

hi-fi news

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 EDITION

Technics' new 'Grand Class' deck – a classic reborn

Hi-Fi News
turns sixty

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 world's longest
 reigning hi-fi title

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 Headphones with Italian flair

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 The high-speed, hi-res DAC

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What HiFi, April '16



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Hi-Fi+, October 2015

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Phil Gold
Enjoy The Music, July 2015



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RIGHT: A choice of leather headbands, kevlar-coated aluminium capsules and style in abundance – the Pryma 01 headphones from Sonus faber are taken down the catwalk on p74



ABOVE: Having evolved from 'Squared' to 'Cubed', Bryston's power amplifiers reach for the next dimension. We review the 4B³ on p52

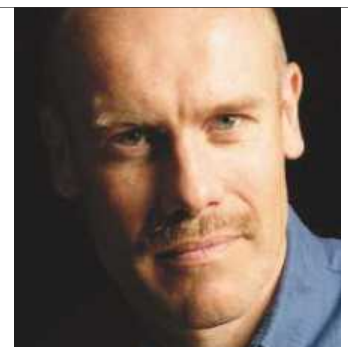
Welcome to a very special issue of your favourite hi-fi magazine as we mark three score years of reporting on the finest music and cutting-edge replay equipment. Over its 60 year span, *Hi-Fi News* bore witness to the birth of the stereo LP and the Compact Cassette, and documented the ascent of the digital era with CD, then SACD right up to the 'high-res' streamed media of today.

We've also reported on all those formats that lacked the same staying power – eight-track, various quadraphonic matrices, DAT, DCC, MiniDisc and DVD-Audio to name a few key music carriers.

Importantly it's that foundation, that bedrock of accumulated knowledge, that ensures *Hi-Fi News*

can be trusted to put its reviews of products and technology into the proper context.

Hi-Fi News has also reflected the seismic cultural changes in our relationship with, and assessment of, audio separates. In our magazine's formative years there was no such term as 'audiophile' or 'high-end'. Moreover, neither was there a concept that well-engineered and executed hi-fi amplifiers, record players and loudspeakers might actually sound different from one another.



Broadly speaking, if an amplifier offered a flat response, wide signal-to-noise ratio and low distortion then it could not sound different from another amp of similar power output. Similarly, in the 1950s, '60s and early '70s, turntables whose speed accuracy and rumble were within defined limits would also generally be deemed equivalent.

'Hi-Fi News beheld the birth of the stereo LP, cassette tape and CD'

The subjective revolution of the late '70s and early '80s would change the face of hi-fi design and reviewing, and *Hi-Fi News* was there throughout, offering a balanced view on the paradigm shift of what it now meant to be a hi-fi enthusiast.

In 2016, with well over 700 issues behind us, *HFN* is arguably in the greatest shape of its long life. So turn to p26 and raise a glass with us as we celebrate our Diamond milestone!

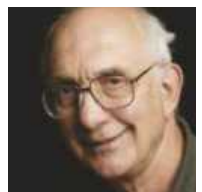
PAUL MILLER EDITOR

VINYL: Ahead of its time, *Cosmo's Factory* from Credence Clearwater Revival is our Vinyl Icon (p88) while Steve Sutherland re-lives the excitement of Gene Vincent's re-released *Bluejean Bop* (p86)

RIGHT: *Hi-Fi News & RR* is the UK's representative of EISA's Hi-Fi Expert Group. Editor Paul Miller is EISA's President-elect & Hi-Fi Group Manager



HI-FI NEWS' EXPERT LINE UP: THE FINEST MINDS IN AUDIO JOURNALISM BRING THEIR EXPERIENCE TO BEAR ON ALL AREAS OF HI-FI & MUSIC



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Investigative journalist supreme, Barry is the first with news of the latest developments in hi-fi and music technologies



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JB brings huge industry experience, a penchant for massive speakers and a love of hi-res audio in all its diverse guises



KEN KESSLER
is a long-serving contributor, luxury goods writer and champion for the renaissance in valves and 'vintage hi-fi'



KEITH HOWARD
has written about hi-fi for 30 years, and edited *Hi-Fi Answers* for nine. KH performs our speaker and headphone lab tests



STEVE HARRIS
Former Editor of this very title from 1986 through to 2005. A lifetime in audio and a love of jazz makes Steve a goldmine



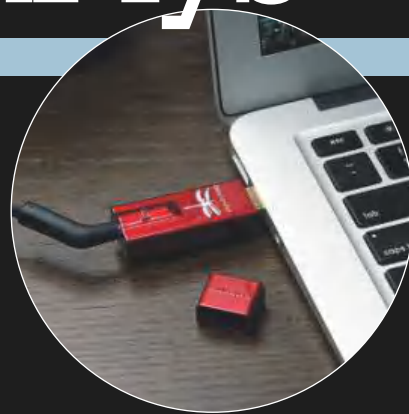
ANDREW EVERARD
has reviewed hi-fi for over 30 years and is still effortlessly enthusiastic about new technology, kit and discovering new music



STEVE SUTHERLAND
worked on *Melody Maker* and then edited *NME* from 1992-2000, the Britpop years. Steve brings a unique slant to our Vinyl Release pages

Spring DragonFlies

THE ORIGINAL PLUG-IN USB HUB-POWERED DAC IS REPLACED BY THE 'NEXT GENERATION'



Some four years after its DragonFly DAC almost single-handedly kick-started the plug-in USB DAC/headphone market, AudioQuest has 'evolved' the design into two new models. Both models are less power-hungry than the original, ensuring compatibility with Apple and Android phones, and both will handle music files up to 96kHz/24-bit without downsampling. The £89 DragonFly Black features an ESS 9010 DAC chip with analogue volume

control, much like the original DragonFly, with a maximum 1.2V output suited to medium/high sensitivity headphones. The £169 DragonFly Red is based around a higher-spec ESS 9016 DAC with a 'bit-perfect' digital volume control. Moreover its maximum output is a higher 2.1V, the extra 'grunt' conferring some advantage when driving lower sensitivity headphones. **AudioQuest, 01249 848 873; www.audioquest.com**

Brinkmann Spyder

SKELETAL TURNTABLE OFFERS 'PLUG AND PLAY'

Designed for maximum flexibility, including space for up to four 9-12in tonearms, the Brinkmann Spyder features the same hydrostatic bearing and four-phase, 12-pole Sinus (belt-drive) motor used in its statement Balance turntable. Its skeletal chassis and 9.8kg platter are composed largely of hard-anodised aluminium although the latter is topped-off with a crystal-glass 'mat'. The chassis limbs can be adjusted about the bearing axis while the tonearm bases rotate about the end of each limb, making tonearm alignment as slick as possible. The price of the Spyder is £7995 with its standard solid-state power supply.

Brinkmann Audio GmbH, 01727 865488; www.brinkmann-audio.com, www.symmetry-systems.co.uk



HI-FI NEWS' NUGGETS

STRIKING A CHORD

By way of celebrating its 30th anniversary, The Chord Company has announced a new flagship ChordMusic range described as its most advanced to date. While the polished and silver-plated copper conductors and overall geometry of these latest ChordMusic cables are based on its current Tuned (Super) Array designs, the new interconnect and speaker cables all feature a dielectric material dubbed 'Taylon'. Trademarked by The Chord Company as 'Plastic insulation materials for use in audio cables' a year ago, Taylon replaces the foamed PTFE used in its top designs. Prices for 1m interconnects are £3800 (analogue) and £3500 (digital) with £3300 for a 1.5m banana-terminated set of speaker cables. www.chord.co.uk

ARCAM IRDAC-II

Pitched at £495, the mkII version of Arcam's popular irDAC now features a new ESS Sabre DAC, an upgraded headphone amp, a direct/remote volume control plus support for Bluetooth aptX streaming, and more. www.arcam.co.uk

Going for gold

NEW FEATURES FOR BRICASTI M1 DAC



Launched to the audiophile world five years ago [*HFN* Jun '11], the Bricasti M1 DAC has subsequently received a series of key updates culminating in the 'Limited Gold Edition' version pictured here. Bricasti claims that the 'generous amount of gold that is plated on the chassis parts' contributes to the sound of this model, along with the improved mechanical isolation offered by its customised Stillpoints feet and, inside, the refined point-to-point wiring.

This twin-DAC model is based around AD1955 converters and is a true dual-mono design. The dedicated power supplies feeding the separate digital and analogue circuits have also been upgraded, but the most significant update is surely the addition of an asynchronous USB 2.0 interface. Missing in our original review sample, the M1's USB input now supports LPCM up to 352.8kHz/24-bit in addition to 'double-speed' DSD128 playback.

Bricasti Design Ltd, USA, 03301 222500; www.bricasti.com, www.scvddistribution.co.uk

Premium partners

DENON LAUNCHES 2500NE-SERIES SACD PLAYER AND AMP



Standing on the shoulders of its longstanding 2000-series amplifiers, Denon's new £1899 PMA-2500NE flagship integrated combines a 384kHz/32-bit and DSD256 DAC section with a minimalist MOSFET power amp. Rated at 160W/4ohm, the PMA-2500NE features a high grade analogue volume control and beefy

power supply based around a pair of transformers mounted in opposition to 'cancel flux leakage'. The partnering £1499 DCD-2500NE CD/SACD player also spins DVD-R/RW and DVD+R/RW discs carrying 192kHz/24-bit and DSD5.6 files. **Denon (D+M Group), PRC, 02890 279830; www.denon.co.uk**

Sonorous headphones

TRICKLE-DOWN FROM FINAL'S 'X' FLAGSHIP

Promising 'superior sound and luxurious looks at an affordable price', Final's £239 Sonorous II and £299 Sonorous III headphones boast a similar 105dB/mW (at 16ohm) specification. Based on the top Sonorous X model, the dynamic driver features a titanium diaphragm while a mix of ABS and hard polycarbonate is employed in the capsule body. **S'Next Co., Ltd. Japan; www.final-audio-design.com**



The Principias

'ENTRY LEVEL' SONUS FABER SPEAKERS

With a range extending from two floorstanders, two standmounts and a centre channel, Sonus faber's new Principia Collection shares many technical features with its recent Chameleon range [HFN Nov '15]. These include the sloped cabinet shape with brushed alloy finishes and 29mm soft dome tweeter. The polypropylene bass/mid units are new to Principia, however. **Sonus faber, 0208 971 3909; www.sonusfaber.com**



Fresh Ayre

NEW HEADPHONE DAC INSPIRED BY THE PORTABLE PONO

It's no secret that Ayre Acoustics developed Neil Young's portable Pono music player but that project has inspired a 'high-end' spin-off in this more substantial, Ayre-branded Codex headphone amp. Meanwhile, the analogue stage that drives both the balanced and single-ended headphone and rear panel outs (both fixed and variable) is taken directly from the Ayre KX-R Twenty preamp. The ESS Sabre 9018-based digital section leverages off Ayre's QB-9 DAC with USB and optical S/PDIF inputs, the latter rated up to 384kHz/24-bit and DSD128. Price is £1495.

Ayre Acoustics Inc., 01727 865488; www.ayre.com



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Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

- 05-08 MAY** High End Show, M.O.C, Munich, Germany; www.highendsociety.de
- 03-05 JUN** T.H.E. Show, The Hotel Irvine, Newport Beach, CA, USA
- 02-07 SEP** IFA Berlin, The International Funkausstellung, Germany <http://b2c.ifa-berlin.de>
- 30-02 OCT** Tokyo International Audio Show, International Forum, Japan
- 29-30 OCT** The Hi-Fi Show Live 2016, Beaumont Estate, Windsor; www.hifinews.co.uk/show

Audioshow, Portugal

Words & pictures: Jorge Gonçalves



An annual fixture on the Portuguese audio scene since 1990, the Audioshow has always been highly regarded both by local audiophiles and the representatives of the global companies who make their way to Lisbon every year. The attraction, in part, is the prospect of enjoying the city's beautiful architecture and wonderful weather, but it's the hi-fi that quickly sees everyone queuing to spend their days inside.

For the fourth year in succession, the event took place at the five-star Pestana Palace Hotel in the city, which is located inside what was once a palace, built at the beginning of the 20th century for the family of a highly successful cocoa trader. With over 5000 visitors through the doors over the three days of the event and such opulent surroundings, perhaps it's little surprise that the Audioshow continues to go from strength to strength.

Swiss company Stenheim set up its Reference Ultime speakers in a 150m² space yet drove it with such ease the room was always full. Electronics were CH Precision M1 monoblocks, L1 line stage and P1 phono preamp while sources included a Rui Borges Pendulum turntable and Aurender W20 streamer. www.stenheim.com



The Air Force III from TechDAS uses a precision CNC-machined aluminium chassis weighing 18kg with a high-mass 9kg aluminium platter that 'floats' above with a mere 30µm clearance via an air-bearing. Tonearm was an SME V, cartridge a Koetsu Red, and the sound was a slice of heaven. www.techdas.jp



This was one of the big surprises of the show. Portuguese company V-Acoustics' Ultra Precision Master Clock generates a 10MHz clock signal and can be configured to sync digital components such as CD transports and DACs. It was used in the Monitor Audio PL500 II Pass Labs set-up [see p25]. www.v-acoustics.com



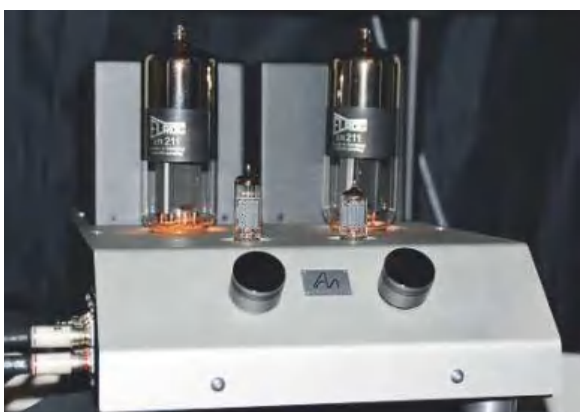
Stax showed its latest range of electrostatic headphones and matching amplifiers. Pictured is the SRM-353X Energiser and open-backed SR-L500 Earspeaker. The latter is a push-pull electrostatic headphone with an ultra-thin film diaphragm and boasts a very extended 41kHz frequency response with substantive 118dB maximum SPL. www.staxusa.com

Conrad Mas from UK turntable manufacturer Avid flew to Lisbon to unveil the first fruits of the company's Reference range of loudspeakers. Here, the Reference Three with its integrated stand was used with Avid's Reference line of electronics – a preamp and two monoblocks – which was unveiled at the 2015 Munich High End show. Specifications were scarce, but the system's performance gave rise to high expectations among prospective buyers. www.avidhifi.com



This is the Kronos Pro turntable, limited to 250 units worldwide. The platters rotate in opposite directions with speed controlled via optical sensors. Cartridge was a ZYX Premium Omega on the latest Kronos Black Beauty tonearm. www.kronosaudio.com

At €50,000, the Sennheiser Orpheus, or HE-1, is the most expensive headphone/amplifier combination in the world. With no fewer than eight rare ECC803S tubes on board, the set's velvety, yet extremely airy, sound saw queues of enthusiasts waiting for a chance to listen. www.sennheiser.com



Boasting the same circuit found in the legendary Ongaku amp, Audio Note's Tomei integrated sees two 211 output valves connected to a pair of transformers fashioned from a combination of silver and copper wire. Meanwhile, a 6463 input stage drives a copper/silver-wired driver transformer, manufactured in-house. Other high quality components used include tantalum resistors and Elna Cerafine electrolytics. Output power is a claimed 18W in Class A. www.audionote.co.uk

Tannoy's Definition DC8Ti speakers truly sang when hooked up to a Sinfonia integrated amplifier and Unico CDDue player from Unison Research. The amp, a dual-mono design, sports four KT88s, two ECC82s and two ECC83 valves. Analogue source was a Pro-Ject Xtension 10 Evolution turntable feeding a Pro-Ject Phono Box RS (including outboard power supply). www.tannoy.com; www.unisonresearch.com



Enjoyed Worldwide.



"The Sigma SSP can be regarded as a superb stereo analog preamp, and all the rest of its bells and whistles as a gift."

Kal Robinson, Stereophile, USA

"It combines the flexibility of a Swiss Army knife with the precision of a surgeon's tool in an easy-to-use package. There's simply not enough room here to even pretend to detail what you can do with this processor. It's just awesome."

