as much as possible out of wood and non-resonant materials. The entire works are enclosed inside a circular wooden drum the same diameter as an LP. Inside is a high quality Airpax motor and a proper (wooden) suspended subchassis supporting a solid non-resonant turntable of Tufnol with a thin felt mat. The whole thing works well and sounds good. One weakness was that most of the production samples ran slightly slow, because of slightly undersized motor pulleys. I paid a machinist £30 to produce a fractionally larger replacement pulley and it was money well spent.

[b] Tonearm: Through the late 1970s, one of the best value tonearms was the Mayware Formula Four MkII, a reasonably priced and well-sorted damped jeweled unipivot design with none of the awkward quirkiness that afflicted so many others. It combined low mass with quite good rigidity. I have a Mark V, which developed the design with increased rigidity and damping. (Unipivots are well worth looking for second-hand as, unlike gimbal designs, they have almost nothing to go wrong, or out of adjustment.

[c] Integrated Amplifiers: You mention the Rogers Cadet but not its big brother, the HG88 Mk II, which is a bit more powerful and capable. Its 8 watts per channel seem to go very far and it is a very satisfactory, listenable ‘real world’ amplifier. I still remember the experience of rescuing it from a friend’s rubbish dump, getting it fixed and then listening amazed as it proceeded to completely outperform my then newly-purchased ‘best buy’ Arcam Alpha amplifier!

[3] Loudspeakers: When I found that your list of World Classics didn’t include the BBC LS3/5A, I began to wonder if I was missing the point somewhere. Mine are Wilslow Audio kit copies, with a subwoofer to help. Whatever you might think of the rest of my list, surely we can agree that the LS3s are classics? Another interesting (though not ultimately as capable) loudspeaker which I have is the Keith Mark’s Elf. This was an early 1970s budget design from the company which produced titanium-coned speakers and mercury contact unipivot arms and it features a high efficiency directly-driven main driver, with no crossover apart from a capacitor to protect the pair of (paper-coned) tweeters. These work well with valve amplifiers, especially when fed by another significant device you don’t mention – Rega’s radical fixed stylius RB100 moving magnet pickup cartridge: the slightly rising response of the speakers balances the strong bass and drooping response of the pickup nicely. Apart from that, you’re doing a grand job, so keep up the good work.

A. Bealo
Leeds
Thanks so much for your very well reasoned nominations – hopefully the LS3/5a piece last month will have been some compensation – and I’m sure they’ll make their way into World Classics on a monthly basis sometime soon! Could agree more with most of your selections, but I have to say that Rega’s RB100 wasn’t as great in practice as it was in theory – mine sounded obviously less musical than the original Supex SD100E-derived Rega R100, which was a lovely sounding pick-up.

DP
THE CULT OF LINN DEALERS

My system comprises a Linn Sondek LP12/Akito/Denon DL101/Project phono box SE/ Sound Organisation Table, Cyrus 2 (passive pre)/PSX, JPW AP31 JPW high mass stands, Chord Odyssey/VDH 103b interconnects.

As a regular reader of your magazine and indeed other parts of the hi-fi press, I would like to think that over the last twenty years I have seen many trends come and go. The most pleasing by far for me personally has been the vinyl revival which started about the time I ditched my trusty Thorens for an LP12. This brought with it an inherent set of problems - namely buying into the cult of Linn. I didn't find this helpful, to be honest - only confusing. Everyone I spoke to had a different spin on how to improve an ageing LP12! Linn dealers sounded like they were reading from a script and quite frankly some of their suggestions e.g. fit a Trampolinn base didn't seem in tune with the design philosophy of the deck. Why fit soft feet to a deck that is designed to transmit energy away from the stylus?

Other dealers claimed the LP12 was trying to make a "silk purse out of a sow's ear" (this idea seems to be virulent with ex-Linn dealers) and that Linn had made all these bolt-ons but in fact the best solution was not to invest any money in the LP12, and instead spend two grand (interest free credit, you understand) on whatever their high-end deck was! There was always a reason for doing this - be it a unique bearing or the lack of wood in the deck's construction... I think it had more to do with the small business manager at Barclays and meeting the loan repayments...

Having talked to many dealers, the only one I have found who seemed open minded about what the customer wants was Phil March from Phonography in Ringwood Dorset. Phil genuinely didn't seem to have an axe to grind - instead he seemed to want to help solve my problem even if that meant sending me elsewhere for a product he didn't stock. He appeared to have no agenda and didn't talk about my deck as though it were inferior but instead realised that I liked my LP12. As a result I waited and bought a second-hand Lingo from Phil and this has improved my deck no end.

This brings me to the question of what to do with my Akito tonearm. I want to upgrade this next as I feel it is the next weak link in the chain. I also have two friends who have Akito series one's that have sticky bearings. My Akito seems fine at present but because Linn won't service the arm or offer any form of after-sales on first generation Akitos, saying that it is too cheap (is anything over £200 cheap?) I would be left in an untenable situation if it did decide to pack up. This has led me to the often asked question: would I be better off putting an Origin Live modded 250 on my deck or a second hand Ittok or ARO. My cartridge is a cheap but good Denon 1101 running into a project Phono box SE.

The reason I ask this question about the Rega mod is that every dealer I have posed this question to has said that it is a lot of hype and that either the modifications damage the long-term viability of the arm or that they make it analytical and soulless (or perhaps they don't have an OL dealership). As a customer I really cannot be sure that, hand-on-heart, the dealer is not more concerned about what he or she has in their stockrooms. I think some dealers need to rethink a little why some people go to a specialist in the first place. I for one will be traveling nearly 80 miles to buy my equipment from now on.

Finally I know and acknowledge that there are good dealers out there and it may be my experience or the fact that I own one of the most controversial products in the annuls of hi-fi history that has led me to this point of utter confusion, but with hopefully an unbiased eye can you please end my fruitless quest and tell me the truth.

Paul Scott
Somerset

Oh boy – don't get me started on dealers! I hear so many complaints that I sometimes find myself losing the will to live! I have to say though, that all the specialist hi-fi dealers I've used (with the exception of just one, which shall remain nameless), have been excellent. They're all Linn dealers, and know their onions – if you see what I mean.

Anyway, without wishing to get involved in that particular viper's den/hornet's nest (etc.), all I can say is that:

[a] a standard RB300 is fairly close (90%) to an Ittok LVII in an LP12 (providing it's been installed properly)
[b] an OL modded RB250 is dramatically better than a standard RB300 (adding, rather than subtracting, tonal colour) and
[c] Akitos aren't bad, but are a long way behind the standard RB300 in every way except the 'swing' thing that all Linn products do well.

So... yes – put an OL modded RB250 in your LP12 and get the arm wiring done while you're at it. Get your LP12 Cirkus'd (if it isn't already thus modified) at the same time, and you won't have to buy an additional arm board. Then, when funds permit, get rid of your Denon DL110L for a Dynavector DV20XH or better...

A properly fettled LP12 (Cirkus'd, with a decent arm/cartridge) is still a very nice deck indeed, and a deeply satisfying listen. I don't think it's the best around anymore (if it ever was), but it's rather unfashionable – I'm sure the tide will turn and people will be eulogising over LP12s just like we do over 301s now – just wait until Linn discontinue it. (no, I haven't heard any rumours to this effect!).

If you want the ultimate arm for your LP12, I'd advise you sell the family silver and buy a Namr ARO. This is a truly, madly, deeply special combination and you'll know what I mean as soon as you hear it. As with all tonearms, unless you know a used arm's provenance inside out, buy new.

DP

THE MAN WITHOUT SHADOW...

"Every day our cause becomes clearer and our people get smarter". Propaganda's 'Secret Wish', eh? I like the cut of your jib, sir! I had been thinking that I must have been the only person to buy that album, apart from Anne Nightingale, who used to play 'Duet' on her Sunday night show. This is an album that I have loved from the day I bought it back in 1985, still love playing today, and will play to youngsters without apology. It sums up what the '80s meant to me: Sharply styled, refreshingly astringent and definitely monochrome.

All things that the bloated '70s were not, and would shortly be changed by acid house and the second summer of love. In fact I have a holy Trinity of albums from that period, the other two being 'Stella' by Yello and 'Songs From The Big Chair' by Tears For Fears. They are all very much of their time, probably due to the Sony PCM recorder, yet oddly timeless and IMHO all will stand critical analysis.

In case you were unaware, the CD version of 'A Secret Wish' differs from the LP. There is an extra track, the fine 'Frozen Faces' which in no way sounds like a bolt on extra. The track 'Jewel' is expanded up to six minutes and is all the better for it. Going back to the LP and you can hear that the two minutes

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or so are edited highlights from a longer version. 'Dream Within A Dream' is a subly different mix, neither better nor worse than the LP, I think. Finally 'Dr Mabuse', 'Strength To Dream' and 'The Last Word' are bundled together into a frankly overlong version of Dr Mabuse. Perhaps this was lifted from the remix album?

I scored quite an impressive five albums out of twelve in your 'World Music' feature: Crusaders, Thomas Dolby, Kate Bush, Freeze and Propaganda. Is your copy of 'The Kick Inside' an import? My 1978 copy is the usual 'Kate tied to a kite with an oriental backdrop' which I assume is the UK version. Frankly, I prefer yours! Kate looks lovely. I remember not long after you started writing for 'World, you used 'Date Stamp' by ABC as a review track. Excellent choice, I thought, but brave to admit it! in the early '90s anything '80s was really not cool at all! Since then I have been surprised at the amount of stuff you talk about that I have. The 4Hero disc, for example. I had not long bought my Meridian 508.24 CD player on the strength of its' rendition of this disc when you featured it in your column!

In case you need any ideas for future articles, how about one on 'Car Hi-Fi that isn't for Kids'. I often think about how I could put a decent setup into my Triumph TR7 that is completely invisible, to retain the standard look but more importantly would be thief proof as there is absolutely no point in locking it! I was thinking about using an iPod as the source as it's removable. After that I'm stuck though. NXS panels were going to be The Next Big Thing in car hi-fi - where are they? My wife would argue that I would be better occupied trying to get it to hang onto its' oil and water, but I can still dream! As I keep telling her, the parts falling off this car are of finest British quality!

I am a long term Hi-Fi World reader (10 years) and use KLP/P and K5881 Mk1 amplification with the aforementioned Meridian and an Orbe SEOL R3800 Reson Rica sources into Jamma Concert 8 speakers, which K5881 drives with contemptuous ease. What an amp!!

Finally, may I add my best wishes and good luck in your editorial position. If you've not heard 'Stella', I think you will enjoy it. "For those heed the call of the machine, we salute you...

Keith Stickels Yeovil

A Propaganda-loving Triumph TR7 owner who likes 4hero and uses a KLP/P/K5881 and Michell Orbe? Who prefers the Japanese pressing of 'A Kick Inside' to the UK one (yes, it is a nice pic, isn't it)? Who likes 'Date Stamp' by ABC? I think I've just met my double....! All I need is an iPod and we could be twins....!

Thanks for the letter Keith - obviously a man of quality and distinction (like wot I am), and don't forget to change your oil every 3,000 miles - but enough of Triumphs, this is a hi-fi mag! Now, I'm off to try and find 'Stella' on vinyl - will report back with my findings.

DP

THE DRUGS DON'T WORK...

It was 1973 and I was walking past a record shop in Barking. It caught my eye in the shop window. It looked different. I went in and the list of instruments intrigued me: Harpsichord, harmonium, biranne, spoons (is not one of those a curry?) I bought it. Declined the offer from my gran to play it on her wind up gramophone, "it's got very sharp needles". Try to explain microgroove technology to a Victorian.

At home I plugged in my Connoisseur BD1, SME, M7SED and Amstrad amps... The sound was certainly different; all bongs, tinkling and wailing, 'they're taking the p*s'!, I thought. Even 25 years later I occasionally get it out to amuse my friends and keep away the neighbour's cat. "What are they on?", we would ask.

Well I went and played it again and this time we started to listen. We could (almost) understand what the h*ck was going on. It was too much in one session. I decided that it needed a little more thought and application of spirit. For years I've been telling my bemused friends that when I could understand what they were doing, then I would have reached that place that I had been seeking since buying a glass platter for my BD1. I dare not play it again. If I did then the game would be over, the hobby finished. All I would have left would be the enjoyment and privilege of hearing the finest musicianship every day.

My system comprises a Garrard 401 in hand made ply and sand filled plinths, glass platter (£3.50 from glazier), record clamp, Rega RB300 modified by Mission and Origin Live, SME Fluid Damper (what a difference it makes!), Martin Bastin's excellent power supply, Goldring 1042, NAIM: NA 1X0, NAC 72, HI CAP.2x NAP 140s, Naim speaker cable, Wilsom Audio's V2 'speakers REL, Stadium 2, Technics SL-P477A, Cambridge Audio DAB300 (cheaper than having a 'twig' fitted and more choice!), Chord Chamaeleon and QED phono.

Your advice please. Yes I know that a better system will let me into every facet of the musicianship but the thing is, I have heard 'better' - well, more expensive systems - and apart from a slightly different perspective on the music, I have not heard any system that is more satisfying to listen to. I heard a Naïm CD system, £20K worth. Mine matched it and exceeded it in some areas. I agree with Martin Bastin, the chap who services Garrards: "Visiting hi-fi shows shows you an awful lot of money. One can stand outside and judge if it sounds any good. The point is: is it really worth spending any more than bi-amping a small monitor, or active crossover from Naim, fed by a quality source? I have never heard better than my Garrard. My CD player, however, is as good as any £400 player I've heard. But what would you recommend? I like the organic sound of the Meridian, Naim kicks butt and the Cyrus is detailed. I am in no rush to change it. My next cartridge will probably be the V1S and I want to upgrade my RB300 to full external wiring. Thoughts please?

Ray Spink

Hmmm... well, you've obviously got an extremely well sorted system, and are getting ten tenths out of it... so chucking money at various things isn't necessarily going to reap huge rewards. Your deck is one of the very best ever made - just make...
sure it's fully up to scratch (bearing etc.), and then fit the aforementioned Shure V15xMR. Then, I'd go for a pair of Naim NAP135s. If you like the Naim sound, and you obviously do, then these are the ultimate. After this, it wouldn't hurt to audition a pair of Classique Sounds' rebuilt Quad ESL57's, to see what you're missing. If you come away still happy with your V2s, then leave it at that – if not, go for the Quads. This done, you'll have something that can 'take you there' and back, without the need for 'chemical psycho-acoustic enhancement', if you see what I mean... DP

Crikey – that's an interesting system Ray. Putting a Garrard 401 with Naim's is a great idea; both are tightly timed and have real kick. It isn't something that would occur to either the Naim or Garrard camp though.

For CD the Marantz CD6000 KI Signature is hard to beat. It too is bright and kicky, but a required listen all the same. Otherwise, you may just want to start considering DVD-A and SACD played in stereo mixdown. Good recordings can be impressive and there are going to be many more universal players arriving. Keep your current player for CD.

On the loudspeaker front, if you are happy with the Wilmslows make sure the cabs are massy and rigid. Use 25mm MDF and internal bracing if need be. Adding mass with a bottom sand chamber also helps. I now use a small, light foldup porters 'sack truck' that cost just £35, to move heavy speakers about. When I went to the Malaysia A/V Show recently every exhibitor had exactly the same model for their heavy products, so it's a popular idea and facilitates the use of heavy items.

Finally, make sure you get the crossovers out of the speaker and into an aluminium or plastic case on the floor. Ideally it should be close to the amplifier and connected via bi-wire to the drivers, which simply connect direct to the rear terminal panel. This relatively simple re-configuration makes a big difference to any loudspeaker.

BACK TO LIFE, BACK TO REALITY?

Over the years, in a variety of systems, I have never managed to get a consistency of 'sound' from both CD and LP sources. Like many others, I guess, I have just learned to live with the strengths and weaknesses of each. As I continue to purchase CDs at a compulsive rate, I have focused my recent hi-fi acquisitions on doing them justice. Indeed, the recent purchase of the wonderful Naim CDX2-XP52 CD combo has made me enjoying recorded music like never before. Now, here's your challenge!

I need you to recommend a vinyl system that will deliver the same qualities as the CD player. Not easy, I know, especially as my maximum budget is around a thousand pounds and any money from sales of surplus equipment. Feel free to include, or sell, any of the following machines currently cluttering my living room: Garrard 301 (Bastin plinth), Thorens TD125, SME3009, Cartridge Man Music Maker, EAR 834P.

The rest of the system is ATC gear, with the CA2 pre-amp having the MM/MC option. I listen to rock, jazz, classical, blues, 'world'... actually, my brother describes my 'taste' in music as being 'catholic to the point of indiscriminating'. Although I have hundreds of LPs (mainly acquired in the 70s and 80s), they rarely see the light of day. If you could bring them back to life, I'd be very grateful.

Peter Ratcliffe

Easy – but you'll have to sell lots of your bits and pieces! Buy a Michell GyroDec SE with HR power supply and an SME Series IV tonearm, into which you should put an Ortofon MC15 Super 2. The Michell is a very clean, open and neutral deck – with just an ever-so-slightly mechanical sound. The SME Series IV is not the most musical arm in the world, but has a stunningly detailed, incisive and architectural sound with killer bass and ultra fine treble. The Ortofon is the only thing you'll be able to afford after the aforementioned (!), but does have clean and smooth sound with lots of detail – ideally you should go straight to a Kontrapunkt.

Together, you'll find this vinyl source will sound far, far, closer in character to your CDX2-XP52 than you might imagine possible – massively dynamic, powerful and commanding and a real music maker. In fact, if you add a Trichord Delphini MC phono stage, then you'll realise that it actually outperforms CD in that format's traditional areas of strength (i.e. image solidity, tightness, composure), DP

Hmmm. I would be tempted to keep the 301 on the Bastin plinth and fit an OL modded Rega arm, then use the Trichord Delphini phono stage with an Ortofon MC10 Supreme. This will give a very fast, tight sound with good detail. For a bit more smoothness go to an MC20 Supreme. NK

ARCHIVING ANALOGUE

I've started to look into the possibilities of transferring my collection of CDs to a PC for convenience. However, I don't want to compromise on the quality. I'm not too sure on the best way to go. My system currently consists of a Chord CPA2200 preamp with an SPM600 power amplifier, Wilson Benesch Arc loudspeakers and a Marantz CD17 KI. There are various uncompressed music formats, what's best? Is there a recommended 'jukebox'? As for the PC side, would you recommend buying a professional quality sound card and feeding the analogue into the Chord or using a digital out to a high quality DAC then to the Chord?

As for the specification of the PC, I guess it would be quite simple - Pentium 1 AMD 2Gig or above. How about memory - the more the better? The new generation of hard drives spin at a much higher rate, would that be preferable? Your help and advice would be much appreciated.

Bradley McEwan

Hi Bradley – you need to save your recordings in WAV format – this is pure, uncompressed 16bit, 44kHz PCM a la Red Book CD. The easiest thing to do is to buy the biggest, fastest PC you can afford, and fit a Terratec AudioSystem EWX 24/96 soundcard (£149). This boasts the latest 24bit, 96kHz oversampling chipset (for which a signal to noise ratio of over 100dB (A-D) and 110dB (D-A) is quoted) and importantly, it doesn't use any unnecessary sample rate conversion when recording at 16/44. (Many soundcards either work at a nominal 48kHz sampling rate thanks to it being the traditional 'pro audio' frequency - thanks to DAT! - or route all digital signals via their built in sample rate converter whether or not it's required).
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As far as software is concerned, then ideally buy Syntrillium's Cool Edit 2000 (or better still Cool Edit Pro), but if you want to save money then Steinberg's Clean will do. With this you'll get a decent sound recording program (WaveLab) bundled for free, which is much cheaper than Cool Edit. Take the (analogue) tape output from your preamp into the card, and the digital output from the card into your DAC for optimum sound. Use good quality CD-R blanks when burning to CD-R, ideally with a dedicated CD burner (and not a DVD-R burner that also does CDs). 

I built an AMD based PC some years ago and found a lot of music software wouldn't work with it. Things may have changed, or they may not. Nobody declares non-compatibility until you've bought the software and scanned the dreaded READ ME document. I even found a severe problem with a USB root driver for an HP printer. I went back to Pentium. My advice is: keep it vanilla. Get a Pentium and mount it on an A-Open or Gigabyte board. My new 7200rpm IBM Hitachi IDE is sad. SCSI is preferred for music and generally gives smooth data delivery from a RAID controller. 

Anyway, to get to the point, the issue of the "I am very talented because I can...!" is that it brings to the system down - suffering an overly bright balance especially at 'high-ish' volumes. Are the top end which lets the system down - a smooth, less grating listen? My budget advice, with a view to providing a smoother, less grating listen? My budget is £3000 approximately. I have two systems, both situated in the same room: First is my real hi-fi - an Arcam Delta 170.3 Transport, Audiolab 8000 DAC, Audiolab 8000A amplifier, Epos ES11 'speakers, mounted on an Ash Design stand, the speakers on Cyrus stands (glass top and base) with Linn cables.

My AV System, firing the length of the room, consists of: Toshiba 57" Rear Pro TV, Sony 725 DVD player, Sony 940 amp Mission 780s, Mission 780C, Mission 780Ds, Rel Q100. In addition, I own a Sony SCDXE670 SACD Player wired to both the Audiolab (2 channel), and the Sony (multi-channel). The problem with the hi-fi system is that it occasionally grates on my ear, becoming very tiring to listen to. I'm happy with the bass and the mid-band (very expressive), it's the high end which lets the system down - suffering an overly bright balance especially at 'high-ish' volumes. Are the glass stands a factor (considering we also have laminate flooring - all those hard angular surfaces)? Can it be counteracted? I am open to any suggestions. I will consider used as well new equipment. Would super tweeters be any help? I'm also rather keen on the Shanling Audio CD-T100. Would that be a worthwhile upgrade and are the other components up to speed? 

**STUFF THE STANTON!**

I felt the need to put pen to paper after reading your very fine vinyl-backed September 2003 issue on a topic that first troubled me a little in the July 2002 issue as well. A few years ago it seemed a natural progression for someone like me who has spent years buying, selling, repairing, collecting and drooling over all sorts of turntables to indulge in a spot of DJ-ing - getting paid to spend an evening mucking around with vinyl seemed like too good an opportunity to miss! Before David Price throws this in the bin, I should maybe say that I'm not of the "I am very talented because I can...! school - more your sort of cheesy wedding DJ who just plays the 80s stuff that gets people dancing when they're half drunk! Anyway, to get to the point, the issue that concerns me regards Albert Lee's review of the Sony PS-DJ9000 turntable and also appeared in the article on replacing the arm on the Technics SL1200/1210 last year.

Now, I have no doubt that theSony is nowhere near as good as an SL 1210 but at least it gives it a fighting chance by bolting something decent into the headshell instead of the 'orrible Stanton 500 that always seems to come fitted into DJ turntables! This is a truly unpleasant device that is very definitely best junked ASAP as it brings to the party splashy and harsh treble, precious little bass and, most surprisingly of all, a distinct lack of boogie - somehow essential for a DJ cartridge I'd have thought!

David Price did the same thing last year to test the SL1210 with newly-fitted Rega RB250. I read this at the time with a Roger Moore-style raised eyebrow as I have never been a huge fan of the Rega and don't think the SL1210's arm is all that bad, but any belief I had in the review of the finished article went out of the window with the picture of it being tested with a Stanton! I am currently using Ortofon OM Pro-S's in my 1210's and even have one temporarily bolted into the Audio Technica AT-130 on my 301 whilst I save up the pennies to replace my beloved AFOC9 which is recently deceased! So go on, give an Ortofon a try next time you're givin' it some large party splashy and harsh treble, precious little bass and, most surprisingly of all, a distinct lack of boogie - somehow essential for a DJ cartridge I'd have thought!