Theo Nicolakis, Audioholics.com, USA

"But most impressive is the sound quality. This is real high-end at a price that must be considered reasonable. And the step up from the traditional home cinema receivers is nothing but huge."

Ludwig Swanberg, HemmaBio, Sweden

"Oh my, what a wonderful system Classé has provided with the Sigma range. It shows that audiophile sound is not the sole preserve of stereo and equally that it is not incompatible with reliable and convenient operation."

Stephen Dawson, Audio Esoterica, Australia

"This Sigma system is a huge achievement which everyone must absolutely discover."

Adrien Rouah, Québec Audio & Video, Canada



A chance to hear B&W's 800 Series Diamond speakers drew in the crowds, the company obliging by tearing the wraps off a gorgeous 803 D3 model in a black finish. Sources were a Rotel RCD-1570 CD player and Aria music server while amplification came from Classé with a 2300 power amp and CP-800 MkII preamp. Orchestral works had such realism that many visitors were comparing the sound to that heard in a concert hall. www.bowers-wilkins.co.uk

Standing 118cm tall, the Model One speakers from Slovenian-based company Ubiq Audio manage to combine simple aesthetics with a sound that's authoritative yet easy on the ear – even when hooked up to high quality yet highly affordable amplification from Arcam: a C49 preamp and two P49 monoblocks. Of course, the use of a Chord Hugo TT DAC in the digital chain certainly contributed in no little way to the final results. www.ubiqaudio.com



These intriguing looking loudspeakers are from the pen of Italian designer Giuseppe Gabbarini. They use an open baffle, which houses two 12in woofers, and a rather unconventional horn-loaded top speaker for the medium range. The speakers were driven by a pair of Jeff Rowland 625 SII monoblocks with music provided by a Diesis Neptune music server, making for a terrific combination when it came to playing classical music. www.diesisaudio.com



French brand Apertura offers a range of beautiful looking speakers and the Onira is no exception, combining a polished appearance with a vibrant and highly detailed sound. Amplification was in the hands of a Burmester 035 preamp and 956 Mk2 power amplifier while a Transrotor Dark Star turntable provided the analogue sounds, amplified through a Trigon Advance phonostage. The digital source was Burmester's 113 DAC. www.apertura-audio.com

There were several really impressive (and expensive!) systems on demo but the imposing, yet still gorgeous, MartinLogan Neoliths powered by twin Centaur II monoblocks and a Virgo II preamp from Constellation Audio stood out. Analogue sources varied between magnetic tapes played on a Revox B-77 deck and vinyl spun on a TechDAS Air Force III turntable. On the digital front, a Métronome Kalista CD transport [see *HFN* Dec '13] was combined with the company's flagship converters. Cabling was all Transparent Audio Opus. Cost no object, as they say. www.absolutesounds.com





HA-2

EUROPEAN HI-FI USB DAC/HEADPHONE AMPLIFIER OF THE YEAR 2015-2016

HA-2 is a compact headphone amplifier and USB DAC featuring ESS Sabre³² Reference ES 9018-K2M DAC chip and support for 384 kHz/32-bit PCM and DSD up to 11.2MHz



“HA-2 is the smart choice for those seeking a polished-sounding and gutsy performer that's keenly priced.”

“For £250, you'll struggle to find better detail or dynamics from a headphone amplifier and USB DAC.”

“A gem of a headphone amp/DAC at a very competitive price. Deserves to win plenty of friends.”

“It's this combination of power and finesse that's so alluring in something so affordably priced.”

“...a crushingly competent piece of equipment for the asking price.”

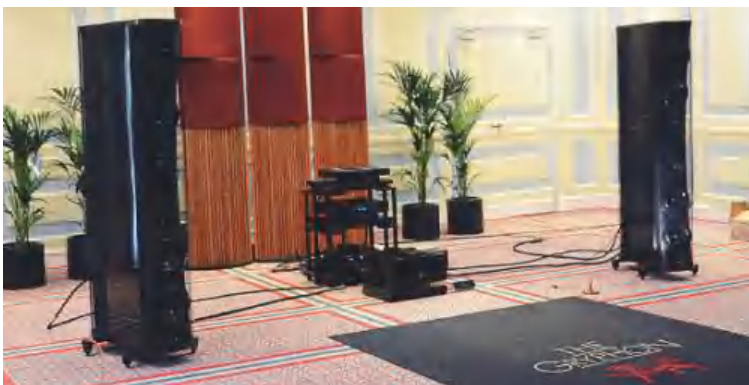
oppo

oppodigital.co.uk/where-to-buy





Who would pass up the opportunity to compare some of the finest headphones currently on the market? Models such as the Pioneer Master 1 Reference and Audeze LCD-3 [see *HFN* May '14] could be heard driven by Luxman's flagship Class A P-700u headphone amp with LECUA volume attenuator and balanced outputs. www.luxman.com



Local distributor Ultimate Audio took the opportunity to assemble a full Gryphon system comprising Trident II speakers, Diablo 300 II integrated amp and Kalliope DAC. A Melco N1Z H60 media player [see p56] was used as the source. The sheer dynamics of the combination had visitors to the packed room pinned to their seats! www.gryphon-audio.dk

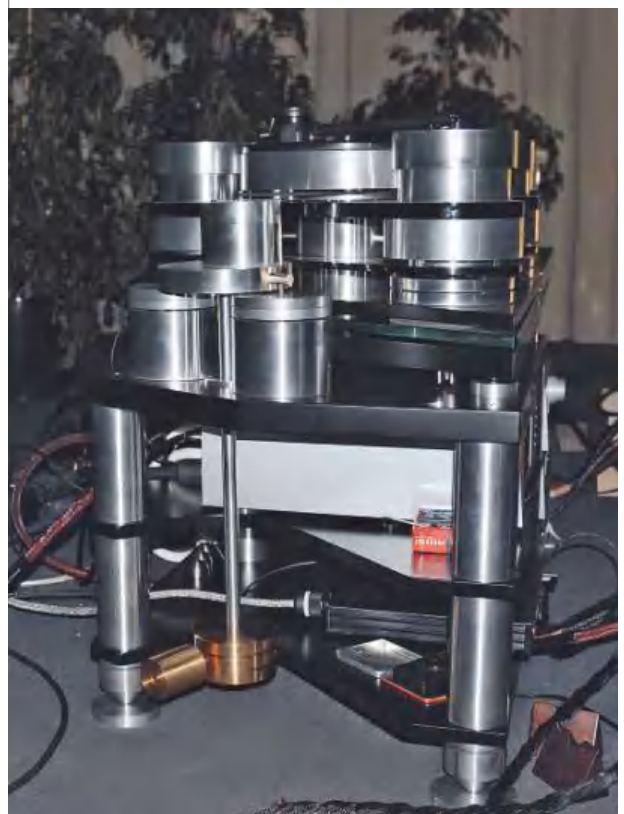


Focal's Sopra No2 loudspeakers [see *HFN* Sep '15] could be found playing inside one of the most beautiful rooms at the venue, which overlooks the river Tagus. Electronics were from Naim. The packed room was proof that the system's full-bodied yet highly transparent sound was truly appreciated. www.focal.com; www.naimaudio.com

Portugal is no different to many other countries when it comes to a growing interest in vinyl. Lisbon-based importer Audio Team was on hand with a wide selection of classical, rock and jazz LPs to tempt visitors. As well as turntables and cartridges from global brands, Audio Team also makes and sells the wooden boxes, seen housing the records in the picture, at €80 a pop. www.audioteam.pt



A closer look at the astonishing Pendulum turntable from Rui Borges [see p18]. The intricate construction uses a complex combination of parts, some of which are machined by Rui himself. The motor with its belt pulley is attached to a long arm with an adjustable weight at the end. This works like the pendulum of a clock to control the tension of the belt. www.ruiborgesturntables.pt





'This system is British surround high-fidelity at the utter state-of-the-art. And it's easily worthy of its Reference name.'

KEF REFERENCE 7.2 System,
Home Cinema Choice,
March 2016

Blue Ice White, Kent Engineering and Foundry Edition

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KEF

OBSESSED WITH HIGH RESOLUTION

SHOWBLOG First sight of new products & technology



The new PL500 II speakers from Monitor Audio caused quite a stir. Seen for the first time at the ISE trade show in February, this was the first time they were heard at a public event. Priced just under €20,000, these beautifully finished floorstanders see the brand attempt to make waves in the super-speaker territory. Accompanying electronics were a Pass Labs X350.5 power amplifier and Esoteric K-01X CD player using an external clock from V-Acoustics. www.monitoraudio.co.uk



If you've visited any high-end show held anywhere in the world in recent months the chances are that you will have encountered a pair of Wilson Audio Sabrinas [*HFN* Aug '15]. Here they were combined with an Audio Research Galileo GSi75 integrated amp (what else?), once again proving that the two were meant to play together! www.absolutesounds.com



Peter Lyngdorf certainly keeps himself busy with his own brand of electronics. Pictured here are the TDAI-2170 integrated amplifier (top) and CD-2 CD player. As well as being upgradable with a choice of HDMI, USB and analogue modules, the amp also boasts the company's RoomPerfect digital sound processing software. www.lyngdorf.com

Another striking design from Vivid Audio's Technical Director Lawrence Dickie, the Giya G4 combines form and function in a way few speakers achieve. Used with an H20 power amplifier, CDP2A MkII CD player and HD30 D/A converter from Norwegian company Hegel, the speaker delivered a lively and punchy sound that belied its compact size. www.vividaudio.com



Here's Louis Desjardins of Kronos with the Pro turntable. He arrived with a clutch of records, including Sheffield Labs direct cuts and Mercury originals. He also teased us with details regarding a new turntable motor power supply, which he plans to unveil at Munich's High End show 2016. In his words, the results will 'flabbergast' when the supply is heard with the company's turntables.



British company AnalogueWorks is a newcomer to the Portuguese market. Here we have its One Twelve turntable with birch plywood plinth and feet that use a 'weight dependent damping material' to minimise interference. Motor is a Premotec DC model with 'Revolver' power supply. www.analogueworks.co.uk



Next
month
We report from the
Munich High End Show



Diamond Life

Hi-Fi News at 60

The tale of the world's longest-serving hi-fi title
by John Atkinson, Steve Harris and Paul Miller

It was June 1956 that the first issue of *Hi-Fi News* hit the newstands. It was the idea of Miles Henslow, a relative veteran of the print world in that for some years previously he had been the publisher of *Record News*.

According to John Crabbe, who would take over as editor of the magazine in 1965, Henslow was a 'born bluffer'. To help launch *HFN*, Henslow had hired a chauffeur-driven Rolls in which to visit a printer, so as to establish his financial probity despite being broke.

In the event, Henslow's timing was excellent. The first London Audio Fair had taken place just two months earlier, Wharfedale had given the first demonstrations of live-versus-recorded sound in 1954 and since 1953, the record industry had gone over to stereo recording, with major issues of stereo LPs beginning in October 1958.

What's more, in the previous year the BBC had begun VHF/FM broadcasting. All this produced a rush of designs for stereo tuners then stereo pick-up cartridges, amplifiers and speakers (in pairs).

CRUCIAL REVIEWS

The second issue of the magazine saw Henslow declare in his editorial that a new form of equipment review would be introduced. Writers would 'describe the principles of design and operation of equipment, in addition to the customary report upon the items submitted for test.'

In those early years a succession of key designs were scrutinised. There was the Quad ESL [Nov 1957], Decca *ffss* pick-up arm and cartridge [Aug 1958], Garrard 301 motor unit [Oct 1958], Quad 22 stereo control unit [April 1960], and the SME 3009 tonearm [Jan 1961].

By the early '60s, the magazine's 25 pages of editorial had become an almost unmanageable amount of work for



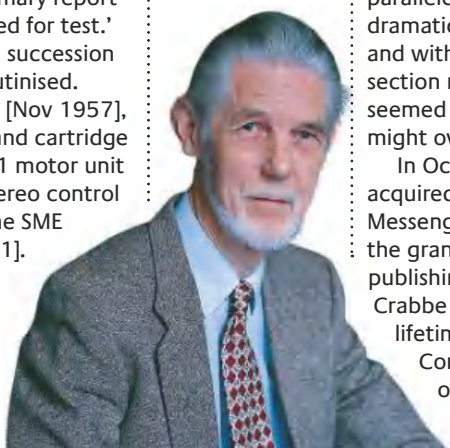
➔ **First *HFN* Editor and founder Miles Henslow at the second London Audio Fair**

➔ **Debut issue of *HFN* with a 1902 photograph of an Edison-Bell phonograph on the cover**

➔ **The first colour cover picture – October 1967**

➔ **October 1970 and *Record Review* merges with *HFN***

↓ **The late John Crabbe, who edited *HFN* from 1965-82**



the occupants of Henslow's tiny Mortimer St offices. With the audio industry increasingly in the sights of 'big business', in 1964 Henslow sold *Hi-Fi News* to Link House, with current Technical Editor John Crabbe in tow as Editor.

COLOUR COVER

Under John Crabbe's leadership and bolstered by the greater financial resources a large publishing house could offer, *Hi-Fi News* continued to flourish. October 1967 saw the magazine proudly sport its very first colour cover picture and by 1973, issues boasted over 300 pages.

Before the move to Link House, John had been the driving force behind numerous home construction articles with full circuit diagrams, layout sketches and detailed instructions.

This changed as readers became more affluent and could afford ready-made items, which in a world of mass production it was becoming steadily more difficult to equal. In John's own words: 'Those endless Crabbe articles about built-in concrete speakers would hardly generate surges of reader interest.'

MUSIC AND A MAKEOVER

In October 1970, *HFN* merged with the magazine *Record Review*, a conjunction that brought a huge expansion of musical content.

Physically big magazines were paralleled in the early 1970s by a dramatically expanded circulation, and with the large classical music section now being offered, it seemed for a while that *HFN/RR* might overtake *Gramophone*.

In October 1982 the magazine acquired a new publisher, Paul Messenger. It was time to makeover the grand old lady of audio publishing into a modern miss. John Crabbe continued to draw on a lifetime of expertise by becoming Consulting Editor and handed over the reins to *HFN* Deputy Editor John Atkinson.



In September 1976 I joined *HFN* Editor John Crabbe, and Deputy Editor Paul Messenger at the magazine's headquarters at Link House [writes John Atkinson].

Paul Messenger left the magazine in 1978 to edit *Hi-Fi Choice* and I was promoted to assistant editor then to deputy editor in January 1979. By the early 1980s I was starting to wonder if the magazine had lost its way.

A successful magazine should inform, educate, and entertain its readers. It publishes reviews so that its readers can short-list components that they might be interested in purchasing and therefore should audition for themselves.

QUESTION OF IDENTITY

HFN had been informing, educating, and entertaining its readers since the beginning. Yet, given the primacy of the word 'hi-fi' in its title, it didn't seem right to me that the magazine's editorial identity was dominated by music and recordings. When the commercially successful *HFN* had absorbed the failing *Record Review* in 1970, it was if the latter had actually absorbed the former.

The content that was most popular with readers, the equipment reports, were pushed to the 'graveyard' at the back of the magazine, behind even 'Classical Cassette' reviews. Add to that the fact that the measurement-dominated equipment reviews were increasingly marginalised when examined in the light of readers' own experience, and you can understand my increasing frustration in the early 1980s with the current vision for the magazine.

Also, the magazine's advertising revenue and circulation – the two metrics by which publishers calculate the success of their ventures – were in steep decline. Our July 1982 issue, which heavily featured in-car audio, was the smallest issue ever. Clearly something had to be done.

In October 1982 *HFN/RR* acquired a new editor, myself. I was guaranteed a clean slate, editorially, as long as the financial numbers improved.

In my first Leader as editor, in the December 1982 issue, I nailed my colours to the mast. I had

equipment reviews

MANUFACTURER'S SPECIFICATION:

Manufactured in Japan. Output: 100mV. Frequency response: 20Hz to 20kHz. Signal-to-noise ratio: 60dB. Total harmonic distortion: 0.1%. Channel separation: 20dB. Weight: 10g. Dimensions: 10mm x 10mm x 10mm.



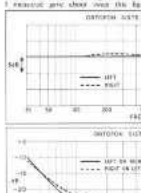
ORTOFON S15TE STEREO CARTRIDGE

The only thing that prevented me from buying the Ortofon S15TE was the fact that it was not available in the UK. I was therefore forced to wait until the next issue of the magazine when it was available.