Adam Smith

Hi Adam - rest assured that we did not exclusively use the aforementioned 'orrible Stanton 500A in the listening! We always run a range of cartridges in all arms and/or turntables we review, simply because it makes sense so to do. To use a motoring analogy - taking a Ferrari Enzo for a test drive with East European-sourced remould tyres would hardly give it a fair chance now, would it! Every time you've spotted a Stanton, it's been for photographic purposes only! And before all you 681 fans write in, I think the Stanton brand is most worthy - it's just the 500A I (we) don't like. Anything that sounds best tracking at 5g isn't much cop in my book...! I hope everyone got the message - which is that [a] the SL1200 is the deck to have if you're into Djing, and [b] its own arm is rubbish and benefits from a Rega upgrade and [c] avoid all cheapo DJ decks like the plague - they're not even close to the Technics, which itself isn't as good as a Rega P3. 

**TWICE AS NICE**

Could you please offer some upgrade advice, with a view to providing a smoother, less grating listen? My budget is £3000 approximately. I have two systems, both situated in the same room: First is my real hi-fi - an Arcam Delta 170.3 Transport, Audiolab 8000 DAC, Audiolab 8000A amplifier, Epos ES11 'speakers, mounted on an Ash Design stand, the speakers on Cyrus stands (glass top and base) with Linn cables.

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Sid Murphy

Liverpool
The other option is to take a walk on the wild side and go for one single dramatic upgrade, which is what I'd personally do. Given that your speakers are already pretty capable and your CD player isn't too far off the pace either, the addition of an Audio Research Vsi55 valve integrated would be most interesting. Essentially, you'd get a dramatically bigger and more powerful sound, with loads more sweetness and grace to boot. The drop-dead gorgeous good looks and handy remote control wouldn't hurt, either. I've been living with one for two months now, and will miss it dearly when it goes. It's a seminal product, and one that would transform your system — all considerations of supersweepers and stands would go out of the window when you hear this charismatic performer that offers that elusive combination of smoothness and true grit! DP

And how about a modern pattern rug or similar to add just a bit of treble absorption, plus a bit of colour, to the room? I know hard, wood floors look nice and are wonderfully functional; I've toiled to replace a couple myself. But a brightly patterned rug adds colour and usefully damps reflections. It also gives a warmer ambience of course. NK

THIRD CLASS!
In response to your article on Radio 3 in the August edition, here's my two cents: Radio 3 has become boring and predictable. Very few plays. No science. No social content. No literary programmes or features. Nothing to grip the imagination. Poor sound balances on broadcast concerts. Has become all day record review. Late Junction - good show - but why bother to listen when the rest of the evening is so awful? And as for DAB - this is the biggest let down of all time and a complete sell-out by the BBC. Laurence Lewis

Methinks Laurence won't be sipping sherry around Greg Dyke's Christmas fireplace... DP

Now, Laurence, please tell us what you like and why — especially on DAB. I find your criticism interesting, but you gave me nowhere to go. NK

TWEAK TIPS
Congratulations on being the thinking man's hi-fi magazine - love it! Here are my tips for the temporarily financially embarrassed (like me) who nevertheless readily accept the importance of interconnects and equipment supports.

[1] Manufacturers' standard-issue skinny interconnects can easily be bettered by buying nice fat purpose-made cable and gold-plated phono plugs from Maplins, together with silver solder for gluing them together. They sound better than get-you-going ones (but I'd love to compare them with five-very fine file and I or wet-and-dry paper. I also polish the insides of the holes into which the bare wire ends fit with a very fine round file, sometimes called a rat-tail file. Finally, anticipating the return of relative wealth, a question, if I may? Is there some easily affordable, superseded pre and power amp combination, preferably without tone controls but with 3 or 4 inputs including phono, and about 100 WPC (watts per channel, not female police persons), which sounds better than a late-model A& R A60? The A60 still sounds fine, but more dynamics would be welcome... Keith Aburrow

Thanks for that Keith... your hints are duly noted. As for cheapo pre-powers, Linn's LK-1/280 is terminally unfashionable, but should just about better an A60, and not cost the earth. Personally, I'd go for a Naim 42.5i/110 (or similar) in the old 1970s style black and silver cases — at around £250 these combos are cheap, simply by virtue of their lack of scarcity — there are loads around. They sound truly punchy and powerful, although the absolute power output is well below your desired 100W. DP

IN DEFENCE OF DECCA
In the September 2003 edition on vinyl replay, you mention 'the long-lost Decca'. Well, these cartridges are very far from being 'long lost! The Deccas still have a very strong following, myself included. My valve system has a Garrard 301 with a Decca Professional arm and SH4E fss head and my solid-state system has a Thorens TD150 again with a Decca Professional/SH4E. I also have several fss Mklls and Mkllls and I even had a special 78 rpm stereo head built for me, so I can eliminate surface noise from 78s, (but that's another story). Wright Audio of Bridgenorth offers an excellent service in rebuilding Deccas, and I have seen an American website talking about remanufacturing them.

So, what is all the fuss about? The Decca is neither moving-magnet nor moving-coil but variable reluctance. The 'secret' of the Decca is that the lateral coil is as close to the groove as is physically possible, with the shank of the diamond stylus inside the coil, eliminating any cantilever. As a result, Decca cartridges have an immediacy, clarity and reality which cantilever designs do not seem to come near, but there is a downside: the later models with 1/2" fixings were very fussy about the arm they were mounted in, and could mistrack severely. This gave them the bad reputation for record damage.
which is alluded to in your article. The earlier ffss heads had their own arms that were dynamically matched to the heads. Although regarded as 'agricultural' by today's standards, they work - all my ffss pickups fly through tracking tests with no problems.

If anyone wants to get into the Decca sound, a Standard arm with a MkII head can be found at the fairs for about £30, a Professional with a MKIV head for around £80. It costs roughly £100 for a complete rebuild, so for less than £200, you can have a full-spect Decca pick-up and experience the Decca sound. A possible issue is that ffss heads do not seem to match well to mmaphone cartridges to arms: get a test record is ruler-flat from 20c/s to 20000c/s with MkII, MKIII, H4E and SH4E heads using Shure, Decca and HFS75 test records with a Bruel & Kjaer spectrum analyser. The output of thing.'**** Hi - Fi' is abysmal and 'Hi - Fi' is a quid. The HFS75 has both lateral and vertical tracking test bands. As a professional audio engineer, I have found that expensive arm/ cartridge combinations that tracked clean laterally could suffer from vicious vertical mistracking. Often, tracking pressure needs to be increased towards - or even a little beyond - the manufacturer’s recommended weight to ensure secure vertical tracking. Obviously, it is far preferable to track a little heavier than to mistrack and cause damage.

Martin Lawrence
Birmingham

HI-FI WORLD: THE VERDICT

I have to say that I liked the magazine a lot in its early stages, when Noel and Dominic where doing the DIY stuff. However, I realise it's a very specialist niche market, and there probably aren't the readers to cater for now in that sort of thing. **** Hi-Fi is abysmal and 'Hi-Fi' **** is going down the same line - the dumbed down editorial and 'sexy' pornographic pictures of things with kilo pound price tags... so its a difficult place to fit in!

As for your scribes, I think Andy Grove is a very clever guy...you have a good one there! Get him to write books..he has loads to offer! You can tell him that! A pity about losing Eric Brainwhite - he was an excellent writer...I had a very similar system to his! I assume Dominic Baker went to work for a speaker manufacturer? It's always good to look back on things, and the retro stuff by yourself is good, too. Just in case you're wondering what some readers would like...here's my wish list: reviewers equipment, perhaps more technical articles by Andy Grove and Noel Keywood, maybe manufacturers visits to factories and interviews and a lower price - only kidding! If I maybe so bold, could I ask what hi-fi you have at the moment?

Ian

Hi Ian - the other magazines all serve different purposes inside the big hi-fi tent! You're right about the Grove-meister, he's a serious tube man who's designed some brilliant amplifiers for Quad, Leak, Audio Note and World Audio Design to name but a few.

Dominic Baker now designs loudspeakers for JM Labs, hardly surprising because when I joined the mag in 1994, DB was notionally the editor, but always downstairs designing/measuring loudspeakers!

We've lost touch with Eric, but I too loved his gentle, lyrical writing style - although I have to say that sometimes Noel and I used to have to read and re-read his copy, struggling to find what he actually thought of the product!

You'll notice that Noel is doing more technical pieces these days - something I think he does superbly.

As for lower prices... Hi-Fi World has a heck of a lot of editorial, and that costs money - I'm sure readers wouldn't like us to drop the price and chop half of it! Still, it would make my life easier, I suppose... DP

The "what hi-fi do you have" is understandably of great interest to most readers Ian; it's a question that comes up repeatedly. Unfortunately, it's better to do what we say than to do what we do! Quantities of product move through our hands, so there's always something different in the living room, and likely another room too. Few reviewers have one fixed system and, if they did, I would worry quite frankly. We have to take a broad view, not a narrow one conditioned by exposure to and belief in just a few products. I listen to what is being reviewed, not what I would listen to! If I was to retire tomorrow (ha!) I would probably have a Garrard 401 on a Martin Baslin plinth with SMEV plus Ortofon Kontrapunkt. This would feed our own Phono II phono stage (I use a KLPP1) and a couple of our big single-ended 300B amps (all designed by Andy Grove).

Loudspeakers would be my own or those moded Quad ESL-57s perhaps. And in another room I would definitely have a surround-sound system. How best to do surround-sound with valves is something swimming around in my cranium at this moment! NK

THAT'S TELLING THE POPE-MEISTER!

I suppose anyone who makes a statement is there to be corrected, and Simon Pope, in his review of Retro, by New Order (September) claims that Peter Hook was, "the world's first ever lead bassist". Those of us with longer memories can recall the time when two members of The Shadows, Jet Harris and Tony Meehan, split from the band, and had success with at least two singles, I think they were called Diamonds and Scarlet O'Hara. Both tracks followed the same formula, with Jet Harris playing the lead, and Tony Meehan playing a drum solo in the middle. The crucial point is that Jet Harris was a bassist, and his leads were played on a bass. I'm not going to fall into the same trap as SP. If I maybe so bold, could I ask what hi-fi you have at this moment?  NK

Simon Pope

Please forgive me - I was born in 1968. SP

---

Simon Pope - too young to know!
Albert Lee takes a shine to Roksan's new Radius 5 turntable - and especially its Nima unipivot arm.

It's all too easy for us vinyl junkies to take those 'two ounces of black plastic with a hole in the middle' for granted. We do not remember the effort engineers have put into making this medium possible. When did we last marvel at the mechanical ingenuity of the process, and the sheer naturalness of the reproduction? Audiophiles demand engineering excellence — only this lets us experience the tangible emotional force between performers, composers and their audiences.

Roksan Audio is one such company famed for this. Formed in 1985, its commitment to high quality reproduction is legendary. The first product was the Xerxes turntable, which was a milestone in vinyl reproduction - at the time when the Linn Sondek was the deck to have, it burst upon the scene and upset the proverbial apple cart by. Its pitch stability was superb, bringing incredible definition to transients and showing the mid-Sondek up as not quite worthy of the purple prose lavished on it by many hi-fi hacks.

The new £750 Radius 5 continues the theme; available in both acrylic and timber plinth finishes it's compact at 400x350x150mm and weighs in at 7kg. It sports an acrylic platter, and main bearing spindle that's precision machined from stainless steel. The main bearing housing is solid brass, and case hardened steel is used for the main bearing ball. The motor pulley is machined from aluminium alloy, and is powered by a 24-pole AC synchronous motor giving both 33.33 and 45rpm speeds.

The motor board is coupled to the turntable support via three spikes, positioned to enable motor noise to drain into the support system. Interestingly, the standard Nima pick up arm is a wide-tubed unipivot design with a bearing yoke and headshell fashioned from acrylic. Its effective length is 240mm and has an effective mass of 10g. The internal arm wire is made of a very flexible printed circuit board and has no less than three earth lines along with the normal signal lines.

GOING LIVE

Unpacking this unit was a breeze, and made all the easier by an extremely well penned user manual. Assembly was very simple, and levelling the record deck was made very easy by the inclusion of three height-adjustable spiked feet.

The Nima pick up arm was a simple task to set up, possibly due to a misspent youth ritually taking record players to pieces and putting them back together again. Mounting my chosen Roksan Chorus pick up cartridge was aided by the accurate alignment gauge, although care must be taken to read the instruction manual very carefully, as it's very easy to rip the cantilever out of the cartridge when attempting to mount it into the one-piece headshell/arm assembly!

It is vitally important to be confident with this arm even though...
it seems to sway all over the place in classic unipivot style. A complete set of tools is included in the case, along with (unusually) a pair of stylus scales. Roksan has even got the scale right, as it is set in micro-Newton's and not in the usual grams. The conversion is approximately 10 mm to 1 gram. Assembly of the Roksan took approximately thirty five minutes. Now let battle commence!

At first the Radius 5 was disappointing, Bass was extremely boomy with a lot of splashy mid range. It was obvious the turntable was suffering from an attack of structure borne feedback. So I decided to build a wall-mounted turntable shelf. The reviewing process was halted for two days while I designed the new support system, using a frame into which I could drop spiked platforms, which would support the equipment. Finally, we were ready to begin listening again!

The difference was staggering. Suddenly Bass was clean and extended, while midband and treble had a smooth, sweet, warm balance. The Roksan was finally able to acquit itself with aplomb - with the deck properly sited at last, it was capable of extracting oodles of inner groove detail. Stage depth proved very good, with width and height of the highest order. James Brown's music was presented with an almost visceral feel. Single instruments were displayed with force and drive, making John Williams' rendition of Bach's Suite No.3 for unaccompanied violoncello (on Delyse ECB3149, deleted many years ago but a very fine piece of work) a very rewarding experience. The acoustic of the room was plainly obvious. His classical guitar had richness, which a lot of budget/mid-price decks simply omit.

Changing styles of music did not make this turntable stumble. Frankie Goes to Hollywood's 'Two Tribes' was suitably expansive - the stereo image extended out into a vast semi-circle in front of me. Although 'Clever' Trevor Horn's production was a little bright for my taste, I have rarely heard this 12" single played with so much punch in the bass, and with the instruments so explicit etched into my listening space.

I then changed the cartridge to an Ortofon MC15 Super 2 in a bid to isolate its tonality - was this rich sound due to the Roksan Corus? The answer was no - the MC15 seemed to have a vice-like grip of the music, but with a slightly ragged treble presentation, although the imaging hadn't lost any of its scale. Next, a Decca C4E cartridge went in - these are extremely difficult to track in most arms, but the Nima arm had no such problems. This rare transducer is capable of tremendous musicality in the right carrier, and I'd just found it - no thirty year-old cartridge should sound this good! Its vivacity and control, along with superb stereo imaging made the walls of my living room melt away.

In a bid to nail down precisely why I was getting such great results from a turntable affordable by many mere mortals, I set about eliminating the possibilities. The Nima arm was duly whipped out, and in its place the venerable (and venerated) Origin Live modified Rega RB250 was mounted, with the Roksan Corus duly re-installed. The stereo image shrank by a few feet in width, and along with a small foreshortening of image depth the height of the image was affected as well. After auditioning many types of music, I can't help but feel that at last we have a rival for the OL RB250.

Overall then, here's a seriously capable mid-price turntable with a naturally warm and engaging sound. Its bass is particularly generous - grippy but tonally fulsome in the way the Garrard 401 is (albeit not to the same extent), while its midband is wide and deep and tall, yet smooth and sweet. There's very little to criticise, save the fact that it can't scavenge the last nth degree of low level detail and treble air that the best of the rest - Michell's TecnoDec - can. Also, it really does need a good support - much like its other price rivals. As for its bundled Nima arm, suffice to say that this is a brilliant budget arm that simply sounds far better than it has a right to at the price.

VERDICT

This turntable displays real thought behind its design. The bundled Nima unipivot tonearm raises its game still further, making it superlative value for money.

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With more substitutions than Sven Goran Erikson's England playing a friendly against the second Liechtenstein eleven, AL finally got to bottom of why the Radius 5 is so good - the Nima unipivot tonearm. The deck itself is excellent, oh-so-close to Michell's TecnoDec, albeit with a less detailed and analytical sound (not a bad thing in a budget system). The Nima arm has a brilliantly organic and cohesive sound which invests this already capable deck with a far greater musicality than you'd expect even at this price. The result is that - in conjunction with a nicely warm and 'big' sounding cartridge like the aforementioned Roksan Corus or Goldring G1042, you get a vast, panoramic sound. Contrast this to the Michell school of sound reproduction, in which things are so tidy, ordered and detailed and you can see that the new Roksan deck will win many friends. It's not ultimately as incisive as the TecnoDec, but it's a less cerebral and more endearing listen.

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In these Digital Radio-obsessed days, anyone who launches a new analogue tuner is showing a good degree of faith — and to offer it without even the basic convenience of remote control is tantamount to zealotry! Even Naim — a company whose tuners aren't exactly feature packed — comes with the couch potato's best friend. Yet the Cyrus doesn't include one as standard — for that privilege you'll have to use the system remote supplied with the matching amplifier...

Indeed, the £500 FM X is something of a minimalist zone - the amount of presets available from the front panel (and remember there's no remote) runs to a grand total of seven. Hmm - even my car stereo has more! Also, you'll find no RDS (also like the aforementioned NAT05). Oh, and as you can probably glean from the name, there's no AM band. But do you know any audiophile that seriously listens to AM broadcasts through a proper hi-fi? Me neither.

Now the lean bits are out of the way, it's time to focus on the meatier portions, of which there are actually plenty. It's very, very easy to use which is always welcome with a tuner — you really don't want to muck around too much when it comes to listening to the radio, in my humble experience. As for features, there's the rotary knob. In this case it's simply used for manual station tuning — how unreconstructed! The clear, backlit LCD display features the frequency in the bottom right of the window, the preset in a large numeral to the left and - like a beautiful arcing monochrome rainbow of radio waves (steady on, Chris! - Ed) - the signal strength meter and tuning 'lock' arched above. Press the fine tuning button and this arc of blocks separates. If the gap is in the middle and both sides of equal length, then you're bang on target!

Other features include — as with all Cyrus products — the worthy option of hooking up a PSX-R power supply (£350) for what is invariably improved performance, and MC Bus connection for synchronisation with other Cyrus products. Overall, as far as facilities and usability is concerned, the FM X is functional and simple. If a little bare in the features department. It's incredibly easy to use, however.

Sonically, it is everything you'd expect from a decent stereo tuner. Voices on Radio 4 were natural and very clear, and the background was impressively quiet. There was little chestiness in spoken voices but there was also a little thinness discernable which perhaps doesn't make the FM X the most full-bodied option on the market. This was also confirmed switching over to Radio 3 where their nightly 'drive time' show features both interviews and live music. The live music was very well detailed in the traditional Cyrus fashion but again the piano lacked a bit of body and warmth. Commercial pop stations actually had a decent sound to them, the dry nature of the Cyrus adding some well needed neutrality.

The FM X is undoubtedly a dry but concise sounding tuner, but this matches it sonically with the rest of the Cyrus range of products, which have always erred this side of the audio fence. As far as facilities and features go, it is a bit lacking at the price; there is some very strong competition out there. But if you own a Cyrus system it is undoubtedly the obvious choice. Or if you want some extra insight to balance a warm system, again it's a good choice.
Is it live, ...or is it hi-fi?

One of the most implausible things about hi-fi is the fact that many professional musicians don't feel the need for a serious sound system - despite hearing live music on a daily basis at work! In fact, some are notorious for using particularly poor bits of kit. So, our own accomplished clarinettist and audio aficionado, UK Setright, attempts to reason why...

I t was the letter from reader Alan Froy that started me on this train of thought. He was disturbed by the rather ropey equipment that seems to suffice many active musicians when they set themselves to listen rather than to do — and he correctly, if rather vaguely, remembered that I had been one of them myself, once upon a time. It was not as a flautist, as he thought, but as a clarinettist and singer that I added some sorely-needed semi-professional earnings to my sorry stipend as a fledgling lawyer; it was not even the money that mattered, so much as the urgent need to do something creative, and I loved every bar of it — or at least all the bars that I managed to count.

They were heady days, playing and singing under some of the best batons, and with some of the best practitioners, in the business. You might not recognise all the names, though if I jumble up a few of them - Klemperer, Beecham, Archie Jacob, Hindemith, Gilbert Vinter, Martindale Sidwell, Giulini, Schwarzkopf, Montgomery Baird, Bernard Walton — a few bells might ring in your memory.

Being a clarinettist puts one right in the middle of the orchestra. It might stretch sixty feet across the width of the platform, and thirty from front to back, and Heaven help the poor blighter at one extremity listening for a cue from another player stranded on the far side, and getting it a fifteenth of a second too late. Performers really do not want stereo or imaging, they can only function well when everything seems to come from a point source just above the music desk.

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"Performers do not want stereo or imaging, they can only function well when everything seems to come from a point source just above the music desk."

Some of the vocal groups in which I picked up the odd fiver would crowd together as close as possible, so that the music should issue from us as nearly as possible from a single point. From some points of view, stereo seemed for a long time to be making the best of a bad job. Maybe it still is.

Permanently stuck in my mind is the recollection of my first visit to a pukka hi-fi dealer (the Sound Organisation, at their original warehouse premises near Southwark Cathedral) who demonstrated a few things. He noted that instead of sitting back in the settee conventionally provided, I went and stood exactly between the speakers, with my back to the wall; I suppose that I was listening to the
room rather than to the speakers, but he deduced that I was or had been a practising musician because this is apparently what they, and only they, do.

Feedback from the room is what a player has to rely on for judgement of what and how he is doing. That is how some halls get their reputations for good acoustics, even when the audience fails to get the benefit. Feedback in the Royal Festival Hall used to be poor: it was impossible to know how loud or quiet to be. The Usher Hall in Edinburgh was marvellous in this respect. Doing Gerontius, after minimal rehearsal, in Canterbury Cathedral was a weird, curiously remote and not yet mystic experience: in that vast echo-chamber one could not, as so often one does, rely on one's ears. The conductor had to be watched with ferocious concentration, otherwise one was simply lost in space.

As an example of misunderstanding, the City Hall in Birmingham was ballyhooed to the skies by the musicians who first performed there, because the feedback was good, and everybody thought that they must be right because they were Musicians. In fact the sound for the audience was hideously jumbled in all but a few seats, and even there the steel railings that stopped us falling out of the circle into the stalls resonated furiously. I found one ringing a true B natural, others off a bit. I was sitting in a vast nest of tubular bells! As a rule I try in most halls for a seat in the front row of the circle, and at all costs avoid seats under it, where (as in the Barbican, which not only looks like a bus station but sometimes sounds like one) there is no bass to be heard.

No wonder that some musicians do not worry about their home hi-fi. There are exceptions: a trumpeter whose name I have forgotten had some very splendid apparatus indeed, including some huge horn speakers in the corners of his listening-room. On the whole, though, it is a matter of knowing the music inside-out already, and listening only to the performance. In this case the fine separation of detail, faithful presentation of attack (hurrah for analogue!), and honest revelation of phrasing, are what matter. It does not have to be exciting, or lush, or even musical: it has to be correct.