However, even though an Ortofon S15TE was not available in the UK, it was not available in the US either. I was therefore forced to wait until the next issue of the magazine when it was available.

The Ortofon S15TE was not available in the UK, it was not available in the US either. I was therefore forced to wait until the next issue of the magazine when it was available.

Channel balance was good, being within 0.5dB at 1kHz. The Ortofon S15TE was not available in the UK, it was not available in the US either. I was therefore forced to wait until the next issue of the magazine when it was available.

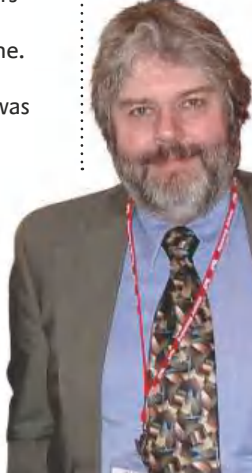


JC's Nov 1966 Ortofon review, which inspired John Atkinson, and the Scintilla review – Sept '85

Yellow border is banished in January 1982

March 1983 issue with new logo by graphic artist Paul Carpenter

John Atkinson, editor from 1982-86



already eliminated the yellow border in January 1982 but the first step was to transform the look of the magazine with a new logo and fresh interior design. Then, it was time to redesign the content.

In place of the rather haphazard arrangement of content that had been the norm since the beginning, I fitted each issue's content into an iron frame. Not surprisingly, I moved the equipment reports to the centre of the magazine.

PROTOTYPE REVIEW

Ironically, it was a November 1966 *HFN* review by John Crabbe of Ortofon's S15TE moving-coil cartridge that was the prototype for what I wanted to achieve. Yes, that review featured measurements, but they were not the point of the review. Instead, they reinforced and explained the subjective findings.

This approach to reviewing, tying together the subjective and objective approach to equipment reviewing, reached its apogee during my tenure as editor with, appropriately, the Apogee Scintilla loudspeaker in

September 1985: almost ten pages of technical analysis, listening comments and measurements from three writers.

On a more personal note, I tried a different



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style of subjective reviewing in August 1983, with a report on the Krell KSA-50 power amplifier, in which I tried to illustrate the descriptive points I was making using specific musical examples. This is ubiquitous these days, but seemed very daring back then.

There was a lot of change, but the readers responded positively. By the spring of 1986, the magazine's finances and circulation had both risen considerably.

My final review to appear in *HFN* was of the KEF R107 loudspeaker, in the July 1986 issue. The late Raymond Cooke, KEF's founder, subsequently told me he had read the review aloud to KEF employees. I assume he meant it as a compliment! Looking back, it was one heck of a ride.

STEVE HARRIS JOINS

When I took over from John Atkinson in May '86, he'd just finished putting together *HFN/RR*'s '30th anniversary' issue [writes Steve Harris]. It's hard to believe that nearly three decades have passed since then, decades packed with incident for both the industry and the magazine.

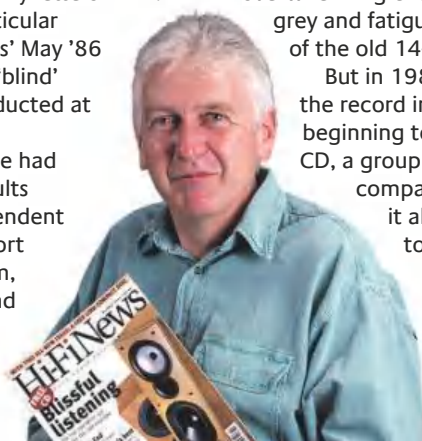
My experience editing other hi-fi magazines hadn't quite prepared me for the organic complexity of *HFN/RR*. Copy arrived unexpectedly, but allegedly by longstanding arrangement, from contributors I hadn't yet had a chance to meet. Manufacturers

launched into me with grievances I knew nothing about. Legal threats were uttered over readers' letters published months before...

Among the correspondence in my first weeks were many letters responding to one particular article – Martin Colloms' May '86 report on an amplifier 'blind' listening test he'd conducted at a London AES meeting.

More than 90 people had taken part and the results submitted to an independent statistician, whose report allowed MC to proclaim, yes, 'Amplifiers do sound different'. But not everyone agreed with him! The debate which Martin

'We'd felt obliged to review all the DAT machines that we could'



was exploring had already been going on for years: the 'subjectivist/objectivist' confrontation. But by 1986 this conflict had extended to loudspeaker cables and CD players.

Hi-fi enthusiasts were sharply divided between pro- and anti-CD camps, and in high-end circles no-one yet regarded CD as an acceptable source. One of my first duties at *HFN/RR* in spring 1986 was to get hold of the new Philips true 16-bit CD players for review. Later that year I started working on a book,

which meant listening critically to hundreds of CDs, and I remember the relief I felt when I switched to a Philips 16-bit player (a CD360) for this. The task would have become an overwhelming chore with the grey and fatiguing sound of the old 14-bit player.

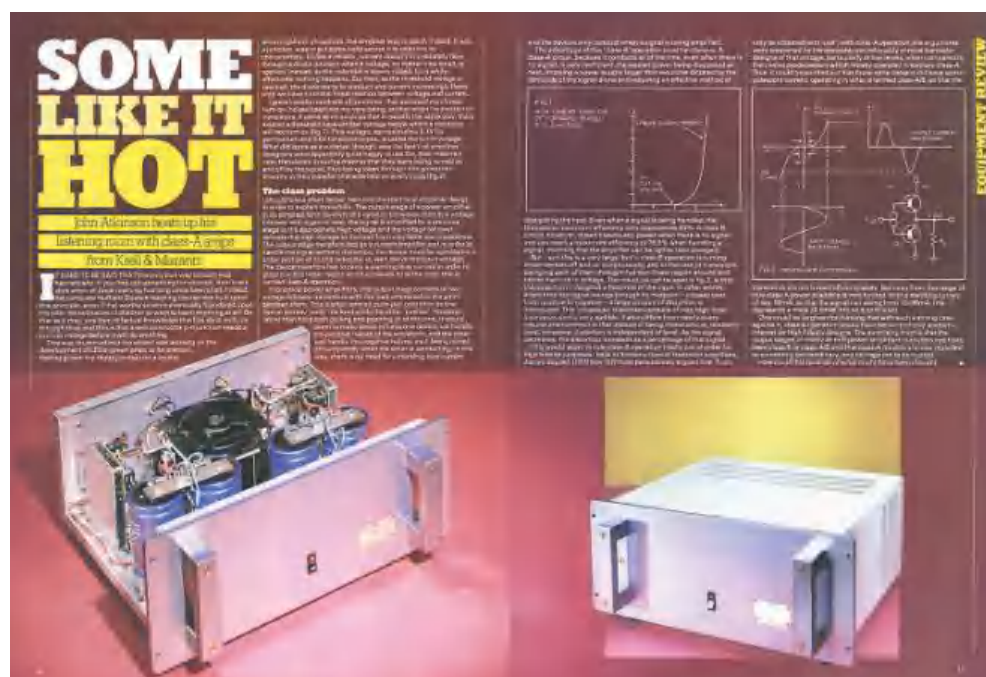
But in 1988, just as the record industry was beginning to cash in on CD, a group of Japanese companies spoiled it all by trying to launch Digital Audio Tape (DAT). The record labels rose up

John Atkinson's review of the Krell KSA-50 amplifier from the August 1983 issue in which he used musical examples to illustrate his conclusions

The July 1986 issue, which carried JA's very last review for *HFN* – the KEF R107 loudspeaker

'Amplifiers do sound different...' was the conclusion of our amp blind listening test published in May 1986. Many readers disagreed

Steve Harris with the October 2000 issue, the first to appear with a new logo and redesign after the IPC makeover



in anger against a medium that would immediately allow the public to make 'perfect' 16-bit digital copies of copyrighted material and refused to produce pre-recorded DAT cassettes.

We'd felt obliged to review all the DAT machines we could get hold of, even though as a consumer product the format was making no headway. For the first time, but not the last, we had got mired in the uncertainty of 'new formats', promising always jam tomorrow but never jam today.

MAGICAL OPPORTUNITY

And then, in 1991, when DAT was still in contention, Philips initiated another new format, the Digital Compact Cassette or DCC. When Sony weighed in with MiniDisc, we had a wearisome 'format war', which, unfortunately, set the pattern for the 1990s.

Meanwhile, we soldiered on with our CD players. They were getting better, slowly, but would they ever be completely well?

In the spring of 1989, I got a call from Paul Miller:

'Something you've got to hear!' When I arrived there, Paul showed me a Sony TA-F630ESD amplifier he'd got in for review. As an added feature, Sony had given this rather ordinary amp a digital input, taking advantage of a new, low-cost chip from Philips.

This 'digital amplifier' was actually the first product to use a 1-bit PDM or Bitstream DAC. Paul played some CDs through this DAC



and it was a revelation. The sound was fluid, listenable, three-dimensional – yes, everything my CD player at home was not. Sadly, the promise of that early Bitstream experience was never fulfilled in actual production players.

As more CD pressing plants came on stream, the cost of making CDs fell, but retail prices did not.

This was a magical opportunity for hi-fi magazines. By doing a deal with a record company and blowing the year's promotional budget in one go, we could (just) afford to get 30,000 CDs

pressed and stick them on the cover as a free gift. Since the perceived retail value of any CD was at least £10, the cover-mount issue would sell like hot cakes.

Our first free disc, in April 1989, sampled releases from the Virgin



The Virgin Classics CD that came with the April 1989 issue. Inside the magazine were two back-to-back pages which readers could cut out to produce their own 'booklet'

The 40th anniversary issue of HFN from June 1996 featured the reissued Quad II amplifier on its cover. What could be more appropriate?

February 2001 issue showing the new, bolder-looking logo designed by IPC. The magazine was also given an overhaul inside with the aim of making the contents more accessible and easier to read

Classics label and the magazine sold out completely, for the first time since the Crabbe era.

The UK's dominant high-street record retailer, WH Smith, had just announced it would no longer stock vinyl LPs when I wrote in a March 1992 editorial: 'Here is a sign of the times: reporting on the Winter CES in Las Vegas, Ken Kessler relegates turntables to the "Bits 'n' pieces" section.' A decade after that, vinyl would become 'cool' again. But

in the mid-'90s vinyl-playing products were niche-market, and for a time they were squeezed out of HFN/RR, along with valve amplifiers.

For the 40th anniversary issue in June 1996, we seized the chance of an exclusive review on the newly-announced Quad II amplifier reissue – what could be more appropriate? For that issue, we also gave away the first of six Classic Hi-Fi supplements – with the title logo and yellow top panel styled to look exactly like the pre-1967 *Hi-Fi News*.

In a way, we did it too well. We got at least one call from a puzzled reader who'd tried to respond to the quaint 1950s ads we'd thrown in.

MUSIC REVOLUTION

In the early months of 2000, when HFN/RR had been part of the IPC empire for a year or so, we began to plan a major facelift for the magazine. A quick glance at any bookstall was enough to show that we needed to make the logo bolder and stronger, and to achieve this, the second line of the title had to go. Along with the new logo came a complete redesign aimed at making the magazine more 'accessible'.

And of course, the industry was changing fast. High-resolution audio arrived, although not before the SACD and DVD-Audio saga had become the longest and most tedious of all the format wars. Home cinema was now bigger business than two-channel audio, and yet there really was a vinyl revival.

Now, more than ever before, the hi-fi enthusiast was spoilt for choice. But all these choices were perhaps of little consequence against the background of the revolution that was taking place in the music industry itself: the downloading and streaming of music.

'We needed to make the HFN logo bolder and stronger'



It's no exaggeration to say that my life changed forever in 2006 [writes Paul Miller]. I was on the cusp of signing a distribution deal that would move my test and measurement business into HK and China. But there was an entirely unrelated problem. *Hi-Fi News*, the world's oldest specialist hi-fi title, was in trouble and everyone knew it.

I'd been contributing to *Hi-Fi News* since 1986 and, from 2003, had developed a quarterly AV supplement to run alongside, but I couldn't imagine our audiophile world without *Hi-Fi News*. Little did I know that putting *AVTech* together with inspiration, perspiration and no staff, was an experience that would ultimately come in very useful...

BAPTISM OF FIRE

So, putting heart before head, I shelved the business expansion and found myself at a desk in a very grey Croydon tower block, about to start the job that no-one else wanted. Surrounded by the hubbub of some 40 other specialist/hobby titles, what remained of the *HFN* team – soon to be a mere trio – set to work.

The design of the magazine was incredibly fussy but within two issues we'd established concepts that remain core to *Hi-Fi News* to this day: the monthly international hi-fi show blog, formal lab reports accompanying every review and clear inside shots revealing the hidden engineering. Restoring the technical credibility

'I couldn't imagine our audiophile world without *HFN*'



of the brand was key, but I also discarded the minimalist 'buyer's guide' to free up more space for exclusive reviews and features.

The freedom to make further changes would have to wait until the Sept '07 issue – the first to feature the current white and yellow 'hi-fi news' masthead and see the launch of our 'Outstanding' (etc) badges, the in-depth monthly group test and 'Hi-Fi@Home', featuring our readers' best systems.

This period saw us examine numerous innovative products, including our first taste of a possible 'virtual' future courtesy of Linn's Majik DS network audio player. We were also the first magazine in the world to develop and publish lab tests on USB and network audio DACs, helping our readers clearly differentiate the performance of these new digital 'front-ends'.

INTERNATIONAL SCENE

Another thread that I'd inherited was EISA – a collective of some 50 specialist titles around, but not exclusive to, Europe. *Hi-Fi News* had been the UK's Hi-Fi group member for years, but until now we'd never grasped its potential and engaged with these international colleagues.

Our Oct '08 issue saw the EISA Awards properly represented and

Some years before taking over, PM produced an in-depth, quarterly AV supplement for *HFN*. *AVTech* grew to 64 pages

Hi-Fi News Feb 2007 – PM's first issue as 'Acting Editor'. Many doubted the brand could be saved

2008: a new masthead and bold features, including a group test of Class D amps

Reinstating *HFN*'s 'Record Review' and iconic yellow border in 2009 also marked a return to our purist, two-channel roots

Editor PM outside *HFN*'s high-end Hi-Fi Show Live in Old Windsor



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From discs to downloads

Music and record reviews are at the heart of *Hi-Fi News*. **Christopher Breunig** has the story

Music reviews and features have been a part of *Hi-Fi News* ever since John Crabbe joined as Technical Editor in 1962. He was our editor from 1965-82 and was passionate about classical music – Berlioz in particular, about whom he wrote a book, and whose music first ‘struck a chord’ during his early days at Decca’s Navigator company.

But back in August 1953, *HFN*’s publisher Miles Henslow had also launched *Record News*, its very first issue with only 27 pages but with a team of 14 specialist reviewers (violinist Erich Gruenberg was one, the musicologist Hans Redlich another, and Deryck Cooke wrote for some years). Its aim was to list and evaluate new recordings, a theme which John emulated, introducing a music review section with a small team of anonymous writers.

I first contributed in 1965 and was offered the Ronald Stevenson *Passacaglia on DSCH* and orchestral music by Koechlin: tough nuts to crack! I was also writing for *Audio & Record Review* (later simply *Record Review*) which then had more established contributors including William Mann, John Warrack, Arthur Jacobs and John Freestone – a vocal expert not unlike *Gramophone*’s



➔ **CB (left, with 1970s hair-style!) in discussion with columnist Burnett James**

John Steane. Later, the composer Humphrey Searle and the fine musicologist Hugh Ottoway would join the team.

THE RATINGS SYSTEMS

But in October 1970 the title was merged with *HFN* [see p26], its editor Peter Gammond now Music Editor. Three years before that, along with writer Burnett James we had concocted a separate record rating system for performance and sound quality. Our original ‘50:50’ styling was modified in *HFN/RR* to letters A-D (with H for historical) for sound, 1-4 for performance, with an asterisk for superior quality. Some readers evidently skimmed the monthly review section for A*:1* releases and simply bought those...

Over the years these ratings indicators have changed (via ‘one-liner’ summaries and sundry rows of coloured blobs and squares) to today’s SQ percentages, in line with our hardware reviews.