Even then, you might wonder why. Once when I was due to sing with the Philharmonia in the second half of a concert, I sat up in an empty box and listened to the first half, in which they were playing Ravel's Daphnis et Chloé - under Giulini, I think, though it may have been Abbado - and it was the most miraculously exciting performance of all the many I had or have since heard. During the interval I whizzed down to the Green Room and found my pals in the clarinet section, and dear old Archie Jacob, perhaps the best second clarinettist in the world (he played on old Barrett-system instruments, unseen elsewhere since the days of military bands before the war), explained it: Well, you see, he took it a little slower than usual, and so just for a change we had time to play all the notes! If you have ever seen the score, with so many demisemiquavers that it would surely be quicker to print the occasional white bits on black paper, you will have seen what he meant. Sometimes I have heard most of it twice in the Royal Albert Hall, but I have never heard all of it even once through hi-fi of any sort.

One knows what should be going on, and if any of it be missing it may be inferred, consciously or unconsciously. Sometimes the lacunae are simply too great: in the early 1960s I bought my first television set and settled down to watch and hear a performance of the Berlioz Symphonie Fantastique. Aghast, I realised that something was terribly wrong, rushed upstairs to my music room, and came down clutching the miniature score. The entire bass line was inaudible. The next day I took the set back to the dealer, and insisted that he rip it out, the existing 'speakers and put in something better. Bemused, he did, and it worked, but after so many years I guess that it was still pretty horrible.

Nothing is ever perfect. It follows that when I listen to new or unfamiliar music at home, I have to suspend a lot of judgements. My system is pretty correct, but one still has to make inferences, every time one listens, and it is dreadfully difficult when one does not know what to infer.

It is at such times that stereo can be a real help. I have never felt any need for more than that basic separation; the complexities of imagery have never seemed in any way relevant, but I have noted that the need for that sort of stage-setting seems often more acutely felt by listeners primarily interested in jazz. This strikes me as curious, for there is so little duplication of effort in any jazz ensemble that even stereo might be dispensed with, while the full swing band (given decent arrangements) is so clearly stratified that mono listening might be a definite advantage.

Maybe the trouble is that many musicians have simply been deafened by sitting in a big orchestra? The commercial need to fill oversized auditoria is nowadays so severe that orchestral instruments (and, to a worse degree, pianos) are being made to sound louder than ever. You have never heard such a racket unless you have been on the inside!

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"My system is pretty correct, but one still has to make inferences every time one listens, and it is dreadfully difficult when one does not know what to infer..."
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Hi-Fi World 2003 on Illustrious Tonearm

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Musical Fidelity X-CAN headphone
amplifier.

The problem is that, despite
having nothing but respect for high end Sennheisers (the budget ones
too, although I can't say I'm
enamoured by the company's mid
price fare), after a while you don't
half yearn for something a little more
'alive'. The HD600s that I use on a
regular basis are superb—and have
a very engaging mid-band, but there's
always that slight tinge of Teutonic
— rather sterile, matter-of-fact
German of course, from the
company that produced the first ever
professional recording studios the world
over.

In the flesh, they're a very nice
sound albeit not comprehensiv-
ely better than the HD600, is
obviously inferior, although the
headphone is based largely on
Sennheiser HD600s. Bass is obviously
more sumptuous, although less rigidly
controlled. Mid-band lacks the near-
electrostatic like character of the
Sennheisers — it's clean and open
ally, it's just that it doesn't have
that last, nth degree of clinical
precision. Still, there's a hell of a lot
of detail. The image placement is
obviously inferior, although the
DT990 actually sounds more
expensive.

This is because, despite its less
studied, architectural nature — which
isn't as good as imparting precisely
what happens with Beyers —
the midband is
actually looser and less
delicately forensic than the
Sennheisers, yet it sounds more
atmospheric all the same — thanks to
the treble.

What of the treble? Well,
Sennheiser lovers would call it 'over
explicit and somewhat coloured', but
it does have more ambience and a
silky patina that makes it more
pleasant to behold.

Appropriately enough for this
'class of the Teutons', I used
Kraftwerk's brilliant new 'Tour de
France Soundtracks' on CD to pin
down the differences between the
HD600 and the DT990. The
Sennheisers can be best described as
rigorous interrogators of their
source — much like Quad ESL57 they
simply convey what's on the disc,
minus a touch of treble extension and
bass push. The Beyers add air,
space, breadth and depth, plus a
warmer bass — but the midband feels
obviously less connected to what's
really going on — as if there's a layer
between the artist and the listener.
They're less locked into the groove
of the music, and less determined to
eke out what's going on in the
production. Does this make them the
inferior listen? No, it does not — just
different, like BMW and Mercedes.

QUOTED SPECIFICATIONS

<table>
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<tr>
<th>Transducer type:</th>
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Glowing Praise

David Price enjoys Musical Fidelity’s brand new tube-aspirated X-CAN v3 headphone amplifier...

Rather than offering the colouration (and I mean this in its correct, negative sense) of traditional valve amplifiers, MF’s tube and NuVista creations have had the transparency and detail to match the best solid-state products, allied to just a soupçon of ‘je ne sais quoi’ that thermionic valves deliver. The result is a very tight, clean and fast sound, but without the grain you get from many solid-state designs — the best of both worlds, in other words. This is pretty much what I felt about the original X-CAN. It was far tighter and faster than you’d expect from anything with a glowing glass bottle within, yet offered just the tiniest of ‘tubular palliatives’ — the result was something with all the speed and grip of its (fine) Creek OBH-11 rival, but just the slightest (yet most welcome) valve sweetness and liquidity.

The new X-CAN v3 claims less distortion, wider bandwidth, lower noise and better stereo separation than its already usefully improved v2 incarnation. It also provides better load driving ability, due to the lower output impedance. More obvious is the new casework, which has been squared off and enlarged, and given a front panel and dial machined from solid aluminium. Whatever you think about the move from the mini ‘tubes’ to oblong casings, the improvement to the volume control is undeniable — it’s far nicer to use, and invests the unit with a sense of it being budget esoterica (rather than just ‘budget’). Unfortunately, however, the price has gone up a lot since the days of the original X-CAN — the new v3 will now set you back £249.

This is excused somewhat by the fact that the new v3 is appreciably better than the v2 — more so, indeed, than the v2 was compared to the v1. It takes Musical Fidelity’s headphone amp into altogether more earnest audiophile territory, by adding a good deal more bass power and grip, midband speed and grip, and just a touch more treble air and space. The X-CAN v1 was already a very capable device, but the v3 is so good as to be largely irrelevant to the sound you get from your headphones — as the problems with your cans become ruthlessly exposed.

I used my much-loved (and well worn) pair of Sennheiser HD600s, and Beyer Dynamic’s DT990 — two very gifted performers with their own individual ways of doing things. Not only did the X-CAN v3 spotlight the differences between the two in sharp relief, but it showed nonchalant disdain — almost as if to say, ‘bring on something better’!

4hero’s ‘Cosmic Tree’, complete with its powerful Moog basslines and athletic acoustic drumming, showed the Musical Fidelity box to be unremittingly powerful and big booted — I heard the Sennheisers pummel out bass like never before, but with dizzying speed and grip. Impressive as it was, it seemed just a touch uptight, so I switched to the DT990s, only to find a fuller and more breathy bottom end.

Moving up to the midband, the snares had tremendous ‘thwack’ through the HD600s, with brilliant attack transients and a metronomic sense of timing. Treble sounded more open than with my v1 (just a bit brighter, too), but a move to the DT990s confirmed it was far more atmospheric than even the HD600s could convey.

The great thing about the X-CAN v3 is its bottomless pit of power, allied to fantastic smoothness and supreme incision. It is tube aspirated, but does not sound it — but nor does it sound like a transistor design either. The new version brings real depth and breadth to the soundstaging, which wasn’t quite as impressive as it could have been in previous incarnations. It’s also punchier and more dynamic too, while remaining smooth and even right up the frequency band. The upper mid is still just a tad bright, but the extra bass push makes it less obvious. Indeed, given that it’s highly likely to be used with clinical sounding German headphones (HD600s take a bow), fine as they are, I’d have liked just a touch more colouration — but it’s churlish to complain when all this box is doing is dissolving out of the picture, only to show the faults of the ancillaries in sharp relief! In truth, it is superb — head and shoulders above Creek’s OBH-11 and not far behind Sugden’s (more expensive) HeadMaster.

VERDICT

Powerful and sweet sonics make this an essential upgrade for even the best of headphones.

MUSICAL FIDELITY

X-CAN

Musical Fidelity

£249.00

(+) 0208 900 2866

www.musical-fidelity.co.uk
Orelle's back with a vengeance. After its cracking new integrated amplifier we reviewed last month, we can happily report that the matching CD100evo silver disc spinner is also a peach. Dominic Todd can resist anything but temptation...

If you've not heard of Orelle, or aren't quite sure of just where you know them from, then you won't be the first! They are a typical example of the once thriving British hi-fi 'cottage industry'. Unlike so many others, however, they've grown into a fully fledged 'small scale' manufacturer. Still, they don't exactly release products every other month a la Musical Fidelity. The last Orelles I remember were some very fine two box CD players from the mid-nineties, and if I'm not mistaken, the last player we reviewed from them was the CD100e way back in March 1997.

Six and a half years later the world has moved on but here again we have the Orelle CD100e! This time, though, the e stands for evo (as in evolution, geddit?), and the player has certainly evolved in terms of aesthetics. The chunky bare aluminium casing and front panel is very vogue, and the curved side panels certainly make it stand out from the crowd. In light of the excellent basic finish it comes as something of a disappointment to find rather plasticky buttons and a mechanism that sounds like a radio controlled car revving up, as it's switched on.

Still, the internal electronics show a great deal of thought. It's pleasing to see that Orelle have stuck to multi-bit technology with their latest model. Furthermore, the separate DAC board has its own power supply. The rest of the player is powered by a substantial toroidal transformer, and there's plenty of quality componentry and design about, from the Aerovox capacitors and discrete audio output, to the damping panels used to quell resonance from the lid. I did rather feel that offering digital outputs as an option is rather cheeky, and that not having them really doesn't affect the sound quality, yet a switchable display is a nice touch.

SOUND AFFECTS
Beautifully engineered it may be, but Orelle can't afford to be complacent when there's some serious competition around this price from the likes of Cyrus, Arcam, Exposure, and, not forgetting, the super value Marantz CD6000Ki. First disc to hit the draw was Royksopp's 'In Space'. This ambient music really suited the machine well. It sounded most transparent, with a well integrated and coherent balance. The bass response didn't quite have the authority and weight of my own two-box reference, but it was at least taut and had a fair depth to it. Subtle details in the treble were well resolved without sounding splashy, in the manner of some older multi-bit players. Generally it was an involving listen with only a lack of serious weight counting against it.

Carol Kidd's 'Bidin' my time' showed off the CD100's fine soundstaging. Vocals were dead central, and gave a pleasing insight into Kidd's timbre. Likewise, the piano's presence and place couldn't be faulted. The only concern again focused around the bass, with the double bass lacking in body, although not timing, which kept the piece moving at the foot tapping pace required of it. The delicate brush of percussion had a lightness of touch that was once thought to be the preserve of single-bit players alone. Yet, there were times when the overall balance was perhaps a tad too delicate. It was as though the Evo was tiptoeing its way through the music when it perhaps should have instead been stamping a little more authority on it.

Good soundstaging was another forte of the Orelle's shown with Tom Wait's 'Better Off Without a Wife'. The throaty vocals lost little in reproduction, and the live atmosphere was well captured. There was enough background audience banter resolved without it becoming distracting as some more analytical players might do. You probably won't be surprised to hear that it was the upright bass that lacked presence, and that this rather undermined the song, as Wait's husky vocals weren't quite offset enough. Still, it didn't spoil the...
performance and it was generally reproduced in a beguiling manner.

To see how the CD100 performed with classical music, the next disc tried was Rimsky-Korsakov's 'The Story of the Kalendar Prince'. It was pleasing to find that the Orelle's balance didn't really change here and that it wasn't averse to classical music as previous Orelles have been. The timbral quality from the solo violin and clarinet were as good as could be hoped for from this price of player, and the brass section had a wonderfully powerful and raspy nature that really engaged the listeners attention. In the light of this, a touch more decay from the percussion would have further improved the balance, although this is perhaps asking a little too much of a player of this standard. Less surprising was the lack of authority given to the lower string sections, although this wasn't as much of an annoyance as it had been with previous types of music.

The delicate finger work from plucked strings was nice and transparent, and the player had enough dynamic spirit to make the listener wince when the music demanded it. Yet this wasn't always necessary for the right reasons. While the CD100's powerful, dynamic sound generally impressed, when the orchestra became particularly busy, the sound did tend to harden rather like the less well sorted multi-biters of old. I will give the Orelle the benefit of the doubt here, however, as this is a particularly tough and perhaps even rough piece, and the hardening characteristic didn't crop up anywhere else. That having been said, a little extra time in choosing an interconnect with smooth top end balance would be time particularly well spent in the Orelle's case. Otherwise, a slightly rougher treble than one would expect from a modern CD player could spoil the listening experience.

Just as with other models in Orelle's recent range, the CD100evo is beautifully built and makes many other models from greatly esteemed manufacturers look dull. The lack of a digital output as standard is disappointing but everything else, including a switchable display, is standard. The sound quality is in many ways a reflection of the rest of the machine, i.e. generally well honed with just an odd, surprising flaw. Any multi-bit fan will immediately feel at home with the Orelle, and enjoy the type of powerful mid-range presence, decent timing and fine integration that the best multi-bit machines are so good at.

Those more used to smoother single bit players may just find the Orelle a little too rough around the edges. Either way, the CD100 could certainly do with greater authority in the bottom end, but then I guess if this was the case, no one would ever sell any two box players. For those left wanting with the current choice of single bit CD players, or if you have a system which you feel could do with a bit more of an edge, then I'd heartily recommend the Orelle. Even if it sounds a bit too forward for your liking, it may be well worth an audition: Just make sure you chose your cables carefully. This is a very welcome return from Orelle and well worth a listen.

**VERDICT**

Extremely engaging and musical sound, but maybe a tad too bracing for some tastes. Superb aesthetics complete an attractive package.

ORELLE CD100EVO £1,200
Tel: +44 (0) 20 8991 9200
www.orelle.treeserve.co.uk

---

**MEASURED PERFORMANCE**

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<td>Noise (IEC A)</td>
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<tr>
<td>Output</td>
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The CD100 Evo has a notable lift in output toward high frequencies, enough to give its sound a little sheen or brightness. This effect will also enhance detail.

Distortion levels were a little higher than usual at 0.02% at -30dB, whilst at -60dB the figure was 0.57%. When 0.33% is possible, this brought the EIAJ dynamic figure down to 106dB, where 110dB is possible. With an output of 2.13V the CD100 Evo is normal enough. This player measures a little below the best, but the shortfall isn't great. It will likely sound bright and detailed. NK
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When I listened to the Graaf GM20 this month I could feel my hand sliding toward my wallet. It's a spectacular amplifier in almost every sense, more so than solid-state designs - yet very much like them too. Which is both good and bad. This makes the GM20 something of an enigma.

It's a fascinating amplifier that raises a lot of issues, unlike most hi-fi products which are, in the great sea of time, just ' product'. The Graaf is in different, ground breaking territory. It's one of the few truly direct coupled valve amps available today. Eliminating the output transformer makes it a ground breaking product, although the Futterman had come before.

The idea of direct coupling valves to the outside world is fine when you're dreaming of perfection and how to achieve it, but a little less than fine when you delve into the practical difficulties and possible consequences of something going wrong. Many moons ago, faced with the need to make an output transformer for an amp using high power 211 transmitter triodes Andy Grove and I paid a visit to a new transformer supplier, one that could handle our requirements. It wasn't quite what I had expected. These people made power transformers - you know, those giant things that stand 4ft high and have big ceramic insulator sticking out of the top, like rhinoceros horns. Trouble is, they do more damage.

I looked around and quaked. Really high voltages - kilovolts - are not something I should be getting involved with, I thought. People who know have whispered to me "you don't walk away!" Alive, that is. It brought home to me the fact that we were dealing with something a little - or - serious.

Now the Graaf, bless its output triodes, isn't in this league. It's gorgeous looking 6C33C output valves need around 400volts. That still isn't what I'd like to put through a pair of loudspeakers should anything go wrong, and thankfully Graaf think so too and wisely fit protection circuits to prevent this happening.

The audio world desperately needs an all-new thermionic device!

By using a clever circuit arrangement known as a Circlotron (see http://circlotron.tripod.com), together with low impedance output valves, the GM20 manages to achieve true, direct coupling of the output stage to the loudspeaker. Since the output transformer is an inordinately complex and potentially obstructive device when it comes to sound quality, and since true direct coupled valve amps were virtually unknown until the low impedance 6C33C came into to land, the GM20 was an amplifier I had to hear. It was a revelation in many ways.

In just about every area you can imagine, except stage depth, the GM20 was spectacular. It put density into singers and instruments and had enormous detail retrieval, most obvious in its incredibly fine but extremely energetic treble. Bring this into the mid-band and I suspect it contributed to a fine sense of insight. Treble was the sweetest and most vibrant I have heard and down at the low frequency end, bass was just solid and fast.

The only big reservation I had was that the sound stage lacked depth, and this was a disappointment. There wasn't the sense of openness I expect to hear from valves, especially single-ends which are almost holographic.

This would seem to suggest output transformers are responsible for stage depth and, also, that the effect is artificial. Direct coupling, as used in transistor amps, as well as the valve GM20, lacks this quality. But it isn't a very convincing argument. Others who know better than me protest that the 6C33C is a regulator valve never designed for audio and, like the PL509, pressed into service in a hi-fi amplifier it's inadequacies start to show. This amplifier produces a lot of distortion (7%) even at low levels, whereas a conventional valve amp produces twenty times less at around 0.1%.

Other factors may well be holding the GM20 back. Conventional solid-state power supplies aren't the best idea when you graduate to high transparency output stages. They pulse the incoming mains and produce dirty waveforms. A good valve amp power supply, with valve rectifiers, gets closer to perfection. Had the GM20 been fitted with a supply like this, and had it been a bit more linear it may well have sounded near perfect.

What a pity there are few alternatives to the 6C33C valve, especially affordable ones in good supply. The audio world desperately needs an all-new thermionic device!

All the same, this is a fascinating amplifier. It offers the basic presentational abilities of solid-state, but with a greatly expanded tonal palette and profound detailing. Images had a size that surprised me too; it also has scale.

My hand nearly made it to my wallet but, like Peter Sellers in Dr Strangelove, I managed to wrestle it off. Then I found a 212 in the loft and realised that perhaps, just perhaps, one day I might possess a truly perfect hi-fi amplifier.
The KECL82 is our latest introduction for the true beginner and designed by Andy Grove. A simple and elegant design based on the classic ECL82 valve, a triode and power pentode sharing the same glass envelope. The amplifier consists of two ECL82s per channel, the triode sections work as the input/phase splitter and the pentode sections work in push-pull for the output stage. The amplifier offers 8 watts into an 8 ohm load, the hum level is extremely low, comparison to solid state standards. The chassis is constructed of 1.6mm mild steel with a black powder coat finish, there is only one signal input pair controlled at the front by a volume control for that simple touch. The speaker connects are the standard 4mm banana type, positioned at the rear, as are the mains input which is received through an IEC lead, mains switch and earth post. We have made the construction as simple as is humanly possible with comprehensive instructions. The circuitry is based on a single printed circuit board. Ultimately this kit is for the guy who has always fancied a go at building a kit, but never dared. Simon Pope says, “It’s a great introduction to the valve sound. For it’s humble price it delivers a full and rich sound with great detail and good depth.” KECL82 weighs 9kg. External dimensions are 30cm(w)x23.5cm(d)x11cm(h).

**NEW KIT**

**KECL82 VALVE AMPLIFIER KIT**

£195

These are our new 6550 series amplifiers. A pure class A design providing 40 watts into an 8 ohm load (available in a 4 ohm version if required) A truly high end design by Andy Grove, using Svetlana 6550Cs in push-pull (any 6550 or KT88 tube can be used with this amp). It features valve rectification (5U4) a choke pi filter power supply and is hard wired. Weighs 19kg with dimensions 390mm(w) x 330mm(d) x 190mm(h) with valves or 220mm(h) with cage. Simon Pope says - “If you favour attack and rhythmic grip, together with a smoothness of sound that’s incredibly easy to live with, the KIT6550 could well be the kit amp for you. The 6550 is one for those who like a valve sound married to the attack and clout of a good quality solid state design”.

**KIT6550 VALVE INTEGRATED AMPLIFIER KIT**

£615

**KAT6550 VALVE POWER AMPLIFIER KIT**

£580

The KE184 features a pair of EL84 valves per channel in push-pull configuration. They give 15 watts into an 8 ohm load. The output transformers are Ultra Linear. Up front the ECF80 input/phase splitter valve has an extremely smooth sound. The KE184 has very low hum, for simplicity the kit is built on a printed circuit board. A strong steel chassis is fronted by a 3mm anodised front panel and attractive chromed custom made knobs. There are five line level inputs, plus one monitor input, with a tape output included, all controlled from the front panel. At the rear is a mains switch/IEC power input, earth post, phono inputs, and 4mm banana sockets. Simon Pope says, “The quality that can be gleaned from this amp is a fine introduction to the joys of the valve sound. The KE184 will highlight all the intricacies and depth of detail in your favourite recordings whilst retaining a warmth and fullness that is almost exclusive to pure valve amps and is rare at this price point.” KE184 weighs 10kg. External dimensions with valves fitted are 300mm(w) x 270mm(d) x 150mm(h).

**KE184 VALVE INTEGRATED AMPLIFIER KIT**

£298

The 2A3 PSE integrated amplifier offers a seriously hi-end sound, but without the cost usually associated with single-ended amplifiers. The stereo chassis houses, on the output, 2 x 2A3 in parallel single ended configuration and a single 6557 as the driver tube per channel. The valve rectified power supply consists of a 5U4 and 10h choke. This feedbackless design provides 8.5 watts into an 8 ohm load, so a good sensitivity speaker is required above 90dB. It can accept 6 line-level inputs fully controllable from the front panel. We provide the excellent Alps Blue potentiometer as standard. The amplifier is hard wired so plenty of scope for tweaking in the future. Simon Pope says, “The 2A3 PSE is extremely impressive piece of kit, good imaging wide sound stage, nicely extended on the high frequency and tremendous bass thump. Weight - 20kg, external dimensions with valves fitted - 390mm(w) x 340mm(d) x 220mm(h).

**2A3 PSE INTEGRATED AMPLIFIER KIT**

£570
The PRE-II is a valve pre-amplifier with six inputs, tape monitor and two sets of output sockets. It utilises a high quality line driver transformer and x5 gain. The PHONO-II is a dedicated valve phono stage that incorporates a step-up transformer for MC users. Finally, PSU-II is a power supply unit that feeds both the PRE-II and PHONO-II.

- Power Supply Unit (PSU-II): £205.00
- Pre-amplifier (PRE-II): £215.00
- Phono Stage (PHONO-II): £110.00
- Moving coil step-up transformer: £77.00
- Passive pre-amplifier (PASS-II): £235.00

**Series II Modular Pre-Amp Kit**

The PRE-II is a valve pre-amplifier with six inputs, tape monitor and two sets of output sockets. It utilises a high quality line driver transformer and x5 gain. The PHONO-II is a dedicated valve phono stage that incorporates a step-up transformer for MC users. Finally, PSU-II is a power supply unit that feeds both the PRE-II and PHONO-II.

- Power Supply Unit (PSU-II): £205.00
- Pre-amplifier (PRE-II): £215.00
- Phono Stage (PHONO-II): £110.00
- Moving coil step-up transformer: £77.00
- Passive pre-amplifier (PASS-II): £235.00

**Kit34 Valve Power Amplifier Kit**

- Kit34 Valve Power Amplifier Kit: £480
- Kit34 Valve Integrated Amplifier Kit: £515

**NEW KIT**

Our Parallel Single Ended amplifiers offer ultimate sound quality. Each monobloc has two of the beautifully linear 300B directly heated triode in its output stage, producing 20 watts into an 8 ohm load. At the front we have a 6AU6 pentode and an ECC82 as the driver valve. This design utilises a 5U4 rectifier valve in the power supply, in combination with a 10H choke, giving an extremely quiet supply. Both mains and output transformers are EI pattern.