Regrettably, not all the writers were that concerned with recorded sound: John used to remark that

if they liked the performance they automatically allocated high technical marks too. One reviewer famously suggested the Decca LSO/Kertesz Dvořák series sounded as if ‘produced in a zinc bath’, oblivious to what we would later term audiophile recordings.

By way of correction a quarterly feature, ‘Quality Monitor’, prepared in-house, covered the outstanding new LP releases with a focus on sound. John, by then, favoured additional rear speakers à la Gerzon/Hafler, for a quasi-surround effect.

HFN’S QUADRAPHONIC LP

To help readers, *HFN* had prepared an LP, *What Is Good Recorded Sound?*, Bob Auger taping piano, voice and small chamber groups at Conway Hall in Feb ’72 with different balance approaches and mic types, and showing the effect of added reverberation, etc.

As the booklet noted, ‘some form of quadraphony may eventually become viable’, and in the mid-’70s we had – in particular – EMI LPs in SQ format and CBS productions made ‘in the round’. *HFN* prepared a 2LP, limited edition, illustrative album, *Quadrafile*, with licensed tracks cut for CD-4, UD-4, SQ and QS replay – although quadraphonic



➔ **Record News was a Miles Henslow sister magazine to Hi-Fi News, it was launched in 1953**

➔ **Audio Record Review was merged with Hi-Fi News in Oct 1970. It made an annual award to an artist or record producer**



LPs quickly faded away [see more at www.stereosociety.com/Quadrafile.shtml]. These two *HFN* releases were forerunners to the 1996 LP Test Record and previous CD Test Discs.

One of *HFN*'s more ambitious music features was coverage of the LSO/Bernstein sessions for Mahler's Symphony No 8, produced at Walthamstow by CBS [*HFN* Jul '66]. Later in Sep '71 a team went to Amsterdam to report on the Haitink/Concertgebouw production of the same massive work, which only came into its own when Pentatone mastered an SACD version.

A typical 1970s *HFN*/RR might have 30 pages of LP/tape cassette reviews including 'Current Pop' by Fred Dellar, 'Popular Albums' and 'Stage and Screen' (Arthur Jackson), 'Poetry and Drama' and 'Children's Records'. Hardware reviews were relegated to the back of the magazine while 'Gramophile', Peter Gammond's retrospective page and a 'newsy' report from Arthur Jacobs preceded the music reviews.

In 1982 when John Atkinson took over, his musical tastes as editor were more catholic although the classical bias would continue. As would a text-heavy magazine layout with small font sizes, with just a smattering of colour introduced (nearly all the advertisements were in mono). We had an elaborate commissioned logo [see p27], found risible by the 'suits' from IPC when Link House Magazines was acquired.

Ken Kessler (KK) began writing in July 1983, author of 'Classical Glass' and part of the increased 'rock/pop/jazz/etc' section, with its 200-word album reviews – even 'capsule' reviews then ran to 80 words. The young writers Andrew Keener, Edward Seckerson and Hugh Canning were recruited: they would become respectively a top record producer, a broadcaster and the *Sunday Times*'s principal critic. And Rob Cowan came on board before being wooed to edit a (short-lived) *Gramophone* off-shoot – all well before his Radio 3 work, of course.

COMPACT DISCS ARRIVE

Our first compact disc reviews appeared in mid-1983. 'Quality Monitor' then ceded to 'Compact Disc Monitor' and by the end of 1985 those equipped to review these discs had increased to 16. Looking into their crystal balls, some



➔ During John Crabbe's editorship, an LP was devised to demonstrate good sound. It was recorded at Conway Hall in Feb '72

➔ *Quadrafile* was a 1976 double album released by *HFN* in 1976 with sides cut for quadraphonic replay

➔ In Sep '11 the magazine began publishing the results of lab tests, uncovering the likely original sample rate of 'high-res' music files available for download from the Internet

scribes foresaw a radical diminution in the classical catalogue, whereas it exploded exponentially, not least with historic reissues.

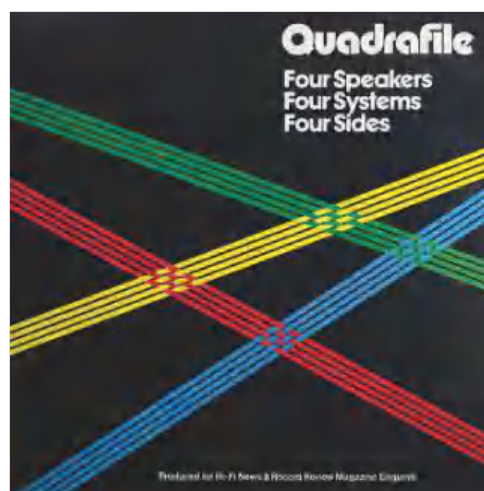
Almost half of the classical pages in our Nov '85 issue were devoted to CD reviews, listed by company label, and a performance rating was optional. In those days, and for some years, we gave total playing times: readers expected value for money!

In 1986 I became *HFN*'s Music Editor, one month before John Atkinson had moved to *Stereophile* in the US and Steve Harris taken his place. The magazine became (almost) full colour, I was given a free hand to design the classical music pages with plenty of artist-pictures and Johnny Black had joined as rock reviewer, along with Fred Dellar and KK; jazz discs were covered by Ben Watson, while rock reissues were printed uncredited.

Computers had yet to arrive in the office, and when they did *HFN* had just a single Mac able to receive emails! Cost savings meant the discontinuation of the annual Audio Award, a scheme initiated by Peter Gammond where a musician and a record industry figure would receive a small statuette in the form of linked treble clefs.

These ceremonies were held in the Royal Festival Hall and were an opportunity to chat with other contributors and applaud the likes of Neville Marriner, André Previn, Adrian Boult and Kenneth Wilkinson, R Kinloch Anderson, Peter Walker and Anthony Griffith.

With *HFN*'s ownership passed to IPC, in mid-2000 I was technically 'retired' and the record review team dismissed, although in a restyled *Hi-Fi News* (where music had



become 'Software') I continued to write four pages on classical and Johnny Black one on rock CDs.

HIGH-RES FILES TESTED

When Paul Miller took over as editor in 2006, our music features/reviews began to reflect a more equitable balance between classical and other genres. We had Vinyl Icon, Vinyl Frontier and Vinyl Release, and Classic Venues. Ken was writing two audiophile pages, Steve Harris had taken on the jazz page, Johnny Black and I were still soldiering on.

So what might happen next? Well, prompted by an Investigation in our June '11 issue, with our September issue editor PM began a spread of high-resolution download reviews where the album files were subjected to lab scrutiny: a feature unique to *HFN*. The July '14 issue saw the introduction of my Classical Companion feature and this month [p94] Steve Sutherland starts a new series, 'Meet The Producers'. ☺



Monitor Audio PL500 II

These flagship, seven-driver floorstanders are the company's largest and most ambitious design yet

Review: **Andrew Everard** Lab: **Keith Howard**

Monitor Audio's PL500 II loudspeakers, the flagship of its heavily revised Platinum II line-up – and thus the company's entire range – are big, make no mistake about it. Selling for £15,000 a pair, they stand a smidge under 1.85m tall, so are going to need a big room, preferably with a high ceiling, if their three-way, seven-driver configuration is going to be allowed to do its thing.

These are the most ambitious speakers in the Essex-based company's history, and an all-new design – they may carry the same 'II' suffix as the other models in the latest Platinum range but, unlike the PL100 II, PL200 II and PL300 II, they don't replace a previous design. Instead they sit way above anything else the company has previously attempted, and are pitched right into the closely-fought 'world's best speakers' territory. We're a very long way from the little Bronze 2 speakers [*HFN* Feb '16] down at Monitor Audio's entry-level.

TECHNOLOGY MARKER

So, the PL500 II speakers are not only big, and heavy (at just over 99kg apiece), they're also a means of putting down a marker for the state of the company's technology. Much of what's here seems familiar, and in particular what looks like the company's dish-shaped C-CAM (Ceramic-Coated Aluminium/Magnesium) cones used in the pair of midrange and four bass units in each speaker. These are designed as an unbroken diaphragm, driven from behind, rather than the more common design with a ring-shaped cone attached to the 'motor' at its inner edge, and with either a pole-piece or a dust-cap at its centre.

However, even here things aren't quite what they seem, for the drivers are actually the company's latest RDTII (MKII Rigid Diaphragm Technology) units, in which the C-CAM material is merely the top layer

in a three-material sandwich. For more on the RDTII technology, see KH's boxout opposite, but there's even more going on in those drivers.

Behind the 'dish' is a new Dynamic Coupling Filter, a tuned nylon ring between the voice coil and the diaphragm that acts as a direct coupling up to the crossover frequency, and then as a damped spring, reducing the transmission of energy. As MA puts it, this 'effectively adds an additional first-order mechanical filter to complement the electrical network, resulting in a compound attenuation of 18dB per octave above the crossover frequency.' It also improves venting of the voice coil, reducing the air pressure behind the diaphragm and aiding cooling.

A PLEATED TWEETER

The 'motor' uses an underhung voice coil: ie, a short coil in a long magnetic gap, ensuring the whole of the voice coil remains within the magnet system even at extreme excursions of the driver, making the unit easier to drive. For greater thermal efficiency the magnets and voice coil wire are finished in black, to enhance heat-dissipation, while copper shorting rings are used on the poles to reduce distortion.

In the PL500 II, the two 4in (100mm) RDTII midrange units run from 460Hz to 3.6kHz, while the quartet of 8in (200mm) bass drivers handle the low stuff. The upper and lower pairs of bass units are housed in their own enclosures, tuned with two of the company's latest-generation HiVe (high velocity) rifled port tubes, exiting to the rear. The midrange drivers are in a dedicated sealed enclosure constructed from a mineral-loaded anti-resonance

RIGHT: The sandwich cones of MA's RDT II bass and midrange drivers [see boxout, opposite] are protected by perforated steel guards – removed in the picture, far right. A refined Heil-type 'pleated diaphragm' tweeter sits centre stage



STRENGTH OR STIFFNESS?

Monitor Audio claims that its new RDT II diaphragms, used in the PL500 II's bass and mid drivers, exhibit '150x the strength of a conventional speaker cone'. But it isn't strength that's important in a loudspeaker diaphragm, it's bending stiffness. The greater the bending stiffness, the higher in frequency that the diaphragm begins to resonate in bending. Sandwich materials excel at achieving high bending stiffness for minimum mass. The RDT II sandwich is just 2mm thick but by displacing its two skins away from the diaphragm's neutral axis, it ensures that they resist bending much more effectively than if they were bonded directly together without a lightweight core separating them (here a Nomex honeycomb). The classic problem with sandwich diaphragms is that they're poorly damped at resonance, something that MA has countered by using two different skin materials – 35µm-thick anodised aluminium on the outer face and woven carbon fibre composite on the inner. KH



composite and through-bolt mounting is used to fix all of these drivers in place.

This array of drivers straddles the new tweeter developed for the Platinum II range, mounted at a level roughly corresponding to the ear-height of a seated listener. Found in all the models in the Platinum II line-up, this is designated a Micro-Pleated Diaphragm, or MPD, and replaces the company's familiar C-CAM 'gold dome' tweeter.

It claims eight times the radiating area of a conventional dome driver, and uses an ultra-thin diaphragm formed from bonded layers of Kapton and aluminium, with the metal etched away to leave a resistive track which functions as the driver's voice coil. Current passing through this track creates a field that works against the neodymium/iron/boron magnets, causing the pleats to squeeze laterally, and this accordion-like motion creates the sound. Monitor Audio says the advantages of this design, including freedom from break-up across its working range, are that the driver also presents a constant load to the amp, thus making it easier to drive.

The speaker is wired throughout with silver-plated copper, and the (bass) cabinets are constructed from multiple layers of wood veneers, shaped in jigs to create the curved sides of the enclosures.

This shape adds strength as well as avoiding internal resonances, and the cabinet sections are both heavily braced and damped with a 'bitumastic' material, the bracing being

designed to divide the internal space into smaller internal chambers to avoid standing waves.

The cabinets are available in a choice of Santos rosewood and natural ebony, or piano gloss black, with the baffles hand-upholstered in Inglestone leather, while the speakers stand on plinths designed to spread the footprint of those slender columns, with four alloy spiked feet supplied.

Metal mesh grilles are fitted over the bass and midrange drivers,

and a boxed tool-kit is offered with the speakers, including three hex drivers, a spirit level, a magnetic tool for removing the mesh grilles and a cleaning cloth.

'These big MAs are speakers with impact, exciting when pushed'

GUTSY ATTACK

Without a doubt the PL500 II speakers created a strong visual presence in editor PM's listening room [see www.hifinews.co.uk/news/article/meet-the-team;-paul-miller/9952], their sheer size making them too large for use in my own home set-up. The speakers were powered by the resident Devialet 800 monoblocks fed by Melco's NA1 server using a direct USB connection, and controlled using the PlugPlayer app running on a tablet.

Initial impressions were that these are speakers with plenty of impact at 'tickover' levels, and able to be just plain exciting ➔





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RIGHT: The PL500 II employs a multi-layer cabinet, curved and internally braced for strength while creating small, dedicated compartments and spaces within

when pushed a little harder. However, initial impressions were also not of the most organised speakers in the world, despite plenty of breathing space created by locating them well out into the room, and toed-in slightly toward the listening position.

They immediately gave a sense of *almost* doing everything right, from that gutsy, well-extended low end through an explicit midband to a treble lacking nothing in attack, but still sweet – it's just that they didn't manage to bring it all together in a controlled, integrated musical whole. My first listening note says 'no shortage of attack, but too far on the exciting side of neutral... bass seems a bit detached from the rest of the sound'.

OFF WITH THOSE GRILLES!

Not only that, but the stereo soundstage and image focus was decidedly wayward with the first few tracks I tried, kicking off with Yes's 'Roundabout', from *Fragile* [DSD64, from Warner Japan WPCR-14167]. The opening acoustic guitar sounded crisp and tight – but then sounds don't get much simpler – and the grumbling bass line when the band kicks in was deep enough, but could have done with a bit more definition and drive.

Interest piqued, I turned to another Yes track from SACD, this time 'Yours Is No Disgrace' from *The Yes Album* [WPCR 15903], and observed similar traits: there was a notable tendency for the big speakers to sound a bit flustered when things got busy, while the dominant bass gave a 'wall of sound' effect. Hmmm...

Changing to 'Down To The Waterline' from the eponymous debut album by Dire Straits [Universal Japan UIGY-9634], saw the PL500 IIs delivering fine ambience in the plaintive guitar opening, but again a slightly shut-in sound when the track got going, with Mark Knopfler's voice never quite breaking free from the speakers.

The Monitor Audios gave a much more convincing account of themselves with Gov't Mule's live cover of 'Shine On You Crazy Diamond' [*Dark Side Of The Mule*; Provogue PRD 7446 2]. Here they delivered a superb feeling of the roar of the crowd, and great slabs of guitar.

However, I was still feeling a bit short-changed by the lack of magic, of

**'In the buff,
MA's PL500
IIs were
transformed!'**

'specialness' from these huge, expensive speakers, so on a whim I whipped the little magnetic grille-puller out of the accessories box and set about the covers on the mid and bass drivers. Monitor Audio assures us the speakers can be used with or without the grilles in place, but I'm afraid I have to beg to differ, since with all eight of the bass dishes and all four of the midband saucers in the buff, the PL500 IIs sounded like speakers transformed.

The bass became tighter, without losing any of its characteristic weight, meaning that all of a sudden I was hearing bass-lines, not just a blur of low-end rumble. Meanwhile there was greater fluidity, drive and definition in the midband, snapping the sonic image ➔



DEAN HARTLEY

Monitor Audio's Technical Director has been with the company for 18 years, and led the management buy-out in 2007. He says that the PL500 II could have been *very* different.

'We originally conceived a large three-way with dual 10in drivers but, since we wanted a big step-up in performance from the 300, we decided to drop in two mid-drivers to increase sensitivity and reduce distortion. We then needed to match their sensitivity in the bass, and adding two additional bass drivers worked well – however, it did make the product much taller.'

Before developing the MPD tweeter, 'We decided to look at some existing AMT designs. They all sounded quite good, with a smooth character and fine resolution, but we noticed a rather nasty suck-out at around 25kHz with many of them – not ideal for the accuracy demanded of a high-end concept.'

Those grilles over the bass and mid drivers are, he says, designed not to affect the sound, and 'Once they're in place they are rigidly clamped, so there is no obvious ringing – we did actually design the speakers with the grilles on.'

He admits there's limited scope for all of the PL500 II's technology to find its way into lower-priced models but says the company isn't holding back on further development. 'We're exploring some new ideas in terms of active and wireless technologies for high performance audio, and there's every chance of a "look what we can do" uber-flagship at some stage in the future.'





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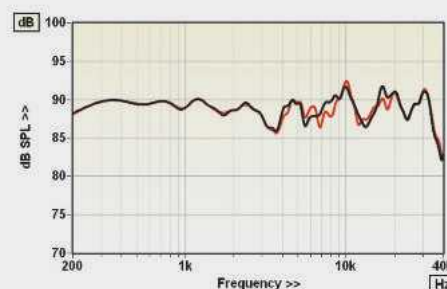
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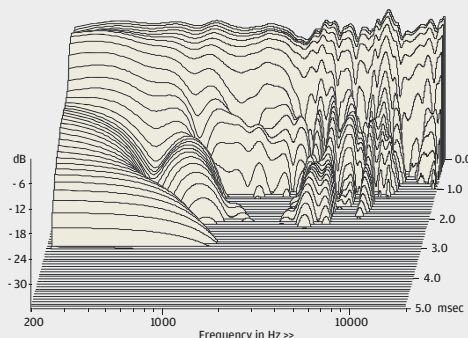
MONITOR AUDIO PL500 II

Monitor Audio claims 91dB sensitivity for the PL500 II but our pink noise (89.2dB) and music (88.9dB) figures suggest that this is about 2dB optimistic. MA could have increased the sensitivity by lowering the impedance further but appears to have decided to ensure that the PL500 II presents a less than challenging load. Although the nominal impedance is 4ohm, MA claims a minimum of 4.2ohm, a full 1.0ohm greater than required for this rating. Although we measured a dip to 4.0ohm, this and the fairly well controlled impedance phase angles ensure that its minimum EPDR (equivalent peak dissipation resistance) does not drop below 2.0ohm (at 85Hz). A figure of 1.7ohm is more typical of modern floorstanders, so the PL500 II rates as a relatively benign amplifier load.

The on-axis frequency response trend – measured at tweeter height – shows just a small shelf-down at HF although the treble response is quite uneven, giving rise to response errors of ± 2.9 dB and ± 3.4 dB respectively for the pair from 200Hz-20kHz [see Graph 1, below]. While response errors of this order are not unusual, the switchback nature of the treble hints at resonances and this is confirmed by the cumulative spectral decay waterfall [Graph 2, below]. From this it is clear that the unevenness is due to a succession of breakup resonances between about 2.5kHz and 10kHz – disappointing for a flagship three-way. A side-effect is that the pair matching, which is to within ± 0.3 dB up to 3.5kHz, becomes much worse thereafter, deteriorating to ± 1.7 dB (200Hz-20kHz). Diffraction-corrected near-field LF measurement showed the PL500 II's bass extension to be 42Hz (-6 dB re. 200Hz). KH



ABOVE: The PL500 II's slightly uneven treble response correlates with a series of breakup modes [see below]



ABOVE: Cabinet resonances are damped well enough leaving a series of driver modes between 3kHz-10kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	89.3dB/89.2dB/88.9dB
Impedance modulus min/max (20Hz–20kHz)	4.0ohm @ 125Hz 17.0ohm @ 54Hz
Impedance phase min/max (20Hz–20kHz)	-50° @ 69Hz 38° @ 15.2kHz
Pair matching / Response error (200Hz–20kHz)	± 1.7 dB / ± 2.9 dB/ ± 3.4 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	42Hz / 36.5kHz/36.7kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.2% / 0.1% / 0.2%
Dimensions (HWD)	1848x504x626mm

into focus. The Yes tracks sounded much cleaner, and powered along more convincingly, and my notes on the Dire Straits track simply say 'a soundstage – at last!'.
With Kate and Anna McGarrigle's 'Be My Baby', from *Dancer With Bruised Knees* [96kHz/24-bit version from the *Tell My Sister* box-set; Nonesuch 7559-79770-8], the Monitor Audios delivered a sweet, clear and weighty sound, projecting the vocals extremely well and giving the accompanying organ a gloriously lush warmth. Above all, what grabbed the attention was – finally! – a real feeling of a performance spread before the listener, with the speakers showing their true class.

SWEPT ALONG BY BACH

Having had initial doubts regarding the way the Monitor Audio PL500 II's sounded, I was now warming to their balance, although I couldn't help feeling that Rachel Podger's violin on her recording of Bach's solo and double concertos [Harmonia Mundi France HMU 907155] felt just a little bit 'electric' and lacking in natural harmonic richness.

However, my doubts were allayed when playing 'Erbarme dich, Mein gott' from the Dunedin Consort's Bach *St Matthew Passion* [Linn CKD 313], the violin obbligato coiling sinuously around Clare Wilkinson's voice, and both delivered with no shortage of character. Yes, I've heard this track sounding even more open and natural with other speakers in the same price range, but the big, bold Monitor Audio PL500 IIs made it impossible not to be swept along by the music. ☺

HI-FI NEWS VERDICT

While not redefining standards at their price level, the PL500 IIs are still an excellent addition to the big, impressive 'statement' speaker arena. What they lack in ultimate clarity they gain in sheer presence – sonic as well as visual – and in the right (i.e. very large) room they can undoubtedly deliver no shortage of impact and involvement, even if they sometimes let their enthusiasm run away with them!

Sound Quality: 84%



ABOVE: The four bass drivers are loaded via rifled reflex ports while all the drivers are held in place by single, bolt-through fixings that run the depth of the cabinet

Technics 'Grand Class' SL-1200GAE Limited Edition

After a six-year hiatus, the world's most iconic turntable is back. More expensive, better engineered and superior sounding, it's not just superstar DJs who will want it.
 Review: **Nick Tate** Lab: **Paul Miller**

Few comebacks surpass the return of the Technics SL-1200 turntable – possibly Elvis Presley's move to Vegas, or Frank Sinatra's Hollywood years – so this is big. The Japanese electronics giant has reimagined what is surely its most iconic and best-selling consumer electronics product ever, re-engineering every facet of its design before releasing it to a very expectant audiophile world. Two versions are available: the £2799 'Grand Class' SL-1200GAE reviewed here, of which just 1200 pieces are being made, and the more affordable SL-1200G (price as yet unconfirmed).

THE ICONIC 'DJ DECK'

For decades, the SL-1200 series was derided by audiophiles the world over for being 'a DJ deck' – as if people who played records for a living were somehow unable to tell what constituted a great turntable. Yet for some strange reason it went on to sell in vast quantities. By the time the matt black SL-1210MK5 was discontinued in 2010, this deck was the longest-lived LP-spinner on the planet, and the best-selling by a country mile.

More than this, it achieved iconic status for a generation of dance music fans, for whom it was an integral part of their nightclub experience. Rather as 'the Tannoy' became shorthand for loudspeakers half a century ago, 'the Technics' came to embody the turntable genre for many in the younger generation – it's the only one they have ever seen.

The decision to cease production of the SL-1210MK5 was due to a drop in demand caused by the recession, says Tetsuya Itani, Technics' Chief Technical Officer. Now though, the new SL-1200G/

GAE has surfaced, designed mainly for hi-fi enthusiasts, but the company isn't forgetting DJs either.

Technics is keeping mum about the cost of the project, but it was surely considerable. 'Investment for the development, diecast moulds and tooling was not insignificant,' says Itani, 'mainly because most of the original SL-1200 mouldings and tools were no longer available or badly damaged. This meant we had to re-design parts from scratch.'

Many will think it ironic that the SL-1200 has a new direct-drive motor, given how good the previous unit was. Strong, stable, quiet and accurate, it turned in excellent specifications, but Itani says it was still guilty of cogging: the uneven delivery of torque to the platter due to the interaction between the permanent magnets of the

rotor and the iron stator core inside the motor. This causes tiny vibrations that affect sound quality and, in the case of the poorest direct drives, is clearly audible.

Itani claims to have eliminated it thanks to a newly developed twin-rotor, coreless motor which is governed by optical rotary positioning sensors: effectively a more precise version of the old magnetic, frequency generator quartz-locked servo [see interview boxout, p45]. Motor torque is up from 1.5kg/cm delivered by the SL-1210MK5 to 3.3kg/cm here, and because the speed control is now achieved in software there's a USB port for future firmware upgrades.

The new platter is a mass-loaded version of the older design with a brass disc added to the previous aluminium die-casting. The underside is damped with rubber, and the



RIGHT: The heavyweight platter comprises a sandwich of brass and cast alloy that's damped by a thick rubberised internal layer. The platter is fixed via three bolts to the motor



whole assembly is individually dynamically balanced during final production. The old rubber mat is retained, and this makes for a total mass of 3.6kg, around twice that of its predecessor and more than the old broadcast SP-10MK2.

Interestingly, three screws now lock the platter in place onto the motor drive assembly, whereas previously gravity did the job. Acoustically, this platter is noticeably less lively than before – Technics' engineers evidently identifying this as one of the major weak points of the original.

One of the many assumptions that sniffy hi-fi types have traditionally offered is that the SL-1200 was 'plasticky'. On the contrary, like all Technics' higher-end decks throughout the '70s, its chassis was an aluminium diecast loaded with an expanse of Bulk Moulding Compound (BMC) and a

rubber base to absorb vibration, the result being very solid indeed.

REDESIGNED TONEARM

The new and somewhat more substantial GAE version builds on this bedrock and gets a hairline finished, 10mm-thick top panel of brushed aluminium. It gives the deck a classier look and an even sturdier

feel. Aside from the small metal motor cover underneath the platter, the whole deck is impressively devoid of any resonance.

The weakest link in the original SL-1200 was its tonearm, but this has

been extensively redesigned here. 'Only the arm holder is the same as the MK5', says Itani. This SL-1200GAE has a magnesium-tubed version (the stock SL-1200G uses aluminium) that has been cold-drawn to improve its mechanical characteristics

'Speed and slam
are breathtaking,
with bass guitar
full of power'

ABOVE: The chassis is a substantial alloy die casting that's reinforced with a Bulk Moulding Compound (BMC) and heavyweight rubber. It's both beautifully finished and feature-rich

[see PM's Lab Report, p47]. The traditional gimbal construction is retained, now fitted with high-precision bearings, with its horizontal and vertical axes intersecting at a single central point.

The result is a tonearm that is superb to hand-cue, with a far silkier feel than the previous incarnation. Furthermore, the detachable aluminium headshell employs a standard fixing, so alternative versions can be tried by way of experiment, just as the non-captive RCA cable also begs to be upgraded. The cueing lever is still plastic though – albeit painted silver! – when an aluminium grip would surely have raised the tone of this LE model.

To any seasoned Technics user, the SL-1200GAE is a thing of beauty. It retains the pitch slider (nowadays offering a choice of $\pm 8\%$ and $\pm 16\%$), and of course the same dimensions as before – although I wonder how many will be hauled around from gig to gig given that it now weighs 18kg. The new feet are said to offer an improved level of vibration damping, thanks to a special zinc insulator and silicon rubber selected for long term stability. Overall it's a delightful deck to use, and so versatile with its detachable headshell, variable speed control and choice of 33.3, 45 and 78rpm.

AN AUTHORITATIVE VOICE

Those who have never heard a Technics SL-1200 before might be surprised by its confidence and authority, and this new incarnation only adds to the legend. At the same time, it successfully addresses one of the main bugbears of the older version, which was its slightly bright upper midband and treble. This could be tamed by the

A CLASSIC REDEFINED

When Technics introduced the SL-1200 in October 1972, it proved to be an advanced direct-drive design at an affordable price (£135). Also available without a tonearm as the SL-120 motor unit, it was significantly quieter than rival rim- and belt-drives of the day, with Technics quoting a mere -78dB rumble and very low 0.025% wow and flutter. The SL-1200MK2 arrived in 1979, sporting a quartz-locked servo, and the original's fine speed control was changed from two knobs to a slider giving linear control of the deck's variable pitch. So began the deck's transition from a hi-fi device to a DJ deck. Equating to one semi-tone, the $\pm 6\%$ slider was designed for musicians, but disc jockeys loved it for mixing.

In 1989 the SL-1200MK3 got gold RCA phonos, then the partially gold-plated SL-1200LTD added bling in 1995. The MK4 gained phono sockets rather than a captive armlead, and 78rpm, while 2002's (SL-1210) MK5 got a tweaked tonearm and a white LED target light. An improved tonearm mounting, plinth damping and LC-OFC arm wiring made 2007's MK6, then the deck ceased production in 2010. Now though, it's back in SL-1200G form, and there may be a new motor unit too. Tetsuya Itani says, 'we are considering a wide range of possibilities but there are no fixed plans for future models yet...'

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Alan Sircom – Editor HiFi Plus



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John Bamford - HiFi News

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TURNTABLE



judicious use of aftermarket platter mats and headshells, but here we have a fully rounded, highly polished sounding version of the Technics with its old faults largely ironed out. The result is a thrilling listen, and one that compares extremely well with any rival belt-drive designs at, or considerably above, its price.

STELLAR NEW MOTOR UNIT

And I say 'largely ironed out' because, while the new SL-1200 tonearm tracked a Goldring G1042 MM cartridge with consummate ease, and also proved happy with a lower compliance Audio-Technica AT-OC9 MC [*HFN* Jan '11], with both there was, perhaps, a slight lightening of the tonal palette. But despite this subtle loss of body to instruments and voices through the midband, this arm is clearly superior to the original.

A medium mass design, it comes with a range of additional counterweights, should you wish to track real dreadnought pick-ups. Doubtless, some will soon be swapping the armlead and headshell for more expensive aftermarket items, and this should improve the deck still further.

The new motor unit is obviously capable of stellar sound quality. Indeed, you might say the GAE is like the posh uncle of the impudent juvenile that was the SL-1210MK5. The older version was feisty but rough around the edges, while this is way

ABOVE: This 'naked' view of the SL-1200GAE shows the platter-mounting lugs and adjustment points for start-up torque and braking speed. Note the USB 'update' port

more sophisticated across the board. Cue up The Kinks' 'David Watts' [*Something Else By The Kinks*; Reprise Records RS 6279] and you can still certainly hear a strong family resemblance – it's indelibly stamped as an SL-1200. What really hits you the hardest is the bass; there's simply nothing like it available from any belt-drive deck I've heard.

Speed and slam are breathtaking, with bass guitar notes starting and stopping like a flashing LED – and with such power! This confers the deck with

tremendous pace and sense of motive force. The midband, too, snaps into focus as you hear all the different elements of the mix play together without being subsumed by one another. Whereas its predecessor was a little brash up top, the new Technics turntable sounds altogether smoother, deeper and more subtle.

Indeed, this can be said of the deck as a whole. There's an unexpected sense of translucency that surely comes from the pitch-perfect drive system. For example, Isaac Hayes' 'Life's Mood' [*Branded*; Virgin VPBLP 24] is a well-recorded piece of modern soul with a long, brooding introduction which bursts into life with some beautifully syncopated piano ➔

'The music is magic, immersive and emotionally captivating'

TETSUYA ITANI

Technics' Chief Technical Officer laments the end of turntable production, six years ago. 'Demand was down due to the recession,' he explains, 'but since then we have received many requests from DJs to begin production again. When we announced the rebirth of Technics at IFA 2014, these requests became impossible to ignore. We were also aware that the vinyl market was growing, so thought it the perfect time to bring back the SL-1200.'

One of the most surprising decisions he took was to develop a new motor, when the old one was already the deck's strongest point. 'Direct drive has many advantages over belt-drive or rim-drive technology,' contends Itani, 'but after extensive research we learned there exists a minor issue with sound quality due to "cogging". This causes tiny vibrations during rotation that may effect the sound. Although the old SL-1200 delivered a good performance, we wanted to develop a completely new system that achieved the best ever direct-drive performance.'

The new SL-1200G motor is a coreless design. 'But removing the core means losing torque, so we adopted a twin-rotor construction. To improve the precision of the servo system, we integrated a hybrid encoder at the bottom of the motor housing. A microcontroller detects the rotor position with the precision of 0.7° (540 points in 360°), and generates the appropriate drive current for stator coils. That gives us smoother rotation control, resulting in superior sound quality.'