For purists, feedback is switchable and the kit is totally hard-wired. For those that require valves we provide the superb Tesla 300Bs, Russian 5U4s and European 6AU6s & ECC82. Simon Pope says, "Not to put too fine a point on it, the sound these monoblocs create is among the finest that can be encountered in hi-fi." Our 300B PSE kit bears an affordable price of £895.00 (UK price) excluding valves. Each monobloc weighs 23kg, external dimensions with valves fitted: 36cm(w) x 38cm(d) x 22cm(h) per monobloc.

**300B PSE Monobloc Kit**

- 300B PSE Monobloc Kit: £895

**300B PP Monobloc Kit New**

- 300B PP Monobloc Kit: £895

**HD83 Headphone Amplifier Kit**

- HD83 Valve Headphone Amplifier Kit: £195

The HD83 headphone amplifier is a beautifully simple design using Mullard ECL83 valves, a triode and power pentode housed in the same envelope. It works directly from any source, be it CD, tape, tuner etc., or from an amplifier's tape out or pre-amp out sockets. The circuit uses high specification EI output transformers that will drive any headphone load from 16 ohms to over 300 ohms depending on how the secondaries are wired up. The HD83 is a single-ended design with the power pentode wired up in triode configuration for added sonic purity, and it is as quiet as a mouse. For sound quality Jon Marks says, "The bass is punchy and controlled without becoming artificial, while treble has the crispness of the best solid-state, with the tonal purity, delicacy and speed associated with valves." External dimensions: 18cm(w) x 30cm(h) x 8cm(d) weight 4kg.
Hi-Fi World in Malaysia at Millennium Hi-Fi & Av. Kuala Lumpur, Malaysia

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Millennium Hi-Fi & Av
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e-mail: info@millennium-audio.com

Hi-Fi World & Computer Audio NOVEMBER 2003
www.hi-fi-world.co.uk
These are expert kits, not for the inexperienced. You must be able to solder and read a circuit diagram. The valve kits contain lethal voltages. We cannot be held responsible for any errors arising from the construction of these kits.

amplifier kits description

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Order No.</th>
<th>Qty</th>
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<th>Overseas (exc. vat &amp; carriage)</th>
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parts description

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World Audio Design Amplifiers fully built from Malaysia

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<th>Description</th>
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KEYED IN

Philips new range of 'key rings' combine USB data storage with either MP3 audio or digital camera functions. Made from magnesium, they're no bigger than a pack of chewing gum, weigh 35g and some are available with a neck strap that houses all the controls, so can be worn and operated around the neck. All the key rings have been designed for maximum ease of data transfer. They plug straight into any PC's USB port without the need for cables, drivers or any other additional software. This allows CD music or pictures to be downloaded and uploaded to a PC quickly and simply. An added advantage of this instant compatibility is that the Philips key ring products also double as compact external drives for PCs. They are ideal for transferring data between computers, carrying out quick back up of important files, or storing personal information. The £119 KEY006 offers 128 MB of flash memory capacity, which is enough for four hours of WMA music files or two hours of MP3 audio. All the controls are integrated into the neck strap, which means the controls are always within convenient reach. The £99 KEY004 has the same neck strap remote control but with 64 MB of flash memory. The £99 KEY005 and £79 KEY003 have 128 MB and 64 MB of flash memory respectively and include a handy five-key in-cord remote control which allows the player to remain in a pocket or bag while accessing its functions. All models run on rechargeable batteries that can be charged via the USB and provide 6.5 hours of playback. An additional clip for AAA batteries allows extended use. Check out www.thingstodoyourthing.com.

SOUNDING OUT

Apple's new Soundtrack is an innovative, royalty-free music production tool. Previously available only with Final Cut Pro 4, it is now available as a standalone product for £249. It includes more than 4,000 royalty-free, professionally-recorded audio loops and sound effects, giving creative professionals a powerful and easy-to-use tool to create high-quality music scores, and scales to meet the needs of audio producers or DJs who start their projects in Soundtrack and then migrate to a digital audio workstation for the rest of their work. Regardless of the musical key or tempo in which the loop was originally recorded, Soundtrack will match the audio loops and sound effects within a composition in real-time, making the project sound harmonious instantly. A powerful search engine gives users the means to quickly locate desired sounds by instrument, genre or mood, working with a new open audio format called Apple Loops” or any AIFF,WAV, and Acid format audio files. It ships with over 30 professional, high-quality audio plug-ins from Apple and Emagic. Plug-ins like Platinum Verb, Spectral Gate, Multiband Compressor and AutoFilter, enable users to combine effects with individual tracks to create sophisticated audio. You can find more information at www.apple.com/uk/soundtrack.

BIG

Guinness World Records has awarded Archos’s AV380 the award of 'the World's Highest Capacity Multimedia Jukebox'. The unit is the highest capacity of the AV300 Series, offering 80GB of storage space on its internal hard drive. Created by Archos (France), the AV380 can store and play MP3 music tracks as well as MPEG4 video files, and all other file types just like a spare backup drive. Around 1,000,000 JPEG format photographs can be stored, or 160 hours of MPEG4 video, or no less than 64 days-worth (i.e. 2000 CDs) of MP3 music files! Battery life is only a mere 4 hours on video replay or 8 hours on audio play, however! Price is a hefty £759.99. Check out www.archos.com for more details.

PIONEER PLUS!

Pioneer Multimedia Europe has announced a range of DVD/CD writers which work with both DVD+R/RW and DVD-R/RW discs. Along with the new DVR-K12D internal and DVR-SK12D external (with USB II or IEEE 1394 interfaces) DVD/CD writers, the DVR-S606 is a high capacity optical storage system that enables users to write a wide variety of files to DVD for storage or playback in other DVD devices. Typical DVD applications include the authoring, editing and storing of video files, developing digital music catalogues, backing up data. In common with all current Pioneer DVD writers, the DVR-S606 is compatible with +R/RW discs - a move that directly responds to consumers’ requests that DVD writers should handle various formats. The DVR-S606 supports high-speed writing of 4x with DVD-R disc, 2x with DVD-RW4, 4x with +RS, and 2.4x with +RW. It also enables 16x writing speed for CD-R and 10x for CD-RW.
Here's a new DVD-ROM/CD-R drive that's as small as it could possibly be. David Price tries VTEC Industry Europe's new V-DISK USB SLIMLINE COMBO...

S

hould perchance you have not heard of VTEC, they're a small UK based operation specialising in computer storage products, all of which espouse that old adage, 'less is more.' You'll find a range of compact designs, including an external hard disk drive and this, the V-DISK external optical disc writer, complete with DVD-ROM capability.

Why would you want such a product? Well, there are a lot of older computers around which don't come bundled with DVD-ROMs, and so here's an easy way to play your favourite movie discs without having to wield a screwdriver in anger. This is particularly useful for notebook users, many of which still don't come with DVD read/playback as standard. The V-DISK, then, is a handy way of killing two birds with one stone and bringing (16x/12x/24x speed) CD-R burning and (12x) DVD reading capability in one small package.

And small it is... At only 150mm wide, 145mm long and just 22mm tall, it's highly portable. The 375g weight means it's no chore to cart around, and there's even a little velvet carrying case for it, similar to the sort of thing you get with Sony MiniDisc portables — very nice too.

This drive will work with both Mac and PC platforms, using its USB 2.0 port for speedy data transfer — although it is, of course, backwardly compatible with all USB 1.1 machines (albeit at a slower speed), meaning it will work with virtually every PC from around 1996. The manufacturer specifies a Pentium II or higher processor (and compatibles), and says that it runs under Windows 95SE, ME, 2000 or XP operating systems, as well as Mac G3, G4, iBook or later systems, equipped with USB2.0 or USB1.1 ports and using Mac OS 8.6 through to 9.x operating systems. The drive itself has a 2MB buffer with JustLink buffer underrun protection.

The package comprises the V-DISK, a 5v mains power supply, the USB 2.0 cable and aforementioned carry bag, and a blank CD-R. There's also a copy of Nero (hurrah!), PowerDVD and a driver disk, plus a reasonably well written multilingual manual. My system, which uses Windows XP, did not require this — the drivers automatically installed — although earlier versions of Windows will need to do a ye olde driver install routine. Urgh!

In use, the V-DISK performed well. Nero reported it was indeed capable of 24x CD read speeds, and had no trouble writing to and from it. I found it burned perfectly good sounding CD-R disc copies (purely for my own use, of course, officer...). There was very little discernable difference between the source disc and the copies, save a little softening of the bass and smoothing of the treble — par for the course with a decent optical disc writer. It was reliable too, showing no nasties during the test period.

All in all, it's a fine bit of kit — but at a price, which is the clincher! If you can find it retailing for considerably less than VTEC's quoted £169 plus VAT (and I suspect you should be able to — just look in Micro Mart or do a web search), then it is decent value — if not, then close but no cigar....

SPECIFICATIONS:
- USB 2.0 specification compliant Interface (Backward Compatible to USB 1.1)
- 8X speed DVD ROM
- 24X-12X-24X speed CD-R/RW
- Headphone and lineout jack
- JustLink technology to prevent recording buffer underrun error
- Nero recording software. 2MB buffer memory
- CD Text
- Overburn capable
Digital audio portables are a weird and wonderful breed - there's a welter of different types and specifications. Some come with flash memory built-in, others rely exclusively on removable memory cards, others have both. More confusingly still, the type of flash memory cards they use varies from manufacturer to manufacturer. Confused? Me too!

One of the most frustrating things about many of them is that, to download music files, you have to go via the bundled 'music manager' or 'MP3 jukebox' software. This can be effortlessly easy to use, but usually isn't. The result is that you often have to faff around with the machine connected to your PC, wading through all manner of arcane "Windows Explorer"-style menus, in a bid to squirt music down to your portable machine. Wouldn't it be nice to bypass all this bundled software malarkey and write to your MP3's memory card direct? Enter Imation's new FlashGO! 2.0.

This compact device is not only ideal for reading and writing music files (be it MP3, WMA, ACC, OGG, or whatever), but digital photographs too. It's a multi-slot, flash memory card reader/writer that is able to transfer data 40 times faster than earlier USB 1.1 types (assuming you've got USB 2.0 compatibility - see box). It supports six flash memory card formats, including CompactFlash (Type I and II), SmartMedia, Multimedia Card, Secure Digital and Memory Stick and IBM's Microdrive. Being multi-slot, the device also enables users to transfer data from one memory card format to another.

At 63mm wide, 96mm long and 13mm high, it's small and portable and is made from robust but light silver painted plastic. Although an extension USB-to-USB cable is supplied, the unit itself has a captive cable that plugs straight into the computer's USB socket. An external power supply is not required as FlashGO! uses USB bus power supply.

The USB port provides easy plug and play convenience for most of the current operating systems, including Windows 98, 98SE, ME, 2000, Windows XP, Mac OS 8.6, 9.0 and OS X 10.1. It comes with a CD containing drivers for all systems requiring a driver installation before use, although my computer - running Windows XP - required no installation whatsoever, meaning I really did simply plug it in and go. This done, you simply call up Windows Explorer or your My Computer icon, and hey presto - you have four new 'Removable Disk' icons. Assuming you plug an appropriate flash memory card into the relevant slot on the FlashGO!, you can then drag and drop files of any description across from one 'Removable Disk' drive to the other, or to and from your hard drive, or any combination thereof.

Essentially then, it gives you complete freedom to move your files to and from any flash memory card - without having to use your MP3 player, digital camera (or whatever) to act as a file swapping machine. It gives total file portability without the need to wade through unfamiliar software menus. Importantly, it's fast too - providing your system has USB 2.0 compatibility. If so, file transfer feels faster than any hard drive (as you'd expect), and if not, then it's still tolerable even with big 128MB memory cards.

At just under £70 it's a fiendishly handy little device if you're a regular digital portable music player user - or a digital camera user for that matter. Recommended.

WHAT IS USB 2.0?
This connection system is the newest incarnation of the Universal Serial Bus, launched some six years ago, offering the ability to plug in devices without having to power down and reboot the computer. USB 2.0 has a maximum data transfer rate of up to 60MB per second, which is forty times faster than USB 1.1 - this is equivalent to transferring a full-length CD in twelve seconds! USB 2.0 is backwards compatible with the older 1.1 system - so all USB equipped computers can use it, but only at the older system's lower data transfer speeds.

SPECIFICATIONS
- Four-slot device supports seven card formats:
  - CompactFlash (Type I and II)
  - Smart Media
  - Multimedia Card
  - Secure Digital
  - Memory Stick
  - IBM's Microdrive
  - USB 2.0 compatible

- Backwards compatible with USB 1.1
- Hot swapable
Windows 98, 98SE, ME, 2000, & XP
Macintosh® OS 8.6 through OS X
Creative Labs has been turning its collective corporate gaze in the direction of mobile and notebook PCs of late. The first result was the superb TravelSound portable loudspeakers out last year, and now it's the turn of the SoundBlaster MP3+ soundcard... David Price listens in.

Well, it took a good long time, but at last we have a small, portable soundcard from Creative Labs, in the shape of the SB MP3+. Funny — you'd think they'd have been first to market with such a thing — but it was New Zealand's Xitel that beat them with its range of tiny USB connected and powered Hi-Fi Link products. Anyhow, it's finally here — and very impressive it is too...

Whereas Xitel's Pro Hi-Fi Link (and its Digital and Analogue predecessors) are designed with one specific application in mind (and succeed so well precisely for this reason), Creative's SB MP3+ attempts to offer an incredibly wide range of features and functions. The company simply doesn't know the meaning of economy — at least in the design sense — meaning that it comes with great connectivity and more software code than your average Windows operating system. In a way, it's great to have everything from an MP3 Jukebox to a CD burner included, but the fact that it takes many minutes to install (it almost seems like loading Windows itself!) and has the average two year PC groaning under the extra load is less welcome — especially if you've already got Nero and Cool Edit already! Urrghhh....

Anyway, without wishing to turn this review into something of Tolstoy-esque proportions, I shall now take a brief run through the card's feature set and attempt the shortest dalliance with some of its bundled software... Are you sitting comfortably?

About the size of a mid-nineties cassette Walkman, albeit a lot lighter, the baby Blaster will set you back around £40 (less, given the inevitable discounting). It's finished superbly (considering its painted plastic body), and boasts gold plated RCA phono ins and outs along the size, allied to TOSLINK digital ins and outs, complete with neat little 'hinged doors' that stop foreign bodies getting inside whilst out on the road. On the opposite side are 3.5mm jacks (again gold plated) for headphones (complete with volume thumbwheel) and microphone. In the centre is the obligatory blue LED, which denotes an audio signal going in and/or out of the card. There's also a small switch to select all-digital, or analogue and digital operation. A removable clip enables the Sound Blaster MP3+ to be mounted on the back of a notebook display. It hooks up via a USB 1.1 lead, which also carries the power (160mA), so there's no need for fiddly mains adaptors — a great plus point.

Inside, you'll find - just like the previous line of Sound Blaster Live! Cards - the venerable EMU 10K1 sound processor which works up to 16bit, 48kHz resolution. It now has a subwoofer/centre output though, and comes with Dolby Digital and DTS pass-through capability via its optical digital output. This means that if you play a suitably encoded movie disc in your PC's DVD-ROM drive, and run an optical cable from the SB MP3+ to a Dolby Digital processor (or AV receiver), then you're totally surrounded!

Essentially then, it's a pared-down Creative Labs Live! Platinum 5.1 minus the Live!Drive. It boasts 64 DirectSound streams, 32 DirectSound 3D streams, EAX 1.0 and 2.0, A3D 1.0. Legacy game audio support with SoundBlaster™ 16 headphone, 64 voice hardware polyphony with E-mu's patented 8-point interpolation technology;
SoundFont technology for user-definable wavetable sample sets; includes 2MB, 4MB and 8MB sets and support for digital and Direct Input game devices (but no gameport acceleration). All very nice, but what is missing is any detectable software support for AAC - ho hum...

And so to the software. The Sound Blaster MP3+ comes with Creative MediaSource, a powerful application that enables users to create MP3 tracks from CDs and other sources with real-time audio clean-up, fine-tune audio content, manage their music libraries and burn their own custom CDs. Indeed it's a fully fledged 'MP3 Jukebox' (as they used to say) in its own right. There's a massive range of recording options - you can record from either the analogue or digital inputs in MP3 (including VBR, via the Fraunhofer codec supplied), WMA or WAV format up to 16bit, 48kHz resolution, or rip from your internal CD drive.

Then there are the multifarious plug-ins and pop-up applications, such as CD burning, Creative Graphic Equalizer and support for EAX acoustic effects and CMSX, which create virtual surround sound on stereo headphones and speakers. Creative Device Control is a glorified Windows Volume Control, which mysteriously disappears from your toolbar after the former has been installed. Creative Speaker Settings gives complete control of a 5.1 multimedia system, Creative WaveStudio attempts to do the business of Steinberg's WaveLab or Syntrillium's Cool Edit - and mostly fails, and there's a handy Creative Diagnostics application which tells you why you can't get any sound from your SB MP3+, should the situation ever arise - perish the thought... There's even a rather natty MiniDisc manager, which works in conjunction with NetMD equipped machines - neat, as the Americans would say...

ON THE MOVE

Pulling it out of its box, and you're greeted with the Sound Blaster MP3+ itself, plus a stereo coaxial to minijack adapter, USB cable, Quick Start leaflet, User Guide (on CD) and the Creative Software CD containing the aforementioned applications. There are also drivers for Windows 98SE, Me, 2000 and XP.

The unit installed easily enough with Windows XP (may the olden days of setting interrupts and IRQs never return...), but the software CD took seemingly an eternity to load, and I hear my 1.3GHz Pentium notebook creak under the strain. You can, of course, just load the SoundBlaster control software (rather than Media Source and its associated applications), but it still seems like far too much. Bring back driver disks on floppies, say!!

How then does it sound? Well, for £35 or less (let's forget the manufacturer's recommended price) it's superb. It's miles better than the average bundled soundcard for sure, with lots more detail and clarity and a far wider soundstage. There's a sense of air and space, and of overall natural musiality, that the frigid, clinical and thin sounding entry level products - the Cambridge DACMagic 3, it wasn't too much in it. The built in analogue to digital converters aren't bad either, although we're not exactly talking studio grade stuff here - if you're going to do serious analogue archiving, I'd suggest you buy a Terratec AudioSystem EVWX 24/96 and nothing less!

There are criticisms, of course, but frankly the sub £40 price nullifies them at a stroke. That EMU 10K1 converts everything into 16bit, 48kHz before processing, regardless of whether it started at 44.1kHz (i.e. from a CD player), so doesn't do bit-for-bit recording - an audiophile black mark. It's way behind the aforementioned Terratec in playback too (obviously, it's not comparing like with like, though), and not quite up to Xitel's more expensive Hi-Fi Links sonically, either - lacking the latter's smoothness, finesse and incision.

Overall though, you've got to admit that it's brilliant value for money, and an extremely handy product. If you need a jack of all trades in a small package, this is the one, but if you want a purpose dedicated off-board DAC for music or movie use then buy the Xitel.

SYSTEM REQUIREMENTS:

- Intel Pentium II 350MHz, AMD K6 450MHz
- 64MB RAM for Windows 98 SE
- 128MB RAM for Windows Me, 2000 & XP
- 340MB of free hard disk space
- Available USB port
- Headphones or amplified speakers

CD/DVD-ROM drive required for software installation.

SPECIFICATIONS

- Line In (Gold-plated, RCA pair)
- Mic In (Gold-plated, 1/8)
- Optical S/PDIF In
- Audio Outputs:
  - Line Out (Gold-plated, RCA pair)
  - Line/Headphone Out (Gold-plated, 1/8)
- Optical S/PDIF Out
- USB Connector:
  - 1x Type 'B' port (upstream), bus-powered
  - Analog headphone volume control
  - Analog/Digital output selector
  - Power LED
- Up to 16 bit/48kHz playback and recording
- Bit true recording via SPDIF input
- GM compatible software synthesizer for midi playback
- Easy to use features for enhanced CD, WMA and MP3 playback.
- Rip-Convert CDs to MP3/WMA
- Manage-Organise your music collection
- Playback-Easy to use controls
- Burn CDs-Create your own custom CDs
- Smart Volume Management-Automatically match volume levels across tracks
- Time Scaling-Speed up or Slow down playback
- Bass Boost-Enhance the bass in your music
- 10 Band Equalizer-Advanced tone control
- Audio Clean-Up-Remove unwanted noise from old recordings
- CMSX 3D-Virtual 5.1 surround sound with stereo speakers or headphones
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WRS5
by Henley

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www.henleydesigns.co.uk
heard the strangest thing on the radio today. It said that the record industry was pleased by an unexpected rise in the number of CD albums sold this year. Of course it was a shock to hear the record industry to be pleased by anything. Usually they constantly complain of piracy, from compact cassette to downloads, take ever larger shares of total profit and keep stum when times are exceptionally good.

Recently, times haven’t been exceptionally good for the music industry, yet they probably haven’t been quite as bad as we may have been led to believe. Whatever, it won’t be just the music industry that was surprised by the growth of CD sales this year.

Of course the reason sales of CD albums (as opposed to singles) are still strong is probably primarily due to the fact that for the first time in decades we are now being charged a reasonable price. Competition on the internet and high street has brought prices down to below £20 quite often - effectively their lowest ever. In my memory CDs have always been over a tenner, even £15, so taking inflation into account - that’s quite a fall in real terms.

Another reason for CD’s resilience now is that it really has no competition on the high street. Vinyl is definitely still a specialist format, the once conquering Compact Cassette now being relegated to a shelf at the back of the store that used to house pre-recorded MiniDisc and DCCs!

Yet it’s far from being entirely rosy for the format. Sales of CD singles are still pretty depressed. In fact, so depressed that there are those beginning to doubt the validity of charts based upon sales of such singles. Of course there is a very good reason for falling sales of the CD single. The primary audience for music singles is the teenage market. This is precisely the market who will object the most to having to pay £3-£4 for a single. Don’t forget this is probably also the most likely market to take advantage of music downloads that cost from nothing to about £1. With this in mind it’s hardly surprising that CD single sales have fallen.

Logically, therefore, one would have expected CD album sales to suffer from the same phenomenon of downloading as singles. Yet this isn’t the case. Cost, quite clearly, is a major factor. The average cost of a song on an album is around £1. That’s two or three times cheaper than the single, and around the same as a bona fide download off the internet. There’s also something tangible and collectable about a Compact Disc, that a file marked ‘music’ on your computer simply can’t match up to.

So much for the software you might think, but how’s the hardware facing up? Logically, therefore, one would have expected CD album sales to suffer from the same phenomenon of downloading as singles. Yet this isn’t the case. Cost, quite clearly, is a major factor.
A reference guide to Britain's manufacturers and distributors

AUDIO SYNTHESIS Manufacturers of the outstanding DAX digital to analogue converter, comes DAX-2, a new Hi-End reference converter able to dig deeper into the digital source than ever before. In addition to the superb PASSION series of all-Vishay controllers has just been introduced in the form of PASSION II, a fully remote controlled, uniquely transparent passive preamplifier, the perfect match for DESIRE. By word of mouth our DESIRE power amplifier is rapidly convincing listeners of its true tone potential. Now! New for 1997 is a full state of art CD transport with AES, coaxial, AT&T glass and Toslink outputs. Audio Synthesis, PO BOX 50, Nottingham, NG2 1DD. Tel: (+44) (0)115 923 4138. Fax: (+44) (0)115 922 9701.