1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
1976	1977	1978					1983	1984	1985
1986	1987	1988					1993	1994	1995
1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015

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TURNTABLE



ABOVE: High-quality RCA output sockets and a ground pin are fitted under the rear of the chassis. These may be a little fiddly to access, as is the AC mains inlet also tucked away under the body of the turntable. The partially suspended feet are not adjustable

playing. The track can sound ponderous and lacking in direction via many turntables yet the new SL-1200GAE served it up with tremendous confidence, diving into the song's rhythm and relishing the dynamic contrasts of the music. The deck takes you right there and makes the music magic, immersive and emotionally captivating.

NEVER FAZED

Interestingly, older SL-1200s don't do vocal timbre especially well, and while the new 'GAE is better it is not entirely beyond reproach. You will get a richer, more fulsome feel to Hayes' deep, vibrant voice via a Michell Orbe, for example, but still the 'GAE does just enough. It casts a bright white light on the proceedings, and throws vast amounts of detail out at you.

However, it isn't quite as expansive left-to-right as some price rivals. It is certainly better than its predecessors, and it can also hang the stereo image a little further. Yet it does struggle to match the class of the British belt-drive field in terms of sheer physical scale – the aforementioned Orbe for example, even running a budget tonearm, can sound a good deal wider.

The SL-1200GAE proves enjoyable with any type of music. For example,



ABOVE: Additional counterweights connect to the rear of the S-shaped arm, extending its range with heavier pick-up cartridges. Bias is 'dialed-up' via a knob

cue up the first movement of Beethoven's Symphony No 5, with Karajan and the Philharmonia Orchestra [Angel Records, Japan AA-8212] and you're instantly struck by the inky black silence on the lead-in groove, and then the way that the sound of the hall slowly tapers back to nothingness.

As the opening bars of the music play, the sheer precision with which the instruments are located within the orchestra is uncanny – there's an almost architectural solidity. Then as the cellos come in, you're wowed by the power and articulation of the bass, while the midband and treble offer an optically perfect lens on the recording venue.

Best of all though is the sheer togetherness of the Technics turntable's musical presentation – it remains utterly unfazed as the music draws to a climax, letting the listener home in on each individual section of the orchestra with ease.

This Technics turntable's composure is exceptional, and it hangs on right through heavily modulated sections of the disc where lesser, and potentially far costlier, decks become distinctly unsteady on their feet. ⚡

HI-FI NEWS VERDICT

Brilliantly re-engineered, the new SL-1200GAE is a pleasure to both use and to hear. It's still distinctively 'Technics' in its delivery – with a wonderfully emotive sound that's fizzing with energy – yet there is also real subtlety and finesse now, unlike its predecessors. That magnificent direct-drive motor imbues the turntable with a commanding, imperious feel that so many price rivals lack. It's a legend reborn.

Sound Quality: 86%

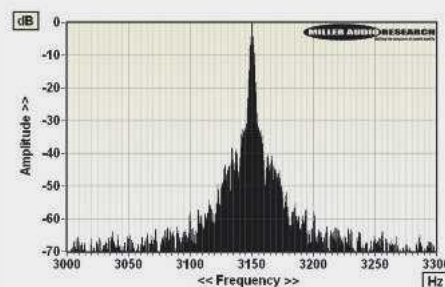


LAB REPORT

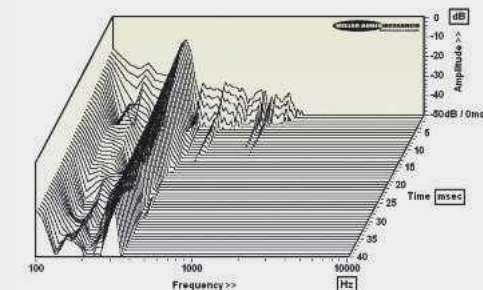
TECHNICS SL-1200GAE LIMITED ED.

I'll not beat about the bush – this Limited Edition version of Technics' SL-1200GAE turntable is arguably the most technically impressive deck ever to have graced my lab bench. Its performance in respect of rumble – a vanishing –74.3dB (DIN-B wtd) through groove – is competitive with the costliest SME and Air Force turntables we've reviewed [*HFN* Mar '09, Mar '11, Oct '15 & Jul '13, May '15, respectively] while its mere single-second start-up and stop time(s) are obviously superior. Not only that but, with the pitch adjust defeated, the SL-1200GAE's absolute speed accuracy is an astonishingly precise +0.006% and its low-rate wow is just 0.01% [see Graph 1, below]. It just goes to show what can be achieved once the engineering clout and resources of a multinational like Panasonic get behind a notionally 'old school' project!

Furthermore, the partnering S-shaped tonearm proves to be a remarkably neutral structure despite its detachable headshell and various other potential points of resonance – the arm lift and rest and spring-tension bias adjust – surrounding the single-axis gimbal bearing. And yet the cold-drawn magnesium tube delivers one very clear resonant mode at a remarkably high 300Hz with all subsequent resonances damped very quickly indeed [see Graph 2, below]. S-shaped tubes typically have far more complex resonant spectra than that demonstrated here, so it's possible there are one or more fundamental modes at 130Hz/170Hz but of sufficiently low Q they are submerged in the 'noise'. The custom gimbal bearing proved both free of play and measureable friction (<5mg, both planes) while the downforce calibration was accurate to within <±5%. This turntable/arm combination is, in short, a technical triumph. PM



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ±150Hz, 5Hz per minor division)



ABOVE: Cumulative tonearm resonant decay spectrum, illustrating various bearing, pillar and 'tube' vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.33rpm (+0.006%)
Time to audible stabilisation	<1sec
Peak Wow/Flutter	0.01% / 0.02%
Rumble (silent groove, DIN B wtd)	-74.3dB
Rumble (through bearing, DIN B wtd)	-73.3dB
Hum & Noise (unwtd, rel. to 5cm/sec)	-62.6dB
Power Consumption	5-11W
Dimensions (WHD) / Weight	453x170x372mm / 18kg

Métronome CD8 Signature

CD players with accessible DACs have evolved into the high-end's bridge between discs and streaming – does Métronome's CD8 Signature offer the best of both worlds?

Review: **Ken Kessler** Lab: **Paul Miller**

Which CD player was the first to offer digital inputs and therefore the ability to double as a DAC, I cannot recall.

Indeed, try naming recent CD players that *don't* have digital inputs. I do know, however, that my trusty Marantz CD12/DAC12 is over 25 years old, so it's nothing new, but it is a two-box solution. And yet, back then, there was precious little to feed into it. Not so for Métronome's CD8 Signature, which is as much a high-end DAC as it is a CD player.

With a price of £7500 (£8500 will buy the forthcoming version with a tube output stage), this latest model in the middle of the Métronome catalogue comes in above Le Player [*HFN* Jul '15], the CD8 range being the top of the company's all-in-one players. Above this are stand-alone transports and DACs, and the company remains committed to top-loading mechanisms throughout, save for its Music Centre One server.

CUSTOMISED TRANSPORT

In evolving to this level, Métronome has opted for DSD over USB, an S/PDIF input and change of DAC chip from Crystal to AKM, now a 384kHz/32-bit part instead of 192kHz/24-bit.

I won't waste space here on my hatred of top-loaders, which has always been based on practical grounds. But that's old news. Suffice it to say that Métronome's preference for top-loading is based on the sound – as in 'sensible' – reason that the transport stays fixed in one place, and the precise location of the disc is a given.

You slide open the lid, place the CD over the hub on the venerable and much-loved, metal-chassis'd Philips CDM12 Pro 2 v.6.8 transport, which has been 'significantly customised' with Métronome's proprietary improvements. You then secure the disc

with a Delrin magnetic puck. Simple: less to break, reminds you of playing LPs, yadayadayada. I'm so over it.

Métronome designed the puck as well as the proprietary shaft, in the interests of more precise and secure disc placement and control. Another element of the design is that the topology creates a continuous earth link from the CD's surface to the electrical earth, 'for excellent dissipation of static electricity for better working conditions of the electronics and the optical components'. I put that in quotes, because it's in Métronome's words and you can take your own view.

In pukka audiophile manner, the power supply comprises three individual encapsulated transformers, with seven stages of independent regulation for each

critical part of the transport, as well as the motor, servo mechanism, digital output section and display. At the back are single S/PDIF (on RCA) and USB-B inputs, the latter for direct connection to computer or server, while analogue outputs include single-ended and balanced on XLRs. Two small toggles on the front panel operate power on/off and choose between CD and external sources.

Housing the CD8 Signature should be approached exactly as if you were locating a record deck because you'll need enough space above it to allow access to the CD aperture. It comes fitted with three pointy feet and set-up is a no-brainer.

To operate the CD8 Signature, Métronome supplies a comprehensive remote that's long enough to use as a

RIGHT: Top-loading Philips CDM12Pro 2 mechanism features Métronome's own modifications. A 32-bit AKM4490 DAC supports DSD and LPCM replay while pairs of OPA604 op-amps drive the balanced analogue output





back-scratcher, while the buttons in front of the CD aperture are so small that they'll test your eyesight. As this is a French brand, they just couldn't stick with conventional icons, so the legends over the controls are stylised, as in the manner of 1960s/1970s SF movie graphics. The display could have been a prop in Vadim's *Barbarella*.

WARM 'N' CUDDLY

I used the Métronome through Devialet and Constellation electronics via B&W 802 D3s [*HFN* Dec '15] for the main listening session in editor PM's media room, as well as a day hearing it through Constellations and Wilson Audio Sabrinas elsewhere. The testing included both my own CDs and music off PM's choice of Melco N1A server [*HFN* Aug '15] with a comparison made directly into the Devialet Le800's USB input.

As this is a review of the Métronome as a standalone device – I doubt anyone would buy it as just a transport – I will spare you the torture and the anticipation.

There was an immediate gain in clarity through the Devialet via USB that, ironically, sounded like I had gone from valves to solid-state. What that means for the Métronome with tube output I can only imagine: warmer still? Note, too, that 96kHz files are handled natively via USB, while 192kHz files are downsampled [see PM's Lab Report, p51].

Editor PM has welcomed the Melco music player the way typists welcomed word processing, the ability to store

vast tracts of visiting contributors' favourite music selections making everyone's life much easier. But I will admit that I have never been seduced by storing music on some device for easy access.

I like handling discs, whether they're black or silver, and was more interested in the Métronome as a CD player. But I dutifully listened via the Melco server, and was not a little impressed.

There is one bit of shorthand I can employ to describe how the Melco USB

'The finger-picked acoustic guitar shimmered – I was transfixed'

ABOVE: The display is distinctly retro, as are the stylised legends for the little pin-head control buttons. Toggles beneath the display select on/off and CD, USB and S/PDIF inputs

feed sounded: it was like the gain from a cheapo cable to something of peerless pedigree – and you know what it takes for me to say something like that! It was as if an entire layer of audio muck had been removed. The Métronome's primarily 'warm 'n' cuddly' posture remained intact, but it was a stance that made me think of a valve amplifier maker apologising for the very warmth that makes tubes the choice of a certain type of listener. It was all about 'humanising' the inhuman.

SPACE AND SCALE

Take, for instance, the 96kHz/24-bit track, Livingston Taylor's 'Isn't She Lovely' from Chesky. I have heard that so many times, on a couple of formats, that it is as instantly familiar to me as any Beatles track. Via the Melco/Métronome combo, it possessed all of the vocal richness that has endeared it to a generation of audiophiles, with not a trace of artifice. Even more impressive was the openness, the sense of space and scale that my gut instinct tells me is usually flattened by digital sources. I know that's irrational, but, hey, I'm a product of conditioning, too.

This led to a regimen of tracks that were 1) as recognisable as any of the songs I've bored you with for a few decades, and 2) have a natural acoustic. Muddy Waters' 'Good Morning, Little School Girl', taken from *Folk Singer*, is a deserved audiophile favourite. Just over 50 years old, it has the kind of sound that means it will be issued perennially as long as there are audiophiles on the planet.

The detail accessible through the Métronome was remarkable, its merit evinced most powerfully through the texture of the vocals. Any blues fan will ➔

HI-FI WITH FLAIR

Métronome is one of those Gallic curiosities: a high-end manufacturer from a country with one of Europe's toughest internal markets. And yet it claims a number of native producers. From Focal speakers to Jadis valve amps, its brands range from tiny specialists to multinationals, with no shortage of extreme high-end products. Methinks the export market is what saves these producers, for the French, if I may generalise, are more likely to be cinephiles than audiophiles. As past Paris shows prove, native valve amp makers are plentiful, and it was Paris that hosted the best-ever, all-valve hi-fi show some decades ago: *Permanence du Tube*, if I remember correctly. Métronome sits at the pinnacle of France's CD producers, with rivals for digital supremacy including Devialet and Soledge. Analogue retains its adherents, with speaker maker Elipson joining the turntable market last year, while Pierre Riffaud's decks – especially his *Héritage* – are as radical as any. All hi-fi-producing countries have a 'vibe': the UK for 'BBC sound', Germany for overkill engineering. And France? Whatever the French make exhibits something only a French term can describe: *panache*.



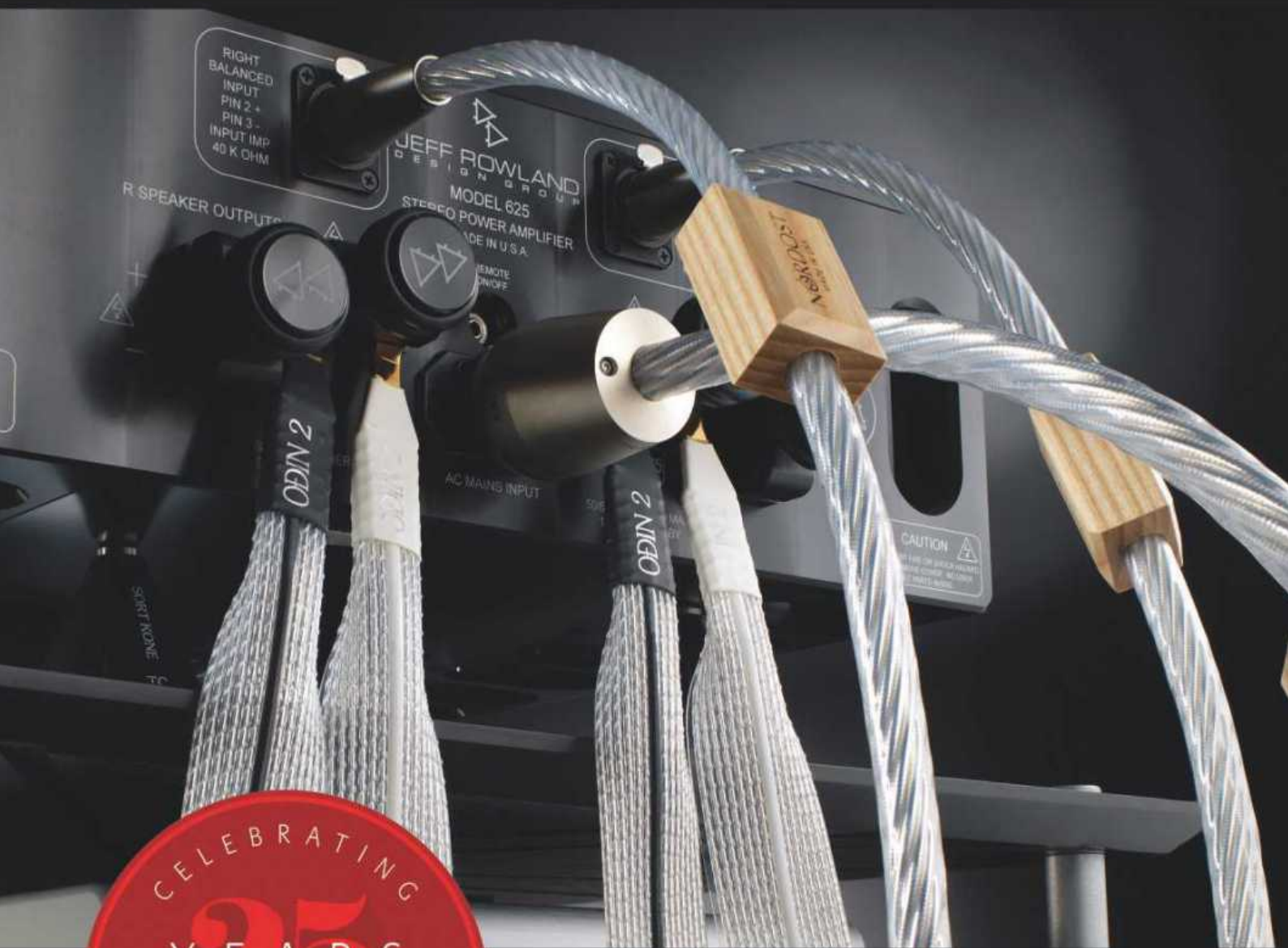
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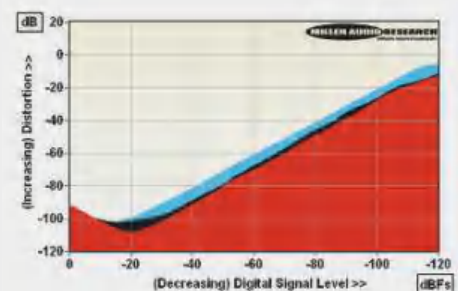
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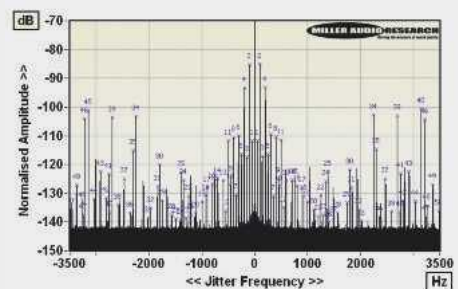
MÉTRONOME CD8 SIGNATURE