CREEK AUDIO LTD 12 Aveybury Court, Mark Road, Hemel Hampstead, Herts, HP2 27A. Tel: 01442 261416 Email: info@creekaudio.co.uk Internet: www.creekaudio.co.uk - Creek Audio build stylish Hi-Fi products in the UK, combining state of the art electronic design, with full bodied, accurate and musically rewarding sound. Our standard size products come in two award-winning ranges, the entry level 43 series and higher priced 53 series. These include C43 Mk2 - CD player with 24 bit resolution DAC, T43 A/FM/Tuner, Integrated Amps - 350LW, 350SE and 430 Mk2 (described by the Stereophile Magazine as the best amp under $1000). Our A43 Mk2 and A53 Power Amps range from 50 to 250 Watts and both P43 and 53 Pre-Amps offer passive and active operation with remote control. In addition we have an award winning OBH range of small products: OBH-8SE MM and OBH-9 MC Phono Pre-Ampifiers, OBH-11 and 11 SE Headphone Amplifiers, OBH-10 and 12 Remote Control Passive Pre-Amps and OBH-14 - 24 bit DAC. See our page for home details or call us for leaflet.

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EPOSS ACOUSTICS 2 Aveybury Court, Mark Road, Hemel Hampstead, Herts, HP2 27A. Tel: 01442 261416. Email:info@epos-acoustics.com Website: www.epos-acoustics.com Innovative design and superior sound distinguishes EPOS speakers from other brands in a similar price range. Adhering to the EPOS tradition of music and communication, the new M12 follows closely the style of the successful E12, and was awarded five gold stars in the March 2001 edition of What Hi-Fi? Report. Information about the M12 or the new M13 please see our home page or call us for leaflet.

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SOUND IMAGE UK LTD 52 Milton Road, London SW14 8RJ. Tel: 020 8295 4666. Importers and distributors of the finest audio equipment, featuring the stunning Boulder 2000 series and the complete range from Norwegian manufacturer Electrocompaniet.

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To advertise in Meet Your Maker please call Amanda Sweeney on 0208 866 4760
D o you remember the first time? How was it for you? Speaking personally, my initiation into the weird and wonderful world of thermonic valve amplifiers came when I joined this august journal as an editorial assistant, some ten years ago. With hindsight, it was remarkable that it took me the nearly fifteen years of audiophilia to experience the magic of tubes — and it wasn't for the lack of trying.

Having received my 'audio education' in the late nineteen seventies and right throughout the eighties — assiduously reading every hi-fi magazine I could get my hands on and calling in on as many dealers as I could find — I can honestly say I can't remember reading a review of a (contemporary) tube amp, let alone seeing one in any of the dealers around Oxford where I grew up.

Can you believe it? Over a decade and a half of audio addiction, and not so much as a glance at a glass bottle! With the opportunity to try a whole new (old) world of audio, my first few months on World were a veritable voyage of discovery. They proved a real ear opener, as I realised that — even though I'd had no prior thermionic experience — I'd already been pre-programmed with a set of assumptions about glass audio from the magazines I'd read and the dealers I'd spoken to. I'd thought that valve amplifiers were [a] unreliable, [b] dangerous, [c] hopelessly low powered and [d] ridiculously soft and syrupy sounding. Wrong, wrong, wrong and wrong.

This was when our resident tube-meister, Andy Grove, was actually resident in the office every day and not at the other end of a modem, and he proved a rich source of knowledge. The first thing that this amazing electronics whiz — who was later to go on to design stuff for Quad, Leak, Audionote et al (let alone most of World Audio Design's stuff) — taught me was that transistors have as many problems and pitfalls as tubes (if not more). Then I learned that not all tubes are created equal. It sounds like stating the blooming obvious now, but growing up in an age where dealers I spoke to used to routinely say things like "all valve amps are crap", this came as a revelation. I learnt how different tubes have different sonic (as well as electrical) characteristics, and how the way in which they're implemented can create wildly different results.

Perhaps it was fitting that the first tubular belle I set ears on World Towers was the World Audio Design 300B. A big, feedback-free push-pull affair using those exquisite glass bottles, it produced a staggering sound which I can remember to this day. It was the antithesis of everything I'd been told by other people. Its stunningly authoritative nature, with oodles of power and blistering attack transients was not what I'd expected. As peeled myself off the back of my chair (much like that old Pete Murphy Memorex ad!), it suddenly struck me that I'd been missing something all these years...

Without wishing to blow our own trumpet, I have to say that this magazine — under Noel's stewardship — has done much to re-popularise valve amplification. Of course, other mags have had notable tube champions too, but upon the launch of Hi-Fi World, Mr Keywood nailed his flag well and truly to the mast. Some thirteen years on, we now have countless specialists producing affordable valve designs and even one British company — Musical Fidelity — selling many tens of thousands of tube aspirated products. In the final month of 2003, at last it seems that valves are back with a vengeance...
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world classics

In this heavily revised section, you’ll find the great and the good from audio’s glorious past. Most are seminal designs which have earned their place in hi-fi history, but you’ll also see some oddities which aren’t classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price. Think we’ve overlooked something? Then write in and let us know!

DIGITAL

CAMBRIDGE AUDIO CD11896 [£1500]
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.

CAMBRIDGE AUDIO CD
4SE 1998 [£280]
A touch soft in the treble and tonally light, the final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

MARANTZ CD73 1983 [£700]
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC - super musical performer.

MARANTZ SA-1 2000 [£5,000]
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.

SONY CDP-R1/DAS-R1 1987 [£3,000]
Sony’s first two boxed was right first time. Tona! rally lean, but probably the most detailed and architectural sounding machine of the eighties.

COMPACT DISC TRANSPORTS

ESOTERIC P6 1997 [£8,000]
The best CD drive bar none: TEAC’s Tokyo boys pushed the boat out in style. Brillantly incisive, ridiculously over engineered.

KENWOOD 9010 1986 [£600]
The first discrete Jap transport was beautifully done and responds well to re-clocking even today.

TEAC VRDS-T1 1994 [£600]
Warm and expansive sound made this a mild price hit. Well built, with a slick mech.

LINN AXIS 1987 [£253]
Simplified cut-price version of the Sondek complete with LVX arm. Elegant and decently performing mid-price package. Laser version with Akito tonearm better.

LINN SONDEK LP12 1973 [£86]
For many, the Brit superdeck: constant mods meant that early ones sound warmer and more lyrical than modern versions. Beguilingly musical but now off the pace.

MEANTZ TT1000 1978 [£N/A]
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.

MICHEL GYRODEC 1981 [£599]
Thanks to its stunning visuals, this bold design wasn’t accorded the respect it deserved until recently. Early examples sound cold and mechanical, but now right on the pace. Clean, solid and architectural sound.

REGA PLANAR 3 1978 [£279]
Brilliantly simple but clean and musical performer: complete with Acos-derived S-shape tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

ROKSAN XERXES 1984 [£1,500]
Supposedly the first to ‘ better’ the LP12. Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

TECHNICS SP10 1973 [£400]
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/11 will give any modern a hard time, especially in respect of bass power and midband accuracy.

THORENS TD124 1959 [£N/A]
The template for virtually every 1970s ‘superdeck’, this iconic design was the only real competition for Garrard’s 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass.

TOWNSHEND ROCK 1979 [£N/A]
The product of academic research by the Cranfield Institute, this novel machine has an extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

TRIO LO-TD 1978 [£600]
The best ‘all-in-one’ turntable package ever made. TrioKenwood threw their “engineering best practice” book at this one with startling results. Clean, powerful and three-dimension- al sound, ultimately limited by the tonearm.

In many respects, better than the seventies 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass.
SOUND'S allowances against the new advantage of the fantastic.

selected source and control Linn Sumer promotion ol Tome is runnong out to tate

The archetypal S-shaped seventies arm: good, propulsive and involving sound in its day, and ragged and undynamic now.

ALPHASON HR1005 1981 [£150] First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

GRACE G707 1974 [£58] This early Japanese example of the tonearm art has a smooth, lyrical sound. Imported by Linn, fitted to early LP12's. Sonically way off the pace now, though.

HADCOCK GH228 1976 [£46] Evergreen unipice with lovely sweet, fluid sound - although bass and dynamics are limited. Excellent service backup.

LINN ITTOK LVII 1978 [£253] Arguably the first 'superarm'; Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. Now off the pace, too. Post '93 versions a top used buy.

NAIM ARO 1986 [£875] Truly endearing and charismatic performer - wonderfully engaging midband makes up for softened frequency extremes.

REGA RB300 1983 [£88] Inspired budget esoterica. Detailed, tight, neutral sound but tonally grey sounding in absolute terms. Responds well to tweaking, and its cheaper RB250 brother better still.

SME 3009 1959 [£118] Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability has made it a cult, used prices unjustifiably high.

SME SERIES III 1979 [£113] Clever variable mass design compete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

TECHNICS EPA-501 1979 (£ N/A) Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

INTEGRATED AMPLIFIERS

A&R A60 1977 [£115] Sweet and musical feature-packed integrated; the Audiolab 8000A used its blueprint to great effect.


MCINTOSH MA8800 1995 [£3735] Effortlessly sweet, strong and powerful with seminal styling to match.

MISSION CYRUS 2 1984 [£299] Classic eighties minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.


MYST TMA3 1983 [£300] Madcap eighties minimalism, but a strong and tight performer all the same.

NAD 3020 1979 [£69] Brillantly smooth, sweet and punchy at the price and even has a better phono input than you'd expect. The archetypal budget super-amp.


photo stage, very low power.

ROGERS CADET III 1965 [£34] Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable photo stage, sweet, warm is a good introduction to valves.

ROTEL RA-820BX 1983 [£139] Lively and clean budget integrated that arguably started the move to minimalism.


TONEARMS

ACOS LUSTRE GST-1 1975 [£46] The archetypal S-shaped seventies arm: good, propulsive and involving sound in its day, and ragged and undynamic now.

Audiotechnica AT1120 1978 [£75] Fine finish can't compensate for this ultra low mass arm's limited sonicos - a good starter arm if you've only got a few quid to spend.

SME 3009 1959 [£118] Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability has made it a cult, used prices unjustifiably high.

LINN Summer Promotion!

Call (020) 8318 5755 or 8852 1321

Now is a great time to upgrade your system! From now until September we are offering a special trade-in value for: Mimik, Genki, tank, lkemi and AV5103 owners.

Call sales to find out more and book our audition now! We have added extra value to the Linn guaranteed trade in making this a very special summer promotion indeed. Call sales to find out more and book your audition now!

Also this summer, we are offering the CLASSIK Movie Di as part of a complete A/V package promotion. For further information on this fantastic offer please contact Ian Ridge on either of the above sales numbers.
**POWER AMPLIFIERS**

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**EXCELLENT VALUE PRE - OWNED BARGAINS**

**SOUND SYSTEMS**

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<td>Linn Numenik D A Converter</td>
<td>1997</td>
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<td>Linn Majik Amplifier - Phonon</td>
<td>1997</td>
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<td>Linn Kolektor Preamp</td>
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<td>Linn Kaim Pro Preamp</td>
<td>1997</td>
<td>£589.00</td>
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<tr>
<td>Linn 5103 AV Processor</td>
<td>1997</td>
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**NAD 4140**

- £1499.00
- Detailed, stylish and modern design
- Excellent build quality
- High-end performance

**LEAK THROUGHLINE**

- £225
- Unique, classic design
- Versatile, powerful performance
- High-quality, long-lasting build

**ARCAM FMJ D7**

- £699.00
- Superior, high-end features
- Exceptional sound quality

**SONY TD-990**

- £1750.00
- Modern, sleek design
- High-quality, detailed sound
- Some minor issues with build quality
LOUDSPEAKERS

JR 149 1977 [£120]
Inflammous cylindrical speaker that was ignored for decades but now back in fashion! Based on classic KEF T77 / B110 combo as seen in the BBC LS3/5a. Doesn’t play loud, needs a powerful transistor amplifier, but rewards with fine clarity in imaging.

LEAK SANDWICH 1961 [£39 EACH]
Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

LOWTHER PM6A 1997 [£18 EACH]
This seminal full-range driver is still manufactured. High sensitivity, as fitted to many classic horn designs.

MISSION 752 1995 [£495]
Cracking Henry Atkinson-designed floor-standers combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for values.

MISSION 770 1980 [£275]
Back in its day, it was an innovative product and one of the first of the polypropylene designs. Warm, smooth, clean and powerful sound.

MISSION X-SPACE 1999 [£499]
The first mass production sub and sat system using NXT panels is a sure-fire future classic – not flawless, but a tantalisingly boxy sound nevertheless!

QUAD ESL57 1956 [£45 EACH]
Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and superspeakers.

QUAD ESL63 1980 [£1200]
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

YAMAHA NS1000 1977 [£532]
High tech Beryllium midband and tweeter domes and brash 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!

TANNOY WESTMINSTER 1985 [£4500]
Folded horn monsters which certainly sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.

DIGITAL RECORDERS

KENWOOD DM-9090 1997 [£500]
Serious and sophisticated sound thanks to well implemented ATRAC 4.5; surprisingly implemented ATRAC 4.5; surprisingly

MARANTZ DR-1 1987
High sensitivity, as fitted to many classic horn designs.

MISSION PDR-555RW 1999 [£480]
For a moment, this was the CD recorder to have. Clean and detailed.

SONY TD-8 DATMAN 1996 [£599]
Super clean sound makes this an amazing portable, but fragile.

SONY MDS-JE555ES 2000 [£399]
Have. Clean and detailed.

PROFESSIONAL REQUIREMENTS

EQUIPMENT

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0% APR is available on purchases of more than £660. Please call for details. Prices set at time of press E&OE.
These are the best products we've heard that are currently on sale in the UK, complete with the date they were originally launched and their current retail prices. Watch out for regular updates!...

**TURNTABLES**

**ANT TII/ARM ONE/IQI** 1998 £725
Redesigned Systemdek IXIX now off the pace, but the arm and cartridge are both star performers.

**LINN LP12/LINGO** 1973 £2100
The quintessential belt drive superdeck offers a beguilingly musical midband at the expense of lumpy bass and nebulous imaging. Latest Lingo brings a new lease of life, with even more punch and polish.

**MICHELL TECNODEC** 2003 £575
Superb introduction to Michell turntables on a budget. Top quality build and elegant design make it the class of the mid-price field right now.

**MICHILL GYRODEC SE** 2002 £870
Its beauty is more than skin deep - superbly build and finish allied to clever design equals class leading performance. Latest DC motor with 'Never Connected' PSU make it all the more unassailable.

**MICHILL ORBE SE** 2002 £1916
Cost-no-object evolution of the Gyro adds massy acrylic platter and two-stage isolation. Fanastically capable all rounder with commanding, powerful, detailed sound that gets the best from almost any arm and cartridge.

**PROJCET DEBUT II**

**PHONO SB** 2002 £170
Fuss-free all in one starter turntable, complete with built in phono stage. Not a star performer, but a fine mid system upgrade all the same.

**REGA P3** 2000 £298
Great entry level audiophile deck with fine bundled tonearm. Tweakeable, and responds well to careful siting on a Base platform.

**REGA P25** 2001 £619
Until the TeconDec, the best mid-price turntable package. Fine build and elegant styling. Clean, open sound but limited at frequency extremes in absolute terms.

**SME MODEL 10A** 1995 £3333
Exquisitely engineered deck and arm combo, but dry and clinical sounding compared to rivals. Accomplished performer with classical music, nonetheless.

**TECHNICS SL1200/II** 1973 £395
Slick build makes it a respectable performer, although the cheapo arm limits it - fit a Rega RB250 and it's suddenly a serious mid-price machine.

**TONARMES**

**HADCOCK 242 SE** 2000 £649
Largest of a long line of unipivots, with added mass, revised geometry and better finish. Musical like few others at or near the price, but poor frequency extremes.

**LINN EKOS** 1987 £1700
Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Lacks the SME's slam, the CSL's clarity or the ARS's emotion, but has a hefty musically all of its own.

**MICHILL TECNOARM** 2003 £1056
John Michell's brilliant reworking of Rega's classic adds a classy counterweight and end stub, plus Cardas cable. The result is a near transparent sound with plenty of power and poise.

**NAIM ARO** 1997 £1425
Charismatic anagpivit poor at frequency extremes but sublime in the midband; truly emotive and insightful.

**ORIGIN LIVE SILVER 25002001 £625**
This fully developed and expertly fettled Rega boasts a superbly even, transparent and tuneful sound. Gives away only a small degree of finesse and dimensionality to top arms.

**ORIGIN LIVE ILLUSTRIOUS** 2002 £1570
A modern superarm with battleship build. Extremely strong, even and open sound in the mould of the late, lamented Zeta, plus fine canal colouring. Exquisite.

**REGA RB250** 1984 £112
Sold through Mosh Marketing, this is capable far beyond its price point, with a tight, lean and detailed sound. Responds brilliantly to Origin Live counterweight modification, and well to rewiring.

**SME 309** 1989 £767
Entry level SME complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

**SME SERIES IV** 1989 £1127
Offers nine tendrils of the SME's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

**SME SERIES V** 1987 £1614
The so-called Best Pickup Arm in the World isn't, but comes close. Universally popular with incredible weight, ultra clean midband and treble. Does everything except beguile the listener.

**CARTRIDGES**

**AUDIO TECHNICA AT1010** 1984 £29
Great starter cartridge that's refined, detailed and musical beyond its price.

**DYNAVECTOR DV10X5** 2003 £550
A distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allowed to a punchy bass. Beats GI042 comfortably.

**DYNAVECTOR DV10X-H** 2003 £299
The best modern budget MC combines deliciously sweet sound with fantastic get-up-and-go. High output version works a treat with valve phono stages too.

**GOLDRING GI042** 1994 £135
One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

**LYRIA LYDIAN BETA** 1998 £600
An altogether more beguiling listen than the MC305, although not quite as incisive. Superb all rounder, nonetheless.

**LYR A PARNASSUS DCT** 1997 £1895
Jonathan Carr's masterpiece is a brilliantly lyrical and fluid performer, with a deliciously sweet tone and immense subtlety and polish.

**ORTOFON MC25FL** 1999 £285
Strong budget MC with a cleaner and more detailed sound than the Dynavector; more sterile and less emotive, however.

**ORTOFON MC30 SUPR** 1995 £550
Beautifully clean and detailed device with real finesse, albeit a tad mechanical sounding.

**ORTOFON KONTRA' B** 1999 £270
Surprisingly articulate performer by Ortofon standards. All the brand's usual polish and detail allied to real vim. Loves making music!

**SHURE V15XMR** 1994 £350
The most musical MM yet made - brilliantly dynamic and punchy in the classic Shure mould, yet refined and tidy too.

**SUMIKO BPS** 1995 £250
Charismatic performer with rhythm aplenty, but in other respects way off the pace - lacks smoothness and sophistication of the DV10X5.
DIGITAL DISC PLAYERS

ARCAM DIVA CD82T 2002 £600
Oodles of finesse, but not the most gripping performer at the price. A fine all rounder in the classic Arcam mould.

CAMBRIDGE AUDIO DVD57 2003 £300
Crisp, lively DVD-A sound makes this superb value for money, but 16bit playback is way behind similarly priced CD spinners.

CREEK CD50 2003 £699
Lyrical and musically engaging mid-price machine, but lacks its Marantz rival's tonal exuberance. Optional PSX-R adds bass and dimensionality.

DENON DVD-A1 2002 £2500
Middling CD performance, but a genuinely strong DVD-A sound with masses of space and detail. Excellent pictures, too!

LINN GENKI 1999 £995
Undeniably fast, lithe, musical and fun - but some won't take to its dry, wry character. Works best in all-Linn systems, where it really rises to the challenge!

LINN IKEMI 1999 £1950
Has the brilliant focus and clarity of the previous Karik III with a dose more tonal richness and polish. More grip and poise than most at any price - still superb!

MARantz CD6000K 2001 £500
Brilliantly warm and volupotous sound will endear it to vinylphiles and tube lovers alike. Musical, colourful, polished and powerful like none others at or near its price.

MARANTZ CD17 II 2002 £800
Off-overlooked middleweight boasts a truly beguiling sound with lots of tonal flavour. Sits awkwardly between the £600 and £1000 price points, where some brilliant value buys reside, though.

MARANTZ DV9300 2002 £1500
An extremely well designed universal player, offering a beguilingly natural sound whatever you feed it.

MERIDIAN 507 2003 £1195
Quintessentially Meridian mid-price machine; smooth, warm, expansive and seductively musical. The best all rounder at this competitive price point.

MUSICAL FIDELITY TRIVISTA 2002 £4000
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

NAD C641i 2002 £330
Highly musical and articulate budget machine in the classic NAD mould. Second only to Cambridge's CD505SE in the value stakes.

NAIM CD5 2001 £1195
Vast and grippy like no others at the price, but lacks the warmth of the Marantz CD6000K at half the price. To wit, it's a very focussed product, best used in Naim systems.

NAIM CDX2-XP52 2003 £4950
A fine high end machine, but add an XP52 and it becomes one of the most charismatically engaging 16bit machines we've ever heard. Plays music with such passion!

NAIM CD53 2003 £7050
The most polished Naim CD to date; tremendously capable and musical, but lacks the Roomweller quality of the cheaper CDX2-XP52.

PHILIPS DVD9635A 2003 £400
Creamy CD sound allied to superb SACD and DVD video playback makes this brilliant value for money.

REGA PLANET 2002 £498
Rhythmic and beguiling performer, although lacks the warmth of tone needed to better it's Marantz rival. Superb ergonomics and design, nonetheless.

REGA JUPITER 2002 £1000
A Planet on steroids, this machine adds depth and breadth to its baby brothers already impressive sound. Good, but facing stiff competition.

DIGITAL RECORDERS

PIONEER PDR-409 2001 £200
Brilliant value CD recorder that makes excellent recordings from its digital inputs. Half decent digital converters, too.

PHILIPS DVD8880 2003 £370
Poor CD audio playback, but makes great DVD video recordings and boasts fine ergonomics. Top AV value.

SONY RCD-W3 2002 £250
Usual superb Sony ergonomics make for nonsense budget buy. Fine direct digital copies, but analogue input poor. Middling sonic, but there's a digital output!

YAMAHA CDR-HD1300E 2002 £600
HD means MD-style ease of editing, but compromises recording quality even so slightly. Add decent CD replay and it's a fine all rounder nonetheless - top value.

ONKYO MB-S1 2001 £1100
An interesting machine complete with MP3 functionality, but high price, fuzzy ergonomics and over-smooth sound make it mediocre value against the Yamaha.

PHONO STAGES

CREEK OBH-2 I SE 2003 £250
Musically enjoyable yet highly refined for the price - a superb buy. Gives the Dino a real hard time.

EAR E34P 1993 £400
Classic tube design with a deliciously warm and expansive sound - shame about the loose bass and nilai treble!

LINN LINTO 2000 £900
A musical and incisive performer, with more speed than the Delphini at the expense of detail and tonal colour.

MUSICAL FIDELITY X- LP 1999 £149
Clarity and detail allied to decent smoothness make it a solid first phonostage. MPMSC.

QED DISC SAVER 1995 £35
Rhythmic, bounce sound via battery, although it's bright and forward. Great value, but £100 more on the X-LP is well worth it!

TRICHORD DINO 2002 £299
Great all rounder with switchable MM/HC. Fast, fluid and smooth like no others at the price.

TRICHORD DELPHINI 2003 £995
The very latest 'Never Connected' variant is easily the best, bringing velvety smoothness to an already refined and engaging performer. Neutral to a fault - some will mourn the passing of the charismatic ISO.

AMPLIFIERS

ARCAM DIVA A65 PLUS 2002 £370
Classic budget Arcam fare - decently sweet and open with sensitive facilities and plenty of power.

ARCAM FMJ A33 2001 £1150
For those who value serious power and labyrinthine facilities over outright clarity or grip. A very impressive all rounder with an unusually muscular power amp at this price.

AUDI O ANALOGUE

PUCINNI 1999 £495
Brilliant value mid-price is a real step up from budget designs. Smooth, fluid, natural sound with adequate power and no nasties. Fine phono stage too!

AUDIO NOTE OTO SE 2000 £1199
This baby tuber is beautifully sweet and creamy, but lacks solid-state's clarity, detail and incision. Low, low power means speaker choice critical.

AUDIO NOTE SOCOR SE 2000 £1699
Wonderfully out-of-the-box sounding tube middleweight is all about sweetness and fluidity. Limited power and loose bass, but little the worse for it.

CYRUS 6 2003 £600
Cracking do-it-all mid price design, bringing sweetly sweet sound, good connectivity and upgradeability and stunning style and build.

CYRUS 8 2003 £800
Unusually warm and lyrical for a solid-state, with decent power and punch. PSX-R adds dynamics, detail and dimensionality.

MERIDIAN 551 1994 £295
Evergreen middleweight is a serious performer even now. Tonal a tad dry, it's still very smooth and sweet with bags of power, detail and grip. Class act.

MUSICAL FIDELITY A308 2002 £2400
Impressive monster integrated. Fast power delivered with clarity, even-handness and finesse. Musical, with real tonal colour. Separate pre-power version better still, but less good value.

NAD C320 2002 £320
Not the giant killer that the 3202 once was, but a very strong budget design. A great starting point forms a fine system with NAD's partnering CS4ii CD player.
LOUDSPEAKERS

B&W CDM1 NT 2002 £750
Fine clarity and imaging allied to pleasing warmth and great rhythmic cohesion make these standmounters an essential audition.

CASTLE CONWAY 3 2003 £930
Superbly smooth and crisp performers, with a big hearted musical sound. Ultimately coloured though, with a slow, plummy bass.

CYPUS CLE570 2001 £800
Charmatic performer with a fast, tight and open midband, but lacks cohesion and scale.

EPGS ELS-3 2003 £200
Plenty of brío and a decent degree of refinement makes this budget baby a fine value contender.

The most musical amplifier at the price, bar none. Delicious Class A sound is smooth, sweet and wonderfully transparent with true tonal colour. Low power, so match carefully.

PAreamplifiers

CREEK OHM-12 2000 £220
Brilliant value budget passive, giving last away in sonics to far more expensive designs. Connectivity and build aren't great, but what do you expect at this price?

MF AUDIO PASSIVE PRE 2003 £1010
Novel and effective pre with switchable gain via a transformer, and balanced operation. Open and incisive sound, yet makes most active rivals sound edgy by comparison.

NAIM NAC112 2002 £660
Affordable admission ticket to the Salisbury high end experience. Detailed and dynamic, if tonally rather lacklustre.

POWER AMPLIFIERS

LINN LK140 2000 £800
Dry and grey sounding, but decently dynamic and musically engaging all the same. A worthy worker in a budget Linn system.

NAIM NAP150 2002 £795
Driven by a decent source and a NAC112, this gives highly enjoyable results - providing you like the Naim sound! Taut, fast and feisty despite its relative lack of power.

MARANTZ SM-17 2001 £700
Useful budget power amp with plenty of clean transistor power. Not the most transparent, but sweet and clean all the same. Fine build completes a great value package.

MUSICAL FIDELITY

A308 CR 2003 £3400
Superb transistor behemoth, worth partnering with any high end CD player or preamp. Oodles of grunt served up with poise and purpose.

QUAD 909 2001 £900
The latest current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but super value all the same. Lovely build, finish and Quad's legendary service are nice.

QUAD ESL-988 2001 £3400
Wonderfully neutral and self-effacing with sublime imaging and projection. Treble lacks extension, bass lacks weight - although the pricier 989 answers the latter resoundingly.

SUGDEN A21A 1993 £1020
The most musical amplifier at the price, bar none. Delicious Class A sound is smooth, sweet and wonderfully transparent with true tonal colour. Low power, so match carefully.

NAIM NAIT 5 2001 £845
A fast and thrilling listen, thanks to taut and articulate bass and midband. Surprisingly polished for a budget Naim amp, both sonically and ergonomically.

PERIGEE FK-1L 2002 £5000
Charismatic Austie ribbon design with deliciously open mid and treble, allied to fine bass weight. The right room and ancillaries essential. Engaging, musical and powerful sound. Superb.

W'DALE DIAMOND 8.1 2001 £120
Still the best baby budget standmounters around. Tight and grippy thanks to Kevlar drivers, but invariably limited in the frequency extremes.

HEADPHONES

JECKLIN FLOAT TWO 1998 £99
Wonderful panel-like sound from these exotic-looking headclamps.

SENNHEISER MX-500 1999 £19
Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

SENNHEISER PX-100 2002 £39
Cracking pair of lightweight open back cans ideal for personals, but good enough for real Hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the MD400s.

SENNHEISER HD-590 1998 £199
The company's best real-world cans to date. Open and smooth with plenty of detail. Brightly lit midband makes them an ideal partner for a valve headphone amp.

INTERCONNECTS

CHORD CO. CHAMELEON 2 £90/M
One of our favourites, these are musical performers with a smooth yet open sound.

DNM RESON £40/M
Neutral and transparent - a steal!

NORDWEST BLUE HEAVEN £150/M
Some of the fastest and most transparent cable around. YDH ULTIMATE THE FIRST £260/0.6M

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the money.
Until August 1983, the best budget tonearm in the world was the Rega R200. An S-shaped, Japanese sourced variant of the mid-price Lustre GST-I, it gave excellent results for its £46 selling price. But then along came an arm with such an amazing price/performance ratio, that the poor S-shaped Rega was never bothered with again. The RB300 had arrived.

Radically different to almost anything before, it practically rewrote the book. With a tapered, one piece aluminium cast arm tube with no joins between the headshell and pivot, it was the ultimate exponent of Linn’s ‘maximum rigidity’ rule. The bearing gimbal was a substantial casting employing a threaded stem and locknut, and the bearings themselves were excellent quality – the same as those now fitted to Linn’s Ekos.

Friction was extremely low, and the arm could track the very best cartridges. Even the counterweight was radical, machined from dense tungsten alloy for the smallest possible diameter, and hence the lowest moment of inertia.

The new £90 arm was a stunner, matching or bettering expensive super-arms of the time in a number of ways. Its biggest strength was its neutrality, especially in the mid-band, which made Linn’s Ittok (at £253) seem coloured. Still, its bass wasn’t the best in the business, and nor was its treble the most extended. Installed on a Michell Orbe turntable, the standard RB300 is an impressive but not flawless performer. Compared to a reference SME V, bass is light and lumpy and can sometimes sound semi-detached. Mid band is uncoloured with impressive detail rendition, decent imaging and good rhythms and dynamics, although there’s definitely room for improvement. Treble is also accomplished, but ultimately a bit coarse and rolled off, losing a lot of air and space compared to the SME.

With the tracking force spring disabled the standard arm gains clarity in the midband and treble, but it isn’t until surgery is performed that it begins to sing. A silver Litz rewired Rega RB300 gains ease and fluidity as well as a smoother, more spacious treble. Most interesting though is Origin Live’s counterweight modification. Compared to a standard RB300, the OL/RB300 gains deeper, more extended bass with improved grip. Midband is clearer and more detailed, and treble more open and sweet. But most significant are rhythms and dynamics, which become superb – the Rega loses its cold frigidity and becomes extremely fluid.

The OL/RB300 can’t match the SME’s bass power, dynamics, treble extension or archaeological detail digging ability, but is pleasantly warmer and softer. Treble’s good too, but again not as clinically detailed as the SME’s. Unlike the Series V, it isn’t showy or pushy though. From being a fine budget tonearm, the counterweight mod takes the RB300 up to play with the big boys – quite something!

As analogue addicts know, there’s no ‘best’ super arm – some like the clinical precision of the SME sound, some the swing of the Linn Ekos, others the cohesion and naturalness of the ARO. But whatever your preference, you’ll be gobsmacked at how good the humble RB300 can be made to sound.

**RB300 TWEAKING**

**[1] ARM WIRING**

The biggest problem is the internal wiring rather than the arm lead itself, which can be replaced by silver Litz to good effect, but changing the arm to preamp lead will also help slightly. Also, try a separate earth lead, rather than the standard arrangement where it’s earthed down one of the signal return leads.

**[2] TRACKING FORCE ADJUSTMENT**

The RB300, unlike its cheaper RB250 brother, has a carefully designed coil spring to apply a minus force of 3g when set to 0. Unfortunately, this degrades the sound by transmitting resonances from the arm base into the armtube. If you remove the spring, or disable it by setting the adjuster to 3g (i.e. so it isn’t applying any force) and set the tracking weight by the counterweight and a stylus balance, you’ll get more clarity and focus to the sound.

**[3] COUNTERWEIGHT**

As counterweights are easily the highest moving mass on a tonearm, it’s vital they’re properly decoupled from the armtube. Unfortunately the RB300’s isn’t, relying on a floppy rubber ring between the end stub and counterweight. Origin Live [01703 442183] offer a £75 ‘structural modification’ which involves removing the rear end stub (normally just screwed into the back of the armtube) and replacing it with a new one torqued onto the arm by a high tensile bolt. A heavier (RB250-type) counterweight is then drilled and threaded with an Allen bolt, which can then be screwed into the rear stub rigidly. This decouples the counterweight from the armtube, meaning it doesn’t muddy the sound. Although this is major surgery – OL say just bolting the counterweight onto a standard end stub isn’t enough, and can degrade the sound – it’s easily the most worthwhile RB300 mod.
The phrase 'traditional values in a modern setting' best describes AMC's remarkable CVT3030 valve amplifier, says David Price.

One glance at Hi-Fi World's classifieds will remind you of the countless now obsolete companies, set up to manufacture a myriad of great - and not so great - products for hungry audiophiles in the seventies and eighties. From Leccson and Ariston to Nytech and Inca Tech, there have been many glorious failures, the brands vanishing long before the quality is forgotten.

By the nineties however, hi-fi had become a more stable and less fly-by-night industry. All the more surprising then, that AMC should go the way of the dodo too. In hindsight, its £750 CVT3030 integrated valve amplifier was a cracking product that deserved to succeed more than most. The truth is that its concept was probably just a little too ahead of its time.

If NAD had ever made a tube amp, then this would have been it. Designed by Peter Bath (who worked for Dolby, AR and indeed NAD), and manufactured by IEEE in Taipei (makers of Cambridge Audio, Luxman, Proton and indeed NAD products), it shared considerable DNA with the ubiquitous 3020. While the technical design was different, the concept was remarkably similar - an innovative, beautifully built, plainly styled, no-nonsense integrated amplifier with focus very much on sonics. This time though, valves were used to deliver the sonic goods.

In 1992, tubes were about as trendy as nineteen seventies fashion. Despite the efforts of - among others - this magazine, the joys of the thermionic valve weren't as universally recognised back then as now. Many were mystified when the CVT3030 appeared on the scene. It looked like a transistor amplifier, worked like a transistor amplifier (in terms of its reliability, low noise and user-friendliness) but certainly didn't sound like one!

Its construction was a sublime mix of the old and the new. The boxy, dark grey 430x115x285mm case housed a sturdy metal chassis, explaining its considerable 12kg weight. Beautifully laid out inside, it featured separate pre and power amp sections. The latter was split into discrete left and right sides, each running two fixed bias EL34s complete with their own thermostatically controlled silent running cooling fans, plus 7 high voltage MOSFETs. Each output transformer was a large, generously specified affair with both 4 and 8 ohm taps, while extensive attention was given to power supplies.

Despite its sparse aesthetics, the AMC was as generously specified as many early nineties midi systems. A phono stage was provided (and very good it was too), along with inputs for Phono, Tape, DAT, CD, Tuner, Video and Aux. A switchable Tape Monitor, Source Direct switch, headphone socket and even Bass and Treble controls were provided. Round the back, there was no less than three high quality gold plated speaker binding posts per channel.

The result was a convincing musical performer which sounded quite unlike any of its price rivals. Its warm, big hearted nature made the most of music from any source. Bass is strong (if a little loose) with a very fluid and supple feel, midband lacks the clarity of its transistor rivals, but is very smooth and even handed without the slightest hint of an edge. Treble is sweet and silky, but still spacious and detailed. The result is an amplifier which drives most modern loudspeakers as effortlessly as any solid-stater, yet invests the music with a delightfully natural, organic sound.

Of course, the AMC's sonics weren't perfect. Although nowhere near as coloured as the Quad IIs or Leak TL12's of yore, it certainly isn't as neutral as its (then) contemporary rivals like Cyrus's 3/PSX-R or Exposure's XX. Dyed-in-the-grain tube aficionados won't like it either, because it lacks the languid, rose tinted presentation of the likes of Leak's Stereo 20. In truth, it should be judged as an attempt to bring some of the musicality of valves together with the user-friendliness of solid-state - and on those terms at least, it succeeds admirably. Although something rare these days, there are more CVT3030s around than you'd think. Look hard and you can pick one up for as little as £250, although you should expect to add another £100 to that for a mint, boxed example. Even at this price though, you've got yourself a timeless bargain.
Radford, Perfect

Haden Boardman looks back to Radford's late, great Series III STA15 and 25 valve amplifiers.

As vintage valve amplifiers go, it has to be said the Radford is just about one of the most modern. While most makers were looking earnestly at the world of transistors, Arthur Radford, from his Bristol base, still carried on the thermionic flame well into the nineteen seventies; the last of the Radford valve line being the strange "hybrid" TT range, featuring transistors driving output valves... weird!

Some of the early stuff is okay, but thin on the ground, and frankly not that spectacular. For most however, the crowning glory of Radford's amplifier output was the classic 1964 series III. There were four models - the ultra rare MA15 and MA25, along with the much more common STA15 and STA25. Based on a similar chassis design, the only real difference between a '15 and a '25 is the power supply. Valve line up for all models features an EF86 pentode front end, ECF82 triode/pentode phase splitter, and EL34 output valves. Twenty five models feature solid state rectification and negative grid bias (the user has to periodically check that 2 volts are present on the test terminals on the back of the chassis), while the '15s uses standard cathode bias, and a GZ34 valve rectifier.

Build for both is very similar; two central printed circuit boards, one for each channel, hold all passive components, with the valves located separately on the chassis. The '25 has an additional power supply board to hold the solid-state bridge rectifying diodes. Under the large central cover you will find the larger power supply components and the excellent quality output transformers. Connections to the unit are via mediocre phono sockets (easy to replace) for the input, and normal 4mm binding posts for the 'speakers. In addition all models have an "octal" socket to supply the matching SC22 stereo pre amplifier with power (do look out for the rare SC22P which boasts an on-board power supply), but do be careful with your leads here - Radford chose sensibly not to send the audio signal through the umbilical cord, but sadly did choose to send 240V AC mains through to the preamp to turn the power amp on and off and provide the preamp with AC outlets to drive ancillary equipment, such as the matching Radford FMT2 transistor tuner!

Sonically the classic series III is amazing given that the youngest examples are now pushing thirty four years old. They lack the kind of "mush" you can experience from a stock Leak, or Rogers valve amp, and offer a link from the 1950s to the late 1970s valve resurgence. A Radford has the soft centre of a classic Quad II, but the impact and drive of a later TVA/Beard P50 - and Radfords do not blow up! The imaging is almost holographic, and just a slight softening of impact and weight gives the amplifier's age away. That said, with digital sources, is that such a bad thing? For me the '15 has an edge of sweetness the 25 cannot quite match, while the 25 has a degree of bass slam and impact that the 15 misses out on!

Radford specified military spec components in these beasts, including early metal film resistors. However, like any other vintage valve amplifier, most of the capacitors are now beginning to fail, so it's worth getting them all replaced. Expect to pay around £800 for even the most dog eared example, but don't shell out more than about £100 for a preamp. The mono blocks are so rare that you might as well forget it! Even at these prices however, it is hard to fault them. On the whole reliable, with no real Achilles heel, it's a safe, solid vintage amplifier which can be used everyday with modern loudspeakers.
There is but a handful of names that are truly synonymous with hi-fi, those that were there at our industry's birth, - founder members if you like. One of those is Tannoy. The company was set up in 1932 by Guy R. Fountain.

From a hi-fi point of view, it's the Dual Concentric unit, introduced in 1946, that made the company's name. The combination of a high-frequency pressure unit firing through the centre of a large bass cone wasn't exactly a brand new idea, nor is it a device unique to Tannoy; Altec's famous 604 operates on a similar principle. What marks the Tannoy unit out is its refinement, which left the rest of the field sounding coarse, crude and industrial by comparison.

The sound emanating from the Dual Concentric is near-perfect phase, no matter what axis you listen on. No other multi-way loudspeaker manages this very important point so well; the Tannoy Dual Concentric is a genuine point-source driver.

COLOURFUL HISTORY

Early units made from the late Forties and on through most of the Fifties have been nick-named Silvers. This refers to the colour of the magnet cover (or, more accurately the cover on the magnet and pressure unit). These variants came in 12in. and 15in. chassis sizes, had separate crossovers and are now very rare indeed. Power handling is low by modern standards at 15-25 watts, and impedance high at 150ohms. A version of this unit was made for Pye and their HF25 loudspeaker.

Later refinements saw a change from Silver to Red, which brought with it a new cone surround and a hammerite-red magnet cover. I personally have not noticed any sonic difference between these two eras of Tannoy, but that doesn't stop the earlier Silvers fetching higher prices! Still, you are rather more likely to come across a pair of Golds, made from the late Sixties up to 1974, or the unpopular HPD series (High Performance Dual).

There is little that separates the Golds and earlier units sonically, but again, myth and legend dictate that the Silvers and Red are somehow superior. In my experience, the Golds need to be driven harder than their ancestors to get them to perform, but this is pretty marginal, and could just reflect the state of the particular drivers I was listening to.

Notable changes for the Gold included a change to 8 ohms for the impedance (to help transistors out) and user-adjustable HF Energy and Roll Off controls. Power handling also rose to 30 watts for the 12in. and 50 watts for the 15in. By the way, the first Golds do not have crossover controls and their plastic magnet cover is actually pink.

Introduced with the Golds was the little III LZ unit. Although barely smaller than a 12in. Monitor Gold, it could be used in a much lower volume cabinet and gave sound quality just as good as its two big brothers. Strangely, this unit has a slightly larger HF diaphragm, perhaps in an attempt to reduce distortion.

PUTTING ON WEIGHT

By 1974, Tannoy were struggling to produce a high-power unit. 70% of the world's recording studios used Tannoy for monitoring at that time, but the growth in electronic music and transistor power amplifiers led Tannoy to rework the range and introduce the HPDs. Basically, they made the cone heavier by adding 'petals' to its rear.

Tannoy said this was done to cut down on cone flex, but it hardly shaved a dB or two off the efficiency figures and increased power handling for a 15in. to 80 watts. Sadly, in
common with some of the late Golds, Tannoy decided to move from a plastic-impregnated fibre surround to a purely synthetic-foam one as well; after 25 years, you can imagine the rotten state these are going to be in, unless you're very lucky.

HPDs are pretty good but they sound a bit lifeless in comparison to their predecessors. All Tannoys up to and including the HPDs used Alnico ring magnets (common to both treble and bass drivers), while later units relied on ceramic. If you’ve got a set of drivers, there’s a bewildering variety of cabinets to bolt them into. At the top of the range is the Guy R. Fountain Autograph, at the bottom the bookshelf IIIIZ. It has to be said that attempts to shrink the cabinets of later models didn’t work too well - both the 12in. and 15in. need massive enclosures to function correctly, and in these days of stereo, not many people would put up with a pair of such huge loudspeakers in their front room.

Other than the models listed above, there were several 'professional' cabinet makers who constructed their own versions of Tannoy’s enclosures, the most well-known being Lockwood. Most of these non-Tannoys tend to be bigger and ugly, but sound fine.

Sound-wise all of these loudspeakers possess a big, clear sound. If you had to split hairs, then you might say the high treble can be a little 'tizzy', and the cabinets have a massive effect on the sound (just remember, the bigger the better!) I have not mentioned tweaks on old Tannoys. As far as the units and crossovers are concerned, they should be left alone. However, it is worth bypassing the level controls on Golds and HPDs, as these do dull the sound. Some people rebuild the crossover with new components, but be very careful here as you will reduce the value of your Tannoys. The best tweak for smaller enclosures is a larger enclosure! Chatsworth and Lancaster owners in particular take note.

**BOXED IN**

What follows is a potted guide to cabinets up to 1974. Solid metal badges usually indicate Silver or Red units, plastic badges Golds (except for those in GRF and Autograph cabinets, which always had metal badges). Corner unit width is quoted at the widest point, and depth is front to corner-back.

**IIIIZ.**

15in. (h) by 23in. (w) by 9 5/8in. (d).

Invariably loaded with Monitor Golds. Great little infinite-baffle speaker, 99.9% of the time in Teak. Sounds best close to walls on substantial 24in. stands. Pay around £200 for a good, clean pair.

**LANCASTER.**

Two versions, corner - 33in. (h) by 24in. (w) by 16 1/2in. (d) - and rectangular: 33in. (h) by 21 1/2in. (w) by 12 1/2in. (d) Takes both 12in. and 15in. units, 95% Golds. 12in. is a reflex enclosure, 15in. an infinite baffle. Good sound, but the poorest of the lot, and the most common! 15in. rectangular sounds very compressed, with one-note bass; prefers small rooms with a 12in. Prices for the 15in. Tannoys did go mad at one point; thankfully they have come down quite a bit in recent times. Pay £200-£300 with 12in., and up to £500 for 15in. (slightly more for Reds). Rare as single cabinets, usually paired up. Cabinets are worthless really - these prices are mostly for the units themselves.

**CHATSWORTH.**

Two versions, corner - 39in. (h) by 19in. (w) by 12in. (d) - and rectangular: 39in. (h) by 16 1/2in. (d) - and takes 12in. units and you’ll find Reds, Golds and the odd Silver. Built late Fifties to late Sixties. Corner unit works better than rectangular on small stands about 10in. to 12in. high. Early models have little wooden legs, later versions a small plinth. Very good infinite-baffle loudspeaker. Pay £200-£300 for a pair, depending on Red or Gold drivers. Singles, £75-£100.

**CANTERBURY.**

37in. (h) by 25in. (w) by 17in. (d) Larger dual-port reflex corner unit, lovely Fifties radiogram look! Silvers or Reds normally fitted. These are rare but beautiful loudspeakers. Superb sound - open, dynamic, glorious. Budget on £250 for a single, twice that for a pair (hard to pair up though).
46in. (h) by 40in. (w) by 23 1/2in. (d)
Quasi-horn for corners, which will handle Silvers, Reds or Golds. Simply awesome. I once owned a pair but had to sell them to buy a house! I should have rented instead. Effortless bass, just glorious. Not as rare as you would think, either. £1200 to £2000 will buy a pair.

G.R.F. Rectangular.
42 1/2in. (h) by 23 1/2in. (w) by 19 1/2 (d) Liable to be Gold drivers. Compromised version of the above, but still excellent. Rare, but commands same price as above.