'Plus ça change, plus c'est la même chose.' So while Métronome's CD8 Signature player features a new choice of 32-bit DAC – the AKM4490 – and while both balanced and RCA outputs are specified at 2.5V, in practice the XLR outs still deliver 4.9V at 0dBfs from a relatively high 576ohm source impedance. This time around the outputs are *not* phase-inverting but all high-rate inputs are still downsampled to 96kHz, yielding frequency responses of $-0.1\text{dB}/20\text{kHz}$ (CD and 48kHz USB inputs) and $-0.65\text{dB}/45\text{kHz}$ (96kHz to 192kHz USB and S/PDIF inputs). All this we've seen before from previous Métronome players and DACs [*HFN* Dec '13, Jul '15 and Sep '15] although jitter in this instance is 5-10x higher at $>3000\text{psec}$ via CD, USB and S/PDIF inputs, the result of what appear to be $\pm 100\text{Hz}$ and $\pm 200\text{Hz}$ PSU rectification components [see Graph 2, below].

While PSU-related jitter may add a certain sonic 'warmth', the associated spurious are typically less endearing and increase more markedly via 48kHz, 96kHz and 192kHz inputs than with 44.1kHz (CD), 88.2kHz and 176.4kHz media. The difference in A-wtd S/N ratio is staggering – 101dB vs. 113dB respectively and sufficient to explain the CD8 Sig's improved subjective performance via CD than with some hi-res audio files. This aside, the CD8 Signature offers the lowest *distortion* yet from a Métronome player – lower than 0.0008% through mid and high frequencies at -30dBfs [see Graph 1]. Readers may download full QC Suite reports for the Métronome CD8 Signature's CD, S/PDIF and USB performance by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion versus digital signal level over a 120dB range (1kHz via S/PDIF, red; 1kHz via USB, black; and 20kHz via USB, blue)



ABOVE: High resolution jitter plot with 48kHz/24-bit data via USB (sideband pairs marked in blue)

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	4.86Vrms at 576ohm
A-wtd S/N Ratio (CD / S/PDIF / USB input)	113.5dB / 113.1dB / 113.1dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0025% / 0.0005%
Distortion & Noise (20kHz, 0dBfs/-30dBfs)	0.0006% / 0.00075%
Freq. resp. (20Hz-20kHz / to 45kHz via USB)	+0.0dB to -0.11dB / -0.65dB
Digital jitter (CD / S/PDIF / USB input)	3680 / 3100 / 3280psec
Resolution @ -100dB (CD / USB input)	$\pm 0.3\text{dB}$ / $\pm 0.3\text{dB}$
Power consumption	15W
Dimensions (WHD) / Weight	450x115x435mm / 15kg



ABOVE: The USB-B and S/PDIF inputs address the same DAC stage as the CD8 Sig's CD section. Analogue outputs include both single-ended (RCA) and balanced (XLR)

know Muddy's growl. It was visceral, intimate, sinister. Here the blues classic is played with the most 'unplugged', minimalist arrangement you can imagine.

The air around the soft percussion, the twang of the guitar strings, the natural-sounding bass: I'm not saying it's as authentic as the vinyl, but I could have listened to it repeatedly, just to hear the voice-only pause 40 seconds from the end. The air around this voice vibrated with the most convincing sense of spatial reconstruction that I have heard from that song in a non-analogue milieu.

DELICIOUS AUTHENTICITY

Trouble is that track *always* sounds amazing because it is a perfectly-recorded, minimalist, acoustic performance. So, too, from a year later, The Beatles' 'And I Love Her' also enjoys a similar leanness, except for vocal multi-tracking. Ringo's woodblock occupied its own, ghostly space in the middle, the finger-picked acoustic guitar shimmered. I was transfixed.

Clearly there was more to this server lark than I cared to admit, the Métronome's DAC (while not as precise as the Devialet) keeping 'digititis' at bay. Peter, Paul & Mary's 'All My Trials' confirmed it, for the toughest, most natural-sounding recordings are not compromised by any digital artefacts at this level. The choice, however, of Melco USB server versus CD proved to be even more rewarding.

As convinced as I am that CD will – like vinyl and, more recently, cassettes – enjoy a cult following, I have softened toward the format of late, not least because I adore SACD. But the CD8 Signature is 'Red Book' only, directing my choice of Lou Rawls' *At Last* [Blue Note CDP 7 91937 2], The Detroit Emeralds' 'Feel The Need' from *Greatest Hits* [Westbound CDSEWD 119 CD]

and 'Rock The Boat' by The Hues Corporation via *The Very Best Of The Hues Corporation* [Camden 74321 603422 CD].

For me, there is no test like the vocal duel between Dianne Reeves and Lou Rawls on 'At Last' and 'Fine Brown Frame' – a challenge to tax the midband of any system. What the Rawls/Reeves interplay achieved through the CD8 Signature was a cohesiveness and ear-friendliness that I simply did not anticipate from CD. This was a beautiful recording to begin with, from start to finish a late-1980s nod to the values of 1950s recording techniques.

Piano, vibes, vocals – all were deliciously authentic, if (I suspect) admittedly voiced to emulate that which we love in all-analogue playback systems. There was no harshness and no truncated decays as the sound was unconstrained and free to gush forth.

As for The Detroit Emeralds and The Hues Corporation, with their punchy, vivid proto-disco bombast, and the need for added crispness – all this was accomplished without aggression. These are normal, commercial CDs, and you can find 'em for £4 or less. They sounded like a million bucks. And so moreish is the CD8 Signature, I don't even think you need await Métronome's valve output version. ☺

HI-FI NEWS VERDICT

'Elegant' was the first adjective that came to mind when I saw this player, and elegance remained its pre-eminent virtue. At no time did it sound 'digital' or harsh, regardless of the origins of the material or the means by which it reached the CD8 Signature – disc or streamer. This player exhibits precisely the kind of finesse and musicality that one now expects from any serious digital component. Bravo!

Sound Quality: 83%



Bryston 4B³

Bryston has replaced its 'Squared' series with a new 'Cubed' amplifier range. Outward changes are subtle, but the company claims big improvements under the skin

Review: **Adam Smith** Lab: **Paul Miller**

In our world of electronics and audio, there are more than a few companies that change their product ranges with predictable regularity. When the latest big – or small – thing comes along, manufacturers may be tempted to update all their models accordingly. However, firmware updates aside, there's a lot to be said for an organisation that bides its time, only releasing new products when a significant change is afoot.

THE CUBE RANGE

Canadian company Bryston most definitely falls into such a category as its new product launches rarely arrive to the accompaniment of fanfares and dancing girls, but are almost always significant. Which brings us to the new £5299 4B³ amplifier – the 'Cubed' appellation signifying a new range of amplifiers that supersedes its longstanding 'Squared' series. (This progression might leave Bryston an issue in a few years time as '4B to the power of 4' doesn't quite have the same snappy ring to it!) In this case, the 4B³ replaces the 4BSST² [*HFN* Jun '09] that, in turn, can trace its heritage to the 4BSST [*HFN* May '07], 4BST [*HFN* Jun '2000], and 4B NRB versions, then right back to the original 4B model.

The new 4B³ sits towards the middle of a six-strong range that's being rolled out in stages. The 4B³ stereo and the 7B³ mono units are the first, bearing nominal power outputs of 300W and 600W respectively. The range will then be completed by the stereo 2.5B³, 3B³ and 14B³ amplifiers, plus a massive mono 28B³, this full series boasting power outputs from 135W to a speaker-cooking 1kW.

The entire range has been under development for a number of years by a team of engineers led by CEO Christopher Russell. Their main focus was to reduce

noise and distortion in the signal path and they had been aided in their endeavour by the late Dr Ioan Alexandru Salomie, a talented engineer and physicist who passed away in 2013. In conjunction with Dr Salomie, Bryston has patented a new amplification and filter circuit that forms the heart of the input section to its revised amplifiers. More on this can be found in PM's boxout [facing page].

In addition to these important changes under the bonnet, Bryston has also freshened up the 4B³'s aesthetics with a precision-milled 12mm-thick front panel that, apart from the styling relief, merely contains an on/standby switch and two multi-colour LEDs. These show the status of each channel and indicate power-up muting (red), thermal protection mode (orange) and normal operation (green). They will also flash red in a disapproving manner should you decide to abuse those 300W and drive the amplifier into clipping!

For a unit with such a clean front panel, the rear of the chassis is, by contrast, a positive hive of activity. Naturally, output binding posts and input terminals are provided, the latter in unbalanced and balanced flavours. The former are RCA phono sockets and the latter are an ingenious combo connector that accepts either an XLR or a 6.35mm jack plug. In addition three small toggle switches select between these inputs, between the +23dB and +29dB gain options, and to allow the amplifier to be configured in either bridged or normal stereo mode.

SWITCH-ON SEQUENCES

A power status indicator is also fitted to this back panel. This takes the form of an LED that initially flashes green a number of times determined by the revision level of the soft-start circuit's software. It then changes to glow a steady red, signifying that the amplifier is on and in standby



RIGHT: Not one but two toroidal mains transformers stacked together, feeding separate left/right PSUs. Each power amp channel incorporates four pairs of high current output devices in a quad complementary configuration



mode. When activated by the front panel switch, the LED then stays red if connected to a 50Hz supply, or glows orange to indicate 60Hz. It finally settles to green when the start-up sequence ends and the amplifier is ready to rock 'n' roll.

Hinting at the company's pro-audio leanings, a small Phoenix connector allows the amplifier to be remotely activated. This is a four-pin header – two of the pins accepting an external 5-12V AC or DC supply to turn things on. The remaining two can then 'daisy chain' this along to more units if this is required.

On the subject of activation, the rear panel also sports a magnetic circuit breaker that looks like a standard on/off switch. However, this behaves rather differently, and could catch out the unwary!

To initially power up the amplifier, the mains lead must be connected and the power switched on with the breaker in the

'On' position. If this is treated like a normal on/off switch then the amplifier will refuse to respond and the aforementioned status LED will flash red.

The Cubed series is available in two variants, one for purely professional applications and one for domestic users.

The latter version is designated the C-Series and is available in black or silver and in either 17in or 19in widths (this featuring front-mounted handles). The 'Pro' model, by contrast, is only available in a 19in

width and with a black fascia. In addition, this model incorporates rear-mounted trim-pots used to attenuate each channel's input level over a range of 0 to -14dB. Like all Bryston models, the 4B³ carries the company's impressive 20-year warranty.



A SONIC POWERHOUSE

Given its professional leanings, impressive bulk and prodigious power output [see

'This amplifier
all but dares your
speakers to step
out of line'

ABOVE: The stylish, milled front panel is available in black or silver and 17in or 19in widths – the latter with handles. Two front-mounted LEDs show each channel's status

PM's Lab Report, p55], the Bryston 4B³ might be expected to be something of a sonic powerhouse. And you'd be quite right, as the 4B³ really does grip loudspeakers and control them beautifully. As a result, it has a sound that is punchy, tight, detailed and utterly captivating. It is perfectly at home when the going gets very loud and retains a remarkable level of composure, only hardening slightly at highly anti-social listening levels.

On the other hand, Bryston's mid-runner is most certainly not all 'bang and thump' with no subtlety – the new input circuitry seems to have worked wonders, endowing the amplifier with a real sense of insight and spatiality. When you turn the volume down and feed it something soft and cossetting it rises to the challenge with a quiet confidence, the musical soundstage hanging in space and making it very easy to concentrate on the action at hand.

That said, it's the amplifier's very capable bass end that will strike you first. (I was using a Naim Supernait preamp.) Indeed, the 4B³'s bass performance is nothing short of spectacular – it digs incredibly deep but without ever giving a hint of losing its composure. As a famous tyre manufacturer once opined, 'power is nothing without control', and the Bryston doesn't so much 'drive' loudspeakers as grip them by the scruff of their necks and dare them to step out of line!

So I'm delighted to report that this weight and impact does not come at the expense of detail. The deep low end is accompanied by superlative levels of insight, with pleasing warmth across the upper bass when required. As a result, ➔

THE THIRD DIMENSION

Bryston's promotional material for its updated 'Cubed' series of power amps has been eagerly regurgitated by the subjective press, however our independent lab results [see p55] indicate that both the substantive power output and vanishingly low distortion of the 4B SST² are virtually unchanged in the 4B³. In practice, while its power amp circuit is retained, Bryston's attention has been focused on the *input* circuit which now employs a compound voltage amplification stage offering high gain, wide bandwidth and very low distortion, but governed by a 'novel compensation [feedback] scheme that provides complete stability in such a complex and high-gain circuit'.

With the balanced (differential) input now also cascaded, and careful attention paid to RF filtering throughout, the 4B³ boasts far higher common-mode and power supply rejection ratios. We get a clue to this in the changed ultrasonic response of the 4B³ and, critically, in the 'darker' backgrounds and more open soundstaging it offers – two key performance indicators associated with reduced noise modulation caused by RF intermodulation [see *HFN* Jun '89]. PM

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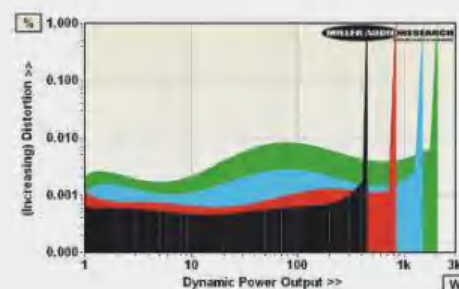
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LAB REPORT

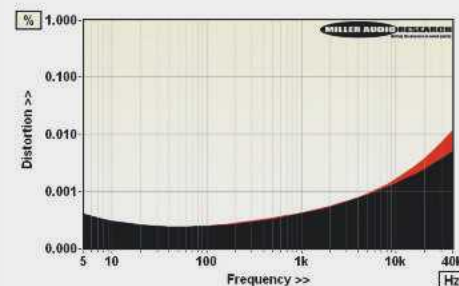
BRYSTON 4B³

Rated at 300W/8ohm and 500W/4ohm, in practice Bryston's new 4B 'Cubed' delivers a massive 2x360W/8ohm and 2x575W/4ohm with a healthy dynamic capability of 450W, 850W and 1.52kW into 8, 4 and 2ohm and a very substantial 2.09kW into 1ohm loads, respectively [see Graph 1, below]. This is almost identical to that offered by the older 4B SST² model [HFN Jun '09] as is distortion which remains astonishingly low at <0.0005% through bass and midrange up to 100W/8ohm and <0.0009% at its rated 300W/8ohm. Versus frequency, the 4B³'s distortion is also well within its specification at <0.0025% from 20Hz-20kHz up to 100W and only fractionally higher via the +29dB gain setting [red trace, Graph 2 below].