G.R.F. Autograph.
32in. (h) by 36in. (w) by 17 (d) Silver or Red drivers. Oddity; large, imposing thing that doesn’t sit well in a room, and the unit is positioned too low. Very, very rare - leave them for the collectors. First model Tannoy designed trying to avoid the use of a corner, but this back-fired. Worth about as much as a Lancaster in my opinion.

YORK
Early version: 45 1/2in. (h) by 32in. (w) by 22 1/2in. (d) Red, Silver or Gold. Large dual-port reflex corner enclosure designed for 15in. drivers. Big brother to the Canterbury. Totally superb. This is pretty much the ideal enclosure for 15inchers. Hard to find, so you will pay £800 up for a pair.

YORK Late version Rectangular, single-port reflex with Golds. Looks like a bigger Lancaster, has a great sound. In demand, so £500 to £800 is the going rate.

ONE CAREFUL OWNER

Some spares are still available from Tannoy, and considering the immense cost of the units new, they are quite reasonable. Bass cones blow before the HF pressure units do, and getting an original cone for a Silver or Red is now impossible. Later Golds and all HPDs suffer from surround rot, so tread with great care here; you can be certain the cone will need to be replaced. The later magnet covers on Golds are plastic and easily broken too. Beware missing magnet covers, as it can make it difficult for the uninitiated to tell one driver from another and doesn’t do their value any favours.

Tannoy have survived the past 67 years and an American take-over, a management buy-out and the relocation of the entire factory from West Norwood, London to Glasgow. The reputation the company has worldwide is astounding, especially in the Far East where Tannoy is ‘the’ cult ‘speaker’ system. Throughout the late Seventies and on into the present day, outfits exist who have done nothing but ship older Tannoy’s across to Japan. This had forced prices up, but thanks to the current strong pound, now is the time to buy yourself a pair of Tannoy’s and enjoy!
Albert Lee salutes one of the unsung heroes of the pro-audio scene, the mighty Crown DC300A power amplifier.

Like Leak tuners, Decca cartridges, Mayware pick up arms, IAS loudspeakers and Garrard turntables, here's a classic audio product which is genuinely built to last. Crown's gargantuan DC300A is an exceptional product that can still be found in recording studios, radio stations and cinemas — where many thousands have been used over the years. They were also available as hi-fi amplifiers, but never caught on due to their price and professional orientation. It's a testament to their quality, and the respect they command within the pro audio industry, that service is still available by the manufacturers in this country.

Have a tricky loudspeaker, or need serious sound pressure levels? The Crown obliges — and more importantly — does so without fuss or failure. It puts out a whopping 190 watts RMS into 8 ohms or 340 watts RMS into 4 ohms, and offers massive current output with negligible phase distortion and complete stability into loads of 2 ohms and above. It will even drive heavily reactive loads without shutting down. Truly an incredible piece of audio engineering, it weighs in at a hefty 22kg, thanks in no small part to the massive transformer in the centre in an enormously heatsinked assembly!

It sounds superb — but there's a caveat, which is mentioned in the operating manual. You have to endure a wait of fifteen minutes after powering up before using it. If not, then you're rewarded with over prominent bass and midband and treble with little image width or stage depth. But after the warm up period has elapsed, this amplifier is the model of transparency!

Bass is muscular and precise, and there's a deliciously crisp and unstring midrange and smooth treble. Then there's the image placement, which is spectacular. Listening to the Count Basie orchestra with Frank Sinatra, the sound is stunningly alive. James Brown has an almost visceral feel, with real impact and drive. You can, for example, effortlessly tell the difference between string basses and percussion. Instrument and image location is stunningly realistic. Stereo separation is extremely good, which is probably due to the power supply. It is, after all, a 1kW transformer with 48 Joules of energy storage in the power supply capacitors. This enables the amplifier to instantly respond to transient information, which is faithfully reproduced. The sense of timing and rhythm are almost beyond belief.

There's a catch, however. DC 300A amplifiers require 1.75 volts RMS of signal input, so most modern pre-amplifiers may not produce enough signal to drive them unless they have been modified! They also need very good ventilation, because if they get too hot (or become faulty) they will shut down. Crown did build a matching pre-amplifier called the IC150 - again it was built for quality reproduction, although its turntable input is nothing special. The resulting sound of this combination is exemplary.

The average price is around £200 for well-used examples of the DC300A, and up to £350 for partially rebuilt units. The IC150 preamplifier is relatively rare, but prices start at around £120-175. If like me you want an amplifier that will last virtually forever, then buy one - but beware! As with all second-hand audio gear, it's absolutely essential that you listen to it before parting with cash to ensure its working properly. And always ask for a receipt with the vendor's name and address on it.

SERVICE
For more information, check out the official Crown website (www.crownaudio.com) where you will find a user guide and service manual which can be freely downloaded. For service in this country contact MAJ Electronic, Unit 1, Dawley Trading Estate, Stallings Lane, Kingswinford, West Midlands, DY6 7HU.
Straight Talking

Naim’s ARO tonearm hit the hi-fi world like a bolt from the blue... David Price reminds us all why analogue rules, okay?

It is 1988 and the best tonearm in the world is the Linn Ekos, if you believe one half of Britain’s hi-fi press, that is. If you don’t, it’s the SME Series V. Either way, both arms are ostensibly very eighties - the SME is a technological tour de force with a super-analytical sound, while the Linn has the big, bouncy, powerful character of its 1960s precursor, only more so.

Either way, back in the days of Maggie Thatcher, red braces, Golf GTIs and dodgy shoulder pads, there seemed little room in the world for a pickup arm with the far more nineteen seventies qualities of gentle, beguiling musicality and woolly frequency extremes. With this in mind, it is to Naim Audio’s eternal credit that they launched the ARO when they did. Even more so if you remember how at the time every major UK manufacturer was falling over itself to launch its first silver disc spinner.

Everything about the ARO was so damn stylish. From its deliciously defiant name (Analogue Rules Okay), which raised two fingers to the format everyone feared would soon kill vinyl, to its stark engineering minimalism. Forget adjustable geometry, damping troughs and the rest of it, here was a pickup designed to work with only a handful of cartridges. Even better was the three point fixing, drilled expressly for Linn’s Troika MC, from the very company who made the ARO’s closest rival!

Best of all was the fact that Naim’s new baby was a unipivot. As the time, this orientation was about as fashionable as an orange Austin Allegro with furry dice. The term conjured up memories of old blokes tinkering with ancient Thorens 150s, trying to get their V15s to track Perry Como records better... In the thrusting world of Bros and Curiosity Killed the Cat, this was hardly street credit! Indeed Naim had previously argued that unipivots ‘could never work’, but on launching the ARO said they’d finally ‘found a way to make one properly’ and argued that ‘a properly designed unipivot arm has many qualities that place it above conventional gimbal bearing arms’. It certainly raised some eyebrows.

Naim’s way of doing unipivots ‘properly’ involved very high construction quality, with a beautifully finished arm tube and light alloy headshell, top class jewelled unipivot bearing and high precision counterweight. To the delight of manual cues everywhere (this writer included) there wasn’t an oil damped lifefucker device to be seen, while the bias was an olde worlde thread and weight.

Then, of course, there was the absence of lateral tracking alignment slots in the headshell - with just three Troika shaped holes taking their place - and zilch in the way of calibrated tracking force adjustment. All this doubtless caused SME Series V fans to argue how crude the ARO was, but anyone who’s ever experimented with tonearms will know how dramatically cueing devices, wobbly headshell mountings and bias and tracking force springs can degrade the sound!

Yet the real joy of the ARO wasn’t how it subverted established design conventions, but how it sounded. Make no mistake, it’s a coloured performer alright - you can hear it softening low bass and high treble, privileging the upper midband and sitting on overall dynamics - but it’s also incredibly musically engaging. Whereas the SME has cosmic frequency extremes and the Linn Ekos fantastic bravado, the ARO shines in its wonderfully fluid rhythmic abilities. Put simply, it’s supremely good at conveying ‘micro dynamics’ - the tiny nuances of inflection and rhythmic accents of a musical performance. This makes for an almost hypnotically engaging listen that just draws you into the music on an extremely emotional level. Funnilly enough, this talent seems to work equally well on whatever music you care to play - from The Cranberries to Kraftwerk, it’s always a compelling listen.

Although designed expressly for the Sondek, the ARO actually works in a number of modern decks, including Michells for which mounting plates can be made to order. It also aligns with a number of modern cartridges (including, for example, various Ortofons and Regas) - check with your cartridge supplier for mounting geometry data.

Properly set up in a decent deck the ARO is still something special, and second only to very few in the foot tapping department. Thanks to its excellent build it’s a durable piece of kit and a fine second-hand buy for around £500 - if you can find one. Unsurprisingly, most Naim ARO owners simply never feel the need to upgrade!
Yes Kan Do

David Price looks at a great second-hand speaker bargain, Linn's diminutive Kan standmounter.

Until 1980 the only mini-monitor worth having was the BBC LS3/5a. With its superb clarity it was great on classical music, but like all BBC designs it just didn't boogie. A shame, because many rock fans hankered after a mini speaker that could really kick, but had so far been denied. Linn responded with the Kan, so called because it "can do what other small speakers can't", in the words of the Glaswegian company's PR-speak.

With very similar (12" by 7.5" by 6.5") dimensions and the same ubiquitous KEF B110 Bextrene mid/bass unit, many people assumed the two would sound practically the same. This couldn't have been further from the truth - unlike the LS3/5a, the Kan used a superb Scanspeak tweeter and different crossovers and internal construction.

Because of their low 86dB sensitivity and unfriendly (6ohm nominal) load, Linn recommended Kans be used with nothing other than top Linn-Naim systems. Magazines preached that anything 'less' than a Naim NAP160 was tantamount to slaughter of the first born child. Although this overstated the case, the Kan really didn't suffer fools gladly.

Rammed hard against rear walls and driven by the then rather soft and beguiling Sondek, things gelled superbly. The Naims' low end grunt allied to the Sondeks smooth treble countered the Kans' characteristic forwardness perfectly, and the music flooded forth. Particularly strong on rhythms, the Kans could stop-start faster than just about every other moving coil speaker around, making for superb transients and genuinely musical, foot tapping sound.

The downside was the bass - errm, there wasn't any. Bass guitars disappeared from pop songs, jazz no longer had double basses, while great church organs sounded more like Stylophones - despite Linn's claimed 70Hz to 20kHz (+-3dB), there was precious little action under 120Hz, truth be told. Still, you could sort-of get round this with careful sicing, high grade front ends with plenty of grunt, and telling yourself you didn't like low frequencies anyway.

A couple of years later, Linn introduced the Kan II stand, a far more sturdy open frame type with top spikes which let the Kan work even more of its rhythmic magic. A series of speaker modifications followed, including a new tweeter. However, most mods were subtle in effect, and only served to give the speaker added mystique - people spoke in terms of Kans having good vintages, like fine wines.

In 1989 the Kan II followed, with the biggest mods to date. Although the enclosure dimensions were retained, the II cabinetry was substantially reworked for extra stiffness. Front baffle thickness was increased, and it was welded into position with ultra-strong adhesives. The tweeter end of the baffle was raised for improved dispersion, while the crossover was redesigned and made biwirable.

The result was an altogether more civilised sounding loudspeaker, with a more even frequency balance and fewer unwanted colorations. Kan purists were divided as to whether the II was better however - as it lost some of the original's punch - but this was all very much a matter of personal taste. Ultimately the Kan II was a superior 'real world' design, and even worked well with CD.

The very last Kan IIIs featured Linn's Ku-Stone inserts, but weren't around for long. By 1994 the cost of the drivers was getting too high to make the Kan a viable commercial proposition, and Linn introduced the Tukan. Although a nice little speaker, it's a far more middle of the road design - lively and musical but without the steel of its predecessors.

The good news is that for the price of cheap entry-level standmounters you can get a good pair of Kans second-hand. Pay between £120 and £250 depending on age, condition and whether stands are included. Make sure they come with the original box, and if Kan IIIs the biwire link key too. Set them up close the wall, use a rich sounding cartridge in your turntable - forget about Linn's or Audio Technicas - and sit up and enjoy the action!
Six-Appeal

Nick Tate looks at Celestion’s controversial eighties classic, the SL6 loudspeaker.

Until the early eighties Celestion were regarded as a conservative company, rather pipe and slippers and Gin and Tonic. Like Quad, they’d lived off the success of a popular range through the seventies without much need to change. But the Ditton range was fading, and the need was for an exciting new design to get buyers back.

Enter the 1981 SL6, born of advanced laser interferometry techniques pioneered by Graham Bank, who’d done much of the ground work for his previous employer Wharfedale. This technique meant engineers could accurately plot the behaviour of a speaker cone and its breakup modes three dimensionally. Duly, designers could tune out distortion and coloration far more accurately than before. What Celestion arrived at was a copper dome tweeter designed to act as much like a pure piston at audio frequencies as possible, and a one piece mid/bass driver with no glue joints between the surround, cone and dust cap.

It was an instant hit with most of the hi-fi press, with its metal dome tweeter a particular revelation. Although Yamaha had done something similar five years previous with the NS1000’s titanium unit, Celestion became widely regarded as starting the trend for metal domes. The SL6S followed several years later, this time with a lighter aluminium design plus a thinner braced cabinet, and got equally enthusiastic reviews from certain sections of the press.

Certainly, the SL6 was different to what had come before. Seventies speakers had generally been big multi-driver boom-boxes with wobbly cabinetry and proprietary drive units, making for a coloured and usually rhythmically slow sound. By contrast the new Celestion was extremely clean and clear, as well as being quick off the mark and good at imaging. How could it fail?

Well, arguably, that clever metal dome tweeter that inspired so many other eighties designs was the SL6’s undoing. True, it did behave well at most frequencies, but there was a very nasty break-up mode at 19kHz. Celestion rightly spotted this, but their way round it was a sharp notch filter that kicked in just below the trouble started. But this wasn’t without problems, and apart from the need for lots of sound-degrading crossover components, it meant much of the signal’s HF content went AWOL.

The result was a rather dull sounding speaker. Reviewers called it ‘nasal’ and ‘congested’, as well as accusing it of lacking sparkle - true enough, and proof that it polarised critical opinion. The problem with assessing speakers is that what sounds good isn’t necessarily accurate, and in Celestion’s quest for neutrality, many believed they’d engineered out the life. The jury’s still out, even today. Many classical fans swear by these speakers, praising their ‘electrostatic-like clarity and imaging’, others point out that the SL6s can’t play a tune to save their life.

Suffice to say that they’re an acquired taste, but if you already have it there are plenty of second-hand SL6s around at very reasonable prices - pay between £150 and £250. Later derivatives such as the SL600 with its Aerolam cabinetry (an aluminium honeycomb construction) are rarer and more expensive, but take the family sound further – from dry and neutral to extremely dry and more neutral.

Match with powerful transistor amps like Quad’s warm-but-muscular 606, 606/2 or 707— 84 dB sensitivity means Single Ended Triodes are out! So, if you like that BBC ‘monitor’ sound, never stray from classical and don’t much care about frequency extremes, a well preserved pair of SL6s could be the used bargain of the century for you.
David Price thinks Linn's Axis turntable is a sharp used buy.

Billed as 'Son of Sondek', as Linn's second ever turntable design the Axis always had much to live up to. Launched in 1987 when Compact Disc was finally taking hold, it was Linn's attempt to lure silver disc purchasers back to vinyl. This meant it had to outperform decent CD players, be easy to set up and use, and look good. By any yardstick it succeeded on all three counts.

Its problem was its big brother, which was still held in a kind of reverential awe at that time. Why, said magazine reviewers, bother with an Axis when The Best Turntable In The World was "only" £300 more?

This aside, the Axis was a fine piece of kit with many interesting features - some of which actually improved on its much hyped bigger brother.

For example, its intelligent active power supply not only gave Linnies push-button 45rpm for the first time, but varied the power going into the motor depending on the load. Clever stuff - so clever that it subsequently appeared on Linn's top Lingo PSU three years later.

The other trick was its novel, non-adjustable rubber suspension system, which meant the Axis worked straight out of the box. Unfortunately, for those schooled in the Cult of Linn, this was most uncool, depriving the Axis of a number of Flat Earth brownie points.

Elsewhere, the Axis borrowed a lot from its bigger brother, with the same - albeit less highly specified - bearing, aluminium platter and felt mat. The plinth was a cheaper affair than the LP12 but handsome nonetheless, which together with the brushed satin black top plate looked far fresher and more contemporary than the Sondek.

The original Axis came complete with an LVX+ plus arm for £299 - a modest sum considering the armless Valhalla LP12 cost over twice that. Unfortunately, being a distant relative of the ADC ALT I, the LVX wasn't up to much, being just about capable of tracking a mid-price MM. The Akito which replaced it in 1989 was an altogether sturdier design, but still no match for Rega's giant killing RB300.

Strictly speaking, the Axis was never the best sounding turntable in its price range - the Manticore Mantra lay claim to that mantle - but it was a damn good second. Properly set up with a decent cartridge it still sounds surprisingly good by today's standards. Curiously, its presentation is much closer to Roksan's Xerxes than its big brother, being tight, lean and punchy, with no trace of that bass bloom and 'woody' lower mid coloration that characterises the LP12. Speed stability is very good, as are dynamics, and it still has that quintessentially Linn rhythmic bounce. True, it isn't really in the super-deck league, but it's still a significant step up from a Rega 3.

Drawbacks/ PSU problems have been known, with stories of mains surges spontaneously starting the motor and cooking the active power supply - the answer being to unplug the deck when not in use. Also, the rubber suspension sometimes goes out of alignment, making it hard to level the deck. Overall though, the Axis is a good design built well.

It's also a great second-hand buy, particularly if you're that strange brand of vinyl-junkie who actually wants to listen to music rather than tweak your turntable. Pay between £150 and £250, go for a one owner example with the original box and chuck the K9 (which it'll inevitably come with) for a Goldring GI042.

Tweakwise, the news isn't so good. True, you could fit an Ittok or an Ekos, but you'd be a fool to try - the Axis just isn't up to it. Early LVX fitted decks would benefit from the later Akito arm, but it really isn't worth losing sleep over, especially considering Linn's rather optimistic pricing of the latest Akito III! No, turntable fettlers look elsewhere, the Axis is happiest simply playing music, something it does rather well, and with the absolute minimum of fuss.
Nick Tate looks at one of Marantz’s lost second-hand classics, the PM-94 integrated amplifier.

Being born in 1988 made life terribly hard for Marantz’s flagship PM94 integrated amplifier. For this was the height of the Linn-Naim Flat Earth hegemony that dominated Britain’s high-end scene, and most magazines and dealers just didn’t want to know about Japanese esoterica, regardless of how good it sounded. A great shame, because it meant one of the best integrateds ever to come out of Japan was all but ignored.

More than just another big black box, the PM94 was a huge 25kg integrated that sold for the princely sum of £1000. It was packed with some very original thinking, much of which went on to become common practice during the nineties. Unfortunately, being festooned with inputs, tone controls and tape dubbing facilities was little short of heresy in those days, so no one bothered to look for its star qualities under that very conventional skin.

First was its use of MOSFET output devices. Although many amps use them nowadays with great success, back in the late eighties they were about as fashionable as admitting you liked ABBA - memories were still fresh in people’s minds of the very mediocre sounding first generation MOSFET amps. But used properly, as the PM94 proved, these clever new transistors had far lower distortion and a wider bandwidth, resulting in a cleaner, smoother, more valve-like sound. The PM also boasted Marantz’s unusual ‘Quarter-A’ system, in which lower level signals up to a quarter of the maximum power output were handled in pure Class A. When called upon to pump higher levels, the amp switched into Class AB, resulting in a not inconsiderable 140W per channel. The system was surprisingly effective in practice, and not, as many assumed, just another Japanese-style sales gimmick.

Another ace the PM94 played was its very carefully specified, high grade componentry chosen through in-depth listening rather than by accountants, which was still the common practice at the time. Critical signal capacitors were damped copper styrol types, while the main power caps were damped with ceramic powder to eliminate microphony. To reduce sound-degrading eddy currents, the chassis - in true Ken Ishiwata style - was all copper, along with most of the power transistor and case screws. And just for good measure the transformer was a huge centrally mounted toroid, larger than many British specialist integrated amps in their own right! Finally, rather than just chucking in a proprietary IC phono stage or even doing a quick discrete transistor jobbie, Marantz specified a superb quality LC-OFC wound transformer - a lovely touch!

So rather than being a steroidally enhanced version of your average gadget festooned Jap amp, the PM94 was a very finely feted beastie indeed. Providing the Source Direct mode was used to bypass its numerous unnecessary bells and whistles, it sounded gorgeous. At normal listening levels it was an extremely sweet, clean, clear performer with an uncanny ability to let music flood forth from your speakers. But pressed into action with a clockwise twist of its beer can-sized volume control, the velvet fist turned into an iron battering ram able to make mincemeat of the most inefficient loudspeakers. And even when forced out of its natural Class A operation, the big Marantz displayed as much grace, space and pace as a TWR Jaguar.

Such superb engineering means all the PM94s that found their way into the UK should still be running sweet as a nut even today. And if you factor Marantz’s excellent after sales service into the equation, there’s a lot to be said for acquiring a used PM94. Unfortunately, the amp is already something of a cult, meaning it isn’t as cheap as most of its rivals of a similar vintage - look to pay between £400 and £450 for a top example. But even at this price, it’s still one hell of an amp.
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<th>Discounted Price</th>
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<tr>
<td>Red Rose Spirit Playback system (£2000)</td>
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<td>Revox Exception CD Tuner Amplifier (£6000)</td>
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<td>Wadia 301 ex-dem silver (£3650)</td>
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<td>Wadia 861 ex-dem immaculate (£8000)</td>
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<td>Revox Exception CD player top loading (£2200)</td>
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<td>Gryphon Adagio CD player as new (£4300)</td>
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### Amplification

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<td>Red Rose Passion integrated (£3000)</td>
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<td>Red Rose Affirmation integrated (£7000)</td>
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<td>Red Rose M5 integrated amplifier (£8000)</td>
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<td>Red Rose M3 silver signature pre-amp (£10000)</td>
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<td>Red Rose M2 silver signature power (£8000)</td>
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<td>Red Rose M1 state of the art monoblocks (£25000)</td>
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<td>Gryphon Callisto 2100 integrated (£3600)</td>
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<td>Revox Exception integrated (£2000)</td>
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<td>Audio Analogue Puccini SE (£800)</td>
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<td>ATC CA2 line level remote pre-amp (£750)</td>
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### Miscellaneous

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<td>Isotech Power Station fully loaded (£950)</td>
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Various equipment stands, speaker stands cables etc etc all available at clearance prices. Ring with you requirements!!

All the above equipment is ex-demonstration except where clearly stated. Most is boxed and as new.

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## Electrolysis of Copper

**Title:** Electrolysis of Copper

**Introduction:**

Electrolysis is a process used to separate metals from their ores or to purify metals. It is a redox reaction that occurs at an electrode. In electrolysis, an electric current is passed through a solution to cause a chemical reaction. In the case of copper electrolysis, the metal is removed from its ore and purified. The process can be divided into two main steps: the anode reaction and the cathode reaction.

### Anode Reaction

The anode reaction is the oxidation reaction that occurs at the anode (positive electrode). In copper electrolysis, the anode reaction is the oxidation of copper(I) ions to copper(II) ions and oxygen gas. The reaction is given by the following equation:

$$\text{Cu}^{2+} (aq) + 2e^- \rightarrow \text{Cu} (s)$$

### Cathode Reaction

The cathode reaction is the reduction reaction that occurs at the cathode (negative electrode). In copper electrolysis, the cathode reaction is the reduction of copper(II) ions to copper metal. The reaction is given by the following equation:

$$\text{Cu}^{2+} (aq) + 2e^- \rightarrow \text{Cu} (s)$$

### Practical Considerations

Electrolysis of copper is typically carried out using a copper anode and a copper cathode. The copper anode is immersed in a solution of copper(II) ions, such as copper(II) sulfate. A direct current is then passed through the solution, causing the copper ions to be reduced at the cathode and oxidized at the anode. The pure copper is removed from the cathode as a deposit.

### Safety Precautions

- Wear appropriate protective clothing and goggles while handling the electrolyte solution.
- Use a well-ventilated area for the electrolysis process.
- Keep the electrolyte solution away from skin and eyes.
- Avoid breathing the fumes from the solution.

### Conclusion

Electrolysis of copper is a useful process for the purification of copper metal. It involves the use of a direct current to cause a chemical reaction at the electrodes. The pure copper is removed from the cathode as a deposit, while the copper ions are oxidized at the anode.

---

**References:**


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**S/hand and ex-demo clearance items - NOVEMBER 2003**

### CD players DACs & Transports

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### Cables & Accessories

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<td>Sony TCK-461s 2 head cassette decks new&amp;boxed</td>
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THIEL CS3.6 floorsounding loudspeakers, excellent condition £5495 brand new, absolute bargain at £1995. Tel: 01508 499586 after 6.30 or leave message on answer machine. Oct

INSTRUCTION BOOK needed for Sony Stereo Music System HMK-70. Please phone Fisher: 020 8450 1779 (Oct)

WANTED LATE D.P.A. 200S power amp must be in top condition cash waiting Tel: Rob 07813 702571 or Email: robert@higginson990.fsnet.co.uk (Birmingham) (Oct)

ADVANTAGE MONOBLOCKS M.300 x2, £2500. Advantage P1 preamp £1000. Rel Strata subwoofer black £250. Audio Alchemy V3 DAC Audio Alchemy Transport £650 with 0.5 lead all good condition with boxes Tel: 01395 275 698(Oct)

TOM EVANS modified Pioneer A300 Precision. Norm price £750, £300 ono. Moth 30 active preamp £70. Creek AS50i integrated amplifier new & guaranteed £450. DNM speaker cable 5.50 metre. Tel: 01582 724414 (Oct)

NORDOST SPM Reference bi-wire speaker cable 3m £1600 (£2900). Nordost Quadrofil interconnect balanced 1m £850 (£1250). KEF Reference 3.2 speakers rosewood £1300 (£2250). All boxed, mint. Tel: 07739 870377 (Oct)

LINN KOLEKTOR preamp and LK.140 power amp £700. Linn Karik 3 CD player £620. All items in good condition, boxed with manuals. Tel: 01256 461453 (Basingstoke) (Oct)


MAGNEPLANAR MG2.5R loudspeakers. Shahinan Arc loudspeakers, Meridian 500 transport CD player, Meridian 518 processor, Audiosynthesis DAX-2 D/A converter, Quad 606 power amplifier, Synn AP900 60wpc valve amplifier, excellent condition Tel: 01179 521341 (Bristol) (Oct)

LINN KOLEKTOR preamp £250, Marantz PM665E £90. Musical Fidelity X-1, £70. Tascam Portastudio Porta 02 II £60. JBL MRCentre £40. NAD 5120 turntable (modified) £60. Tel: 07624 499464 (Oct)

AUDIO RESEARCH D250, new valves £2200. Audio Research SP14, mint £1100. Krell KSA 100, fully serviced, perfect £1300. KEF 1053, rosewood, mint £825. Tel: 01959 575737 or 07980 646832 mobile (Nov)

KRELL KSAS0 £1000. Krell PAMS preamp £1000. Krell KSAS0 Mk2 £1050. Sonus Faber Concertino £375. Naim Nac3 x 3m £75. All vg Tel: 01905 764145 Worcs, evening 01684 278418 days, Email: scuriris@zoom.co.uk (Oct)

KRELL KSAS0 £1000. Krell PAMS preamp £1000. Krell KSAS0 Mk2 £1050. Sonus Faber Concertino £375. Naim Nac3 x 3m £75. All vg Tel: 01905 764145 Worcs, evening 01684 278418 days, Email: scuriris@zoom.co.uk (Oct)

REGA PLANAR 2 with RB200 arm, P2 motor spectrada- menics mat. Wooden plinth. Tel: 01803 851630 (Torbay) (Oct)

AUDIOLAB 8000S integrated remote amplifier, low use. No box. Mint condition. Can demo. Reason for sale gone valve! (£750) when new asking £235, buyer collects (South Wales). Tel: Rhys 01269 850084 (Oct)

TRICHORD TRANSPORT + Pulsar One DAC + power supply + MORI's (£3000+) £750. Clock F00R now available. Tel: 01772 314151 Preston Mobile: 07751 475062 (Oct)

WANTED: CELESTION Kingston speakers or Yamaha NS1000/NS1000m speakers for cash. Tel: 07932 063335 (Oct)

MUSICAL FIDELITY A3 dual mono amplifier £400 boxed. Monitor Audio silver 8i loudspeakers £400 boxed. Tel: 01482 508389 mint condition. Tel: 01482 508 389 (Oct)

GRANITE PLINTH polished grey 20 x 16 x 2 inches £20. Target H2427 speaker stands 24" tall £20. Tel: 01564 770013 (South Birmingham) (Oct)

ROBERTSON AUDIO 4010 power amplifier x2 for sale £1000 new, £500 for both. Willing to sell separately. Tel: 01535 654220 (Oct)

LEAK SANDWICH speakers real classics 25 3/4 high x 12" deep x 14 3/4 wide, teak wood finish cabinets perfect. stll working. Offers welcome Tel: 020 8690 1939 (Oct)

SALE LIST

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<tr>
<th>Model</th>
<th>Price New</th>
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<td>MISSION 780 - ROSEWOOD</td>
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E-mail: tlr@btclick.com  Mon-Sat 10-6pm
AUDIOLAB 8000LX integrated amplifier, mint condition, boxed with manual £250. Tel: Mark 07930 401634 (Staffordshire) (Oct(I))

ARCAM ALPHA 9 CD player £450 ono. AE 1095E loudspeakers £200. Wanted: Naim Flatcap 2 power supply. Tel: 01752 291625, Mobile: 07817 413421 (Oct(I))

NAIM SBLs with passive x-over. Black. Unopened in boxes, for sale. Also Arcam 6 CD player £75. Tel: Tony 02476 460729 or 07788 642632 (Oct(I))

ARCAM FMJ A22 amp silver, remote, 100 wpc, seven months, boxed, mint, (£1000) £599. Marantz CD6000K1 black remote £249. Arcam P75* power amp £199. Quad 11L speakers black £319 Tel: 0115 960 3934 (Nottingham) (Oct(I))

WANTED FOR spares etc. faulty or non working Quad 44 preamps and Quad 405 power amps or boards for above. Also required Quad FM3 tuners. Tel: Mike 01758 613790 (Oct(I))

AUDIONOTE M1 phono pre-amp, mint, boxed, £350. Audiolab 8000C preamplifier £200. Tel: Tom 020 8986 1762 (Oct(I))

NAIM CDI very good condition with packaging £730 ono. Tel: 01778 393264 or Email: peterglo@nortnor3091.fsnet.co.uk (Oct(I))

QUAD 22L top of range loudspeakers in maple finish £680. Only 3 weeks old, genuine reason for sale. Also Arcam 6 CD player £75. Tel: Tony 02476 460729 or 07788 642632 (Oct(I))

ROKSAN KANDY amplifier boxed manual with remote power 110 watts with control £275. Philips CDR 602 CD recorder boxed manual remote £90 both excellent reviews. Can demonstrate. Tel: Steve 01924 871782 (Wakefield) (Oct(I))

MICHELL/TRICHORD Orca pre-Alectic monoblocks Russ Andrews power cords as new (£1950). Tel: 01288 361113 (Oct(I))

KRELL KAV300 integrated £1200 (£3500) Krell Kav150a power (£1100). Audionote ANJ/SP speakers £500 (£1800) CR Developments Romulus valve integrated £500 (£1800). Tel: Bill 01993 851508 (Oxford) (Oct(I))

REVOX TAPE recorders. G36 4-track with service book £100. C278, 8 channel unboxed £295. Tel: 01732 850574 (Oct(I))

CASTLE SEVERN 2SE floorstanding loudspeakers in cherry wood. 9 months old boxed £295 ono. Tel: 01246 274735 (Oct(I))

EAR 834P (phono) MM pre amp, black case, as new condition, original owner, invoice available, £195. Tel: 020 8654 2223 or Mobile: 07879 805 837 (Croydon) (Oct(I))

DENON DCD S10II CD player, high end, luxury, champagne gold, phono/balanced, superb involving musical sound, 14 kilos! Immaculate, boxed, can deliver London area (£20). £495 (£1300 new). Tel: 01273 541 462 (Brighton) (Oct(I))

WANTED: CELESTION Kingdom speakers or Yamaha NS1000/NS1000m speakers for cash. Tel: 07932 063335 (Oct(I))

TOP QUALITY system in mint condition. Kuzma Stabi deck, Kuzma Stogi tonearm with Benz Micro cartridge plus wall stand, £495. Shearne Audio Phase 7 compact disc player, £600. Shearne Audio Phase 2 Reference integrated amplifier, 2 Phase 3 Reference amplifiers, £1500. Jamo Concert I11 floor-standing loudspeakers, 3.5m lengths Q.E.D. 4x4 Profile speaker cable, £1000. 5 shelved Soundstyle unit £50. Tel: 01253 854 114 or Email: robert@simpson2.v.net.com (Oct(I))

NAD 4020A tuner, case top slightly marked, otherwise VG and sounds excellent. £50 ono. £1200 (£3500) Krell Kav 150a power (£1100). Audionote ANJ/SP speakers £500 (£1800). Tel: Bill 01993 851508 (Oxford) (Oct(I))


CELESTION A1 speakers with matching stands finished in cherry. Bought new this year and absolutely new. Genuine reason for sale. A true bargain at £550. Tel: 020 8874 6262 or Email: michael@hlaustin.co.uk (Oct(I))


SHACKMAN ELECTRO-STATIC speakers. Excellent working condition. Fantastic big sound. £300 ono. Tel: 07831 227788 or Email: sportingbauchers@ao.com (Liverpool) (Oct(I))

FOR SALE. Townsend Glastonbury 11 speakers, (2nd owner) in good working condition, serial numbers 105A and 105B. There are no front covers. £400. Contact Alan at alan.cavender@bt.com or 01661 852 874 evenings (Oct(I))

CAMBRIDGE CD45SE ISO Magic DAC, interconnect, £150. Goldring 1042 £45. Hardly used. Alwa XIL009 needs new heads, any offers. Tel: 01923 230214 ask for George (Watford) (Oct(I))

WANTED: PAIR of WAD KEL80 monoblocks. QC Power supply for Gyrodec. Harmon Kardon Citation power amp. All items to be top notch. Tel: 00 33 2 33 48 03 91 (Nov(I))

INSTRUCTION BOOK needed for Sony Stereo Music System HMK-70. Please phone Fisher: 020 8450 1779 (Oct(I))
If you’ve always thought of valve amps as temperamental and expensive beasts, think again. World Audio Design’s latest kit is designed with the budget conscious beginner in mind.

The Kec182 was created from a brief that demanded simplicity, ease of build and a super low cost. In order to achieve a reasonable power output we went for a push-pull amplifier.

We chose the ECL82, a triode/output pentode. This tube is readily available and has a good sound. In push-pull mode it delivers 8 Watts. Realistically you need a speaker of around 89dB or above. This is possible at a budget price - try the smaller Triangle models, or a Tannoy mX3 or even one of the older Missions like the 773e, or if you like building your own speakers, try the Adire Audio HE 10.1, as reviewed in HFW October 2002 issue.

You will see that the front has only a volume control, and it is fed by one pair of phono sockets. A selector and tape/source switch were not used in this amplifier as they are tricky to wire up, and the aim was to make it easy to build. In fact, in many ways the Kec182 would be great powering a second system, using a CD player as a source, and will definitely give you a taste of what valves can offer. Measuring 30cm wide, 23.5cm deep and 11cm height with feet, it is entirely self-enclosed. The valves are visible through the four upper circular vent holes (one directly above each valve). We have kept the look simple with the minimalist front panel holding the volume potentiometer. The two-part chassis is constructed from 1.6mm mild steel with a durable black powder-coat finish. The whole unit is very sturdy, weighing in at 9kgs.

The signal input is in the form of a pair of gold plated RCA phono sockets that sit at the rear of the chassis. The speaker sockets accept 4mm banana plugs as well as bare wire. The mains switch is positioned at the rear of the amplifier, on the right hand corner for easy access. Mains power is received via an IEC lead. The Kec182 is based on a printed circuit board (PCB). The PCB is easy to follow with all component names, locations and orientations shown clearly. The amplifier requires no set up, you just turn it on. The kit will come with comprehensive instructions taking you through the build step-by-step.

**SOUND QUALITY BY SIMON POPE**

Purity is the key to this amplifier’s design and sound. Because there’s very little to get in the way of the signal what you get is an exceptionally sweet and simple sound that also has a superbly wholesome roundness to it. A high quality recording of Mahler’s Das Lied Von Der Erde on Reference Recordings showed that the Kec182 faithfully reproduced all the depth and space of a full symphonic orchestra without any problems. Violins were smooth and sweet, as was percussion (which virtually sparkled) and the woodwind section was especially impressive, with a spacious and airy sound.

A run through Miles Davis’s Kind Of Blue saw the little integrated delivering a detailed and precise sound that highlighted the warmth of Coltrane’s tenor sax and the rich, deep sound of the upright bass. Rock and Pop records such as Radiohead’s ‘Lucky’ demonstrated that the valves inside the amp, whilst small, are quite robust sounding, with commendable clout and bass depth for a humble budget 8W valve amp. This is a great introduction to the sonic art of the valve amp and a big upgrade for anybody with a mid-price solid-state amp that wishes to swap over to something more musically engaging, for a price that’s virtually as cheap as chips!

**MEASURED PERFORMANCE**

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<td>Frequency response</td>
<td>+/-3dB 15Hz - 75kHz</td>
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<td>Power output</td>
<td>8 watts into an 8 ohm load</td>
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<td>Sensitivity</td>
<td>850mV (suitable for CD)</td>
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<td>Hum</td>
<td>0.5mV</td>
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The Kec182 amplifier kit is available from World Audio Design
Tel/fax: 00 44 (0) 1908 218363 or order on-line at www.worldaudiodesign.co.uk

**Kec182 amplifier kit (UK price)** £195.00
(incl. vat & carriage)

**Kec182 amplifier kit (EU price)** £195.00
(incl. vat, exc. carriage)

**Kec182 amplifier kit (Overseas price)** £170.00
(exc. carriage)
AMAZING CABLES! Silver hybrid and solid silver interconnects from £85, with world class plugs. Solid silver speaker cables from £220. Fantastic performance, refund guarantee. Details: 0115 982 5772 after 7pm, or E-mail Bob@skydivers.co.uk (Dec(I)

WOODSIDE ELECTRONICS LTD. offer a repair service for Radford, Woodside and Quad II valve amplification. Transformers manufactured to original specification for the above plus bespoke designs. Tel: 01758 741 026 or Email: m.davis@virgin.net. Website: www.woodsideelectronics.co.uk

THE MISSING LINK — We Offer You Our Very Own High End Pure Silver Interconnects at Realistic Prices. Loan cables Available. Full Details from Mark on 0113 877 9089 or Email: mark@the-missing-link.net www.the-missing-link.net (Dec(I)

VINTAGE WIRELESS COMPANY LONDON Website: www.vintagewirelesslondon.co.uk Buy-Sell-Exchange. Vintage wireless and classical audio. Repairs, spares, restoration, modification to all valve equipment. Quad II, Leaks etc. shipped worldwide, best prices, call us at: 17 Bell Street, London, NW1 5BY. Tel: 020 7258 3448 Fax 020 7258 3449 Email: vwirelesslondon@aol.com (Nov(I)

NAIM AUDIO SALE - TOM TOM Audio - Specialists in Naim Audio, supply top condition pre-owned and ex-demo Naim equipment with full 12 month money back guarantee. Demonstration facilities. Can deliver: stock list at: www.tomtomaudio.com Call 07971 202 742 or 01727 893 928 or Email: tunes@tomtomaudio.com with requirements. Wanted: mint Naim gear, cash waiting, will collect (Nov(I)

AMAZING CABLES! Silver hybrid and solid silver interconnects from £85, with world class plugs. Solid silver speaker cables from £220. Fantastic performance, refund guarantee. Details: 0115 982 5772 after 7pm, or E-mail Bob@skydivers.co.uk (Dec(I)

LONDON TAPE RECORDERS. Open reel to reel specialists. Established 30 years. Machines bought, sold and exchanged. Akai, Sony, Pioneer, Teac, Tascam, Revox, Technics. Servicing on selected machines. Tel: 020 7603 0303 or 07950 400 005 (Jan(I)

E.M.A.S. REVOX service, spares. A700 £750, 877 HS £650, PR99 MkII £1200, PR99 MkII £950, A725 £750, A710 £550, C278 £1200, A810 £950, A80 VU £1200, B67 VU £950, A807 VU £1200. Tel: 01246 275479 or Fax: 01246 55042. Email: j.tipping@amserv.net (Nov(I)

LONDON TAPE RECORDERS. Open reel to reel specialists. Established 30 years. Machines bought, sold and exchanged. Akai, Sony, Pioneer, Teac, Tascam, Revox, Technics. Servicing on selected machines. Tel: 020 7603 0303 or 07950 400 005 (Jan(I)

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NAIM AUDIO SALE - TOM TOM Audio - Specialists in Naim Audio, supply top condition pre-owned and ex-demo Naim equipment with full 12 month money back guarantee. Demonstration facilities. Can deliver: stock list at: www.tomtomaudio.com Call 07971 202 742 or 01727 893 928 or Email: tunes@tomtomaudio.com with requirements. Wanted: mint Naim gear, cash waiting, will collect (Nov(I)

ATOR PRODUCTS or permanent demonstration, from the wonderful 869 to the rest of the range. Kora Explorer 60 watt hybrid £450, Dynaudio Contours 3.5 £400, Firebird Super 5 £1499. Rezet Challenger £600, Omega speaker systems T3-1R £1199. H-CAT P12 £2499. Kora Equinox pre-amplifier MM £995, Kora Hermes 96-192 valve DAC £1199 Tel: Worthing Audio 01903 212 133 or 07900 918 882 (Nov(I)

SILVER ARROW 4N-Pure flat silver foil air interconnects and speaker cables with Bocchino phono plugs. H-CAT P12 Zero distortion pre amplifier from America on permanent dem. Tel: Worthing Audio 01903 212 133 or 07900 918 882 (Nov(I)

QUAD 989 Brand new, cancelled order (£4600) £3900. Linn Karik, mint, (£1850) £550. Naim NAC 32.5 pre, with phono stage, mint condition £275. Telephone Jules on 01792 280061, Email info@sounddriulshifci.co.uk Web: www.sounddriulshifci.co.uk (Nov(I)
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TRANSPARENT ULTRA Bi-Wire 12ft, WBT Bananas (£2440) £2200. Mandrake Imtr, RCA-RCA (£500) £300. Siltec Arm cable, Icheman bullet RCA's 1.5mts (£400) £260. Siltec 1.0 mtr RCA-RCA (£300) £180. Telephone Jules on 01792 280061, Email: info@sounddrjuleshifi.co.uk Web: www.sounddrjuleshifi.co.uk

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www.the-missing-link.net

GUIDELINES FOR BUYING AND SELLING SECOND-HAND EQUIPMENT

FOR THE BUYER
1. Not everyone is honest - Buyer Beware!
2. Don't send cash!
3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. Don't send cash!
10. If you are in the slightest doubt, arrange an audition (see point 5). If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.
12. Don't send cash!

FOR THE SELLER
1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what some one will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bona-fides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!
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<th>Category</th>
<th>Brand</th>
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NOVEMBER 2003 HI-FI WORLD & COMPUTER AUDIO 129
David Price looks back to the wonderful world of nineteen seventies parallel tracking turntables, in the shape of Pioneer’s PL-L1000.

A

lthough various manufacturers, such as Harman Kardon, had broached the subject of parallel tracking turntables in the mid seventies, it wasn’t until the arrival of Technics’ stunning SL10 in 1978 that the breed truly came of age. Here was a brilliantly conceived and packaged hi-fi separate that was hard to argue against from any angle. Supremely well built from aluminium alloy, packed with the latest 8-bit microprocessor and optical sensors, and claiming full audiophile status by the inclusion of one of the best moving coil cartridges around — bar none — and even an excellent built in head amplifier, it was a seminal hi-fi design statement.

It rocked the entire hi-fi world, and very soon the rest of the industry was at it. Sony pushed its Biotracer armed decks, which although not parallel trackers attempted to address the same issues as tangential tonearms. Kenwood, Hitachi, Aiwa and a host of other Nipponese names responded in kind with true parallel trackers. Japanese hi-fi magazines — not so influenced by the cult of Linn as those in this country — went into forensic detail explaining their relative merits. Then came Pioneer — never a company to do high end by halves — responded with the PL-L1000.

Just under £400 (nearly twice the price of a Linn Sondek in 1979) bought you a deck which can only be described as a behemoth. Measuring 494x154x456mm and weighing in at 12kg, it was not in the mould of your average Japanese direct drive that reached the UK in those days. And although it didn’t respond with the exquisite, Swiss watch precision of Technics’ SL10, it was nevertheless and extremely impressive bit of kit to use. By contrast, high-end British belt drives felt clumsy, clumsy and positively prehistoric.

A row of micro switches at the front of the deck gave touch control over power, speed, disc size and repeat — with small LEDs to indicate the mode of operation — while a large rotary knob on the right of the deck gave manual cueing control over the tangential tracking tonearm. The plinth itself used Pioneer’s superb coaxial suspension system, effectively giving the deck an independent sprung subchassis whereas all other Japanese direct drives had to rely on sheer mass — or in the case of the otherwise impeccable SL10 — careful placement and trusting to luck. Inside was Pioneer’s top Quartz Phase Locked Loop Direct Drive motor driving the 310mm platter, giving very respectable wow and flutter figures of 0.013% (WRMS), and a signal to noise ratio of better than 78dB.

At the back ran the rail upon which the tonearm sits. A straight piped, static balanced, medium to high mass affair of 190mm effective length, it came supplied with three different counterweights, all secured to the end stub via a screw (Origin Live modded Rega arm style) — this gave a wide cartridge weight range of 4g to 24g. At the end, a middling Pioneer PC-600 moving coil cartridge came supplied, affixed to the SME-style headshell.

The result was an extremely impressive sounding turntable with a very smooth and organic sound. Although — in truth — not competitive with a Linn LP12/Ittok of the day in terms of precision and low level detail, the Pioneer boasts a superbly tight and punchy bass (a typical characteristic of a well engineered direct drive deck) that makes the Linn — and indeed a modern DC motored Michell — seem quite loose around the bottom.

This strong, powerful, tight and punchy low frequency performance goes all the way up to the midband, which is quite explicit and very tidy. Images are solid, and there’s a real feel of stability and unflappability thanks to the tangential tracking tonearm. Only the treble, which is sweet but a tad veiled, lets the show down.

Like the Technics SL10, this deck is no upgrade from a modern high end belt-drive, but it’s an interesting and characterful alternative. The superlative build quality means that it’s likely to still be spinning when most new budget or mid-price designs have blown their weak little Impex AC motors! Although rare, PL-L1000s do crop up from time to time, at ridiculously low prices considering their excellent quality — expect to pay around £150-£200 for a minter.
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