Similarly, the respective +23dB and +29dB gain settings (the latter offering double the gain of the former) are precisely calibrated via the balanced inputs of the 4B³, the +23dB setting offering the wider 94.3dB A-wtd S/N ratio. The improved PSRR and reduced noise of the newer model is realised in a 1dB improvement in A-wtd S/N of 88.3dB vs. 87.2dB (+29dB gain setting). As before, the 4B³ has a 0.01-0.065ohm output impedance from 20Hz-20kHz and a response that's maintained to +0.0/-0.15dB into 8ohm and -0.2dB into 4ohm over the same range. However, because the new input voltage circuit has improved RF filtering, there's fractionally more ultrasonic attenuation in the 4B³ which rolls off to -3.1dB/100kHz (vs. -0.75dB/100kHz in the 4B SST²). Both versions of the amp show a similar loss in extreme HF into very low impedance loads. Readers are invited to view a full QC Suite test report for Bryston's 4B³ amplifier, when available, by navigating to www.hifinews.com and clicking on the red 'download' button. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) loads. Maximum current is 45.7A



ABOVE: Distortion vs. extended frequency from 5Hz-40kHz at 10W/8ohm (23dB gain, black; 29dB, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	360W / 575W
Dynamic power (<1% THD, 8/4/2/1ohm)	450W / 847W / 1518W / 2088W
Output impedance (20Hz-20kHz)	0.011-0.065ohm
Frequency response (20Hz-100kHz)	+0.0dB to -3.1dB
Input sensitivity (for 0dBW/300W)	199mV / 3500mV (balanced)
A-wtd S/N ratio (re. 0dBW/300W)	94.3dB / 119.1dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.00025-0.0026%
Power consumption (Idle/Rated o/p)	102W / 1.01kW (1W standby)
Dimensions (WHD) / Weight	432x160x411mm / 28.6kg



ABOVE: Single-ended (RCA) and balanced ins (combined XLR and 0.25in jack sockets) are joined by 1V and 2V input sensitivity options, a bridged output option, remote or local input switching and a single set of unswitched 4mm speaker binding posts

when you find your chest thumping, you know exactly what instrument is doing it, how it is being played and exactly where it is in the soundstage.

The drum line underpinning *Orchestral Manoeuvres In The Dark's* 12in version of 'Forever Live And Die' [Virgin VS888-12] was a case in point here, as each note not only thundered from my PMC Twenty.24 loudspeakers with snap and precision, but also with plenty of realism. This was not just some random disconnected low frequency thump, but a real drum kit delivering real strikes – each impact was absolutely pin-sharp.

STARTLING IMMEDIACY

Fortunately, the amplifier's mid and treble are equally well judged, with the 4B³'s prodigious low end acting as a rock-solid foundation. Powerful amplifiers can often sound hard and forward in the midrange but the 4B³ possesses a delicacy, and even a softness, when required, that is both surprising and highly enjoyable. As a result, the bass guitar and drum lines featured on Runrig's *The Story* album [Ridge Records RR079] were as weighty as I could have wished for, as the Bryston pulled so much more out of the music.

When singer Bruce Guthro and his bandmates reined-in their ebullience for the heartfelt track 'Rise And Fall' I felt the hairs on the back of my neck stand up. The 4B³ proved superb at capturing every inflection of his voice and the result was totally immersive. OK, so perhaps the central image was not quite as solidly-focused as I've heard but, overall, the amplifier's ability to cast a broad soundstage was as impressive as its effortless scale.

At the top end the 4B³ was just as even-handed, offering a pleasing crispness but with a surprising level of sophistication. Instruments and

vocals alike are typically imbued with a very real sense of texture, meaning it's as easy to concentrate on the way in which sounds are being formed, as well as the sounds themselves. So the intake of breath from a closely-miked jazz singer was as vivid as the shriek from a guitar-wielding rocker, while its superlative dynamic range meant hi-res music would effortlessly segue from a soft whisper to a resounding climax.

Cymbals sound appropriately vivid and metallic, but when one is struck with fierce intent the Bryston can respond in a way that's often startling in its immediacy. Sharp dynamic events like this really had the power to make me jump and more so than I am normally used to, I'll confess.

Ultimately, I really couldn't find anything that would trip up the Bryston 4B³: no matter what I fed it, the amplifier responded with effortlessness and poise. It has a refinement and innate musicality that suggests it can turn its hand to anything, albeit in a manner backed up by an underlying sense of mischief, and a feeling of power that is little short of addictive. ☺

HI-FI NEWS VERDICT

A powerful amplifier with professional leanings can often be something of a 'one-trick pony'. The new Bryston 4B³, however, is supremely talented in all areas. Yes, it will blow you off your sofa if you really want it to, but it is so much more than that, thanks to the 'Cubed' upgrades. These dig right to the heart of the music and result in one of the best all-round power amplifiers I have encountered at the price.

Sound Quality: 82%



Melco N1-ZH60

Japanese IT giant Melco has the desire and scale to deliver truly bespoke audiophile storage and server solutions. Will its latest, middle-of-range model hit the sweet spot?
 Review & Lab: **Paul Miller**

So you've bought one of the many world-class USB DACs/network streaming players featured in *Hi-Fi News* and have it connected via USB to your desktop or laptop computer, or even networked via your home hub. *Really?* Our own experience suggests that while 'data is data' there are sufficient causes of interference and jitter from circulating noise, including RF earth currents, and invasive traffic from ISP-supplied network routers, to prompt very measurable differences in performance once this data is finally crunched through an outboard DAC [see Lab Report, p59].

The enthusiast's quest for a dedicated digital front-end, able to serve-up those high-res downloads or CD rips in splendid isolation via USB or Ethernet, takes many forms. You might feel capable of building a dedicated PC, albeit with an off-the-shelf motherboard, drives, PSU and OS or perhaps opt for a high-end NAS drive on a discretely-wired network. Or you can have a giant computer company do it for you, directed by its audiophile CEO to throw all its resources behind a bespoke server motherboard running entirely audio-orientated software processes.

NUT AND SLEDGEHAMMER

That, in a nutshell, is what Melco is offering with its £3750 N1-ZH60 digital music source. This slimline unit, available in silver or black, about two-thirds standard hi-fi component width and a little over 60mm tall, provides storage, backup and digital playback to a USB-connected DAC or network-connected streaming player.

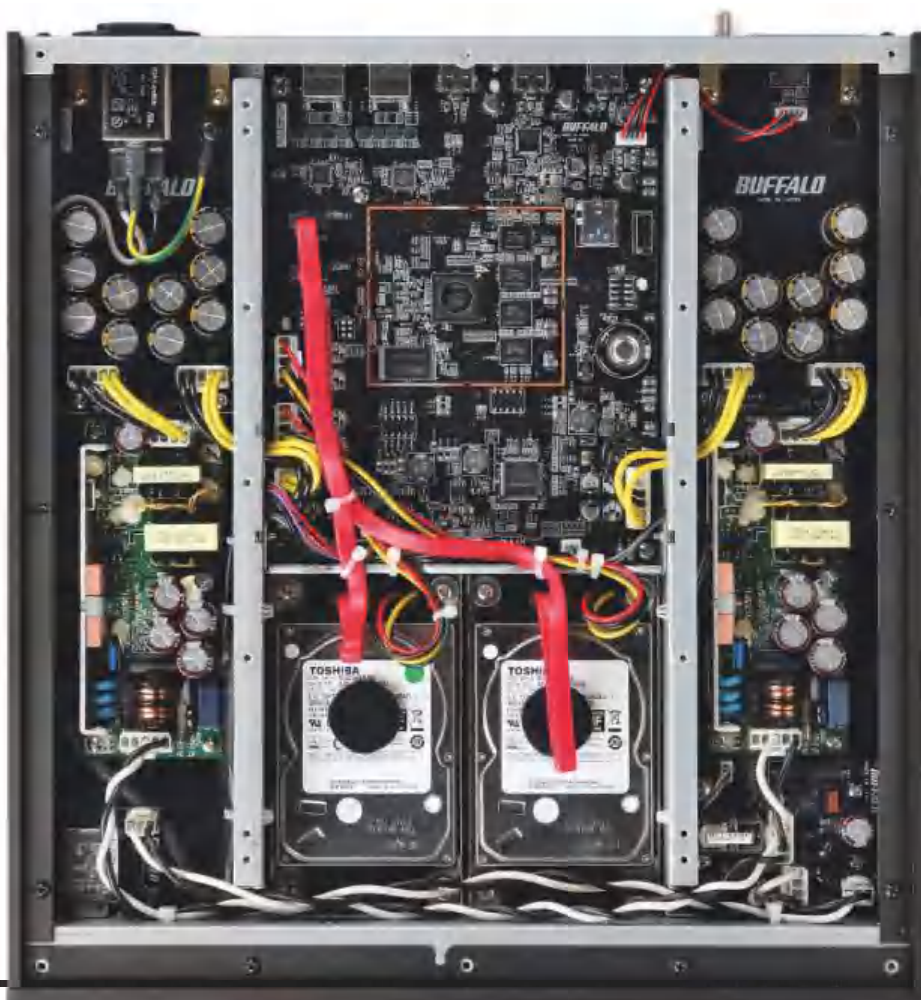
Recently updated with two 3TB hard drives and a raft of firmware/software revisions, this offering sits midway between Melco's flagship £6500 N1-ZS10 player (distinguished only by its reduced 1TB of storage across two solid-state drives) and

the £1750 N1-AH40 [*HFN* Feb '15 and Aug '15]. I'm reliably informed that the N1-ZS10's 'Buffalo Audio Grade' SSDs are designed for music server applications, with data management optimised to suit read-only media files. However bespoke and costly these solid-state drives – and bearing in mind all requested file data is cached and re-clocked anyway – the price saving and huge storage reserve offered by the N1-ZH60's selected Toshiba HDDs seems something of a gift horse.

Otherwise the N1-ZS10 and N1-ZH60 share the same substantial alloy casework, reinforced by an internal H-frame, with the same complement of isolated switchmode

power supplies for their drives and server motherboard. A Lattice Semiconductor chip manages the distribution of these $\pm 12V$ PSUs with additional supplies generated on the motherboard itself (more of which later). To the rear are three USB-A hubs, for importing content (including from CD and BD-drives), hosting supplementary storage and backing up, and a fourth to power or recharge other USB devices.

There are also two optically-isolated Ethernet ports. The 'Player' output assigns its own IP addresses, feeding your network player/DAC directly, while the loop-through LAN input maintains internet connectivity for streaming radio and other online



RIGHT: The N1-ZH60 hosts a pair of 3TB Toshiba SATA drives, supported on compliant mounts, and flanked by twin switchmode PSUs that feed its LAN and USB-equipped Marvell/Lattice microcontroller-based server mainboard



services. You'll also need this hooked-up if your network player is governed by an Android/Apple app running on one of your smart devices. The same is true if you want to access the media library on the N1-ZH60 itself to push out selected files via USB to an outboard DAC.

Interestingly, Melco is pragmatic about its customers choosing their own UPnP 'control point' software, most opting for apps such as 8player, Kinsky or BubblePnP, the latter offering subscribers access to Tidal and Qobuz Sublime services.

MELCO'S MENU

There's no physical IR remote control so the N1-ZH60's menu must be navigated via a row of four pushbuttons to the right of its display. This multi-level, text-based affair covers everything from the status of the internal/external drives, the music database and backing up or restoring a full music library, through to defining the appearance of its diminutive OLED display.

Arguably, the 'Settings' menu is where the audiophile should be most attentive. For example, 'USB-DAC' configures the N1-ZH60 to deliver DSF/DSDIFF content natively (the Melco players now support quad DSD) or downsampled to LPCM.

'It reveals the hidden depths of "big gun" USB DAC solutions'

The latest version of Melco's firmware also facilitates an initial track 'pregap' of between 0.25 to 1.5secs (or 'none' if your attached DAC locks and settles instantly there's a change in track or sample rate).

There's also a USB controller option. In 'Mode 0' the selected playlist resides on the control point app while Mode 1 dumps the playlist onto the Melco unit itself.

Ideally you should choose Mode 1, not least because this setting also allows the N1-ZH60 to recognise any attached USB device by name and invoke an asynchronous transfer of the selected music data.

This driverless USB operation and direct network protocol is all part-and-parcel of the N1-ZH60 looking and behaving like a hi-fi separate rather than a computer peripheral. Its Linux OS (with ARM v7 hard-float architecture) is designed to boot-up and close down within a few seconds and is very tolerant of power interrupts, including accidentally pulling out the AC mains cord.

MELCO'S MOTHERBOARD

Then there's the custom motherboard itself, not a modified NAS or Linux OS board as has been suggested, but a bespoke design based around a Marvell Armada 370

ABOVE: OLED panel and up/down/enter/back buttons allow the Melco to be configured with ease. The display also reveals attached USB/network devices and DSD streaming capability

SoC (System on Chip). Modern boards are typically conceived for speed but this is a deliberately 'slow-clocked' motherboard with low-jitter data flow in mind. It's designed more like a CD player and less like an Ethernet-enabled PC operating with bursts of data that require regeneration at almost every stage.

Between its LAN and 'Player' ports there's a severe software filter that strips out any housekeeping comms finding its way onto the home network. So, and also because the N1-ZH60's 'Player' output is not communicated via a switch, it can send its timed data payload in the correct order with no unnecessary packets (or other DLNA traffic on a shared home network).

As standard, the N1-ZH60 comes pre-loaded with a custom version of Twonky Server 8 although it's also possible to install a MinimServer application (the MinimServer forum is the best place to research this facility). This Java-based application does, according to some users, afford a very real subjective improvement. To its advantage, the Minim software also offers a DOP conversion package that supports DSD replay over an Ethernet connection (Twonky does not). Otherwise, Melco's own firmware supports DSD over USB.

PROVING THE PUDDING

Our earlier reviews of the N1-ZS10 and N1-AH40 included Andrew Everard's very comprehensive explorations of network audio performance, pitching the direct Ethernet 'Player' output of the Melcos against a range of alternatives from a dedicated, hard-wired NAS set-up through to a heavily-populated home broadband hub. Frankly, I'd be surprised to discover any audiophile worth his or her salt prepared to channel their pristine high-res downloads through the grubby traffic of a family home hub, but we had to try!

Andrew's findings, in essence, were that a well-sorted NAS ran the Melco ➔

WHAT GOES AROUND...

Founded by Makoto Maki in 1975, Melco (or the Maki Engineering Lab Company) developed a range of high-end audiophile separates including the FP-11/MPA-10 pre/power tube amps and 3553 and 3520 turntables, famous for their massive thread-driven brass platters. But today's burgeoning Buffalo computer business was spawned almost by chance as Melco, frustrated to discover its 'old school' PC would sit useless while a shipping bill or other documents were sent to the printer, developed its own IT solution. This took the form of a buffer (hence Buffalo) that allowed concurrent software 'threads' to operate, and was so successful that by 1981 Melco Holdings, as Buffalo Technology, moved wholly into the computer peripherals business. Maki is still the CEO of Melco Holdings, and while Buffalo proved a big distraction to the design of hi-fi, it also achieved a scale of success impossible from a pure audio business. Proving the adage that you'll never take the audiophile out of the businessman, the Melco server was born and later adopted as the Chairman's 'special project', benefitting from access to bespoke technologies typically beyond the reach of audio-only brands.



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NETWORK AUDIO LIBRARY



ABOVE: No analogue outs as Melco offers network and direct player Ethernet connections, plus USB ports dedicated to content playback, back-up and expansion

a very close second, any subtle differences in sound quality only really evident when streaming across very high bit-rate (192kHz/24-bit or DSD128) files. Nothing I've heard, or measured, makes me inclined to disagree with Andrew's findings.

Instead, and what really excites me about the Melcos, and this intermediate model in particular, is its application as a USB transport driving an outboard DAC. Even with a modestly-priced, battery-powered USB DAC like Chord's Mojo [HFN Jan '16] auditioned via Oppo's sublime PM-1 headphones [HFN Jul '14], the improvement in definition, in tonal colour and treble purity – over and above the USB output of my Sony Vaio/foobar2000 – was both obvious and not a little startling.

Listening to Joseph Wölfl's string quartets recorded by the Pratum Integrum Orchestra Soloists in 2008 [Caro Mitos CM0032006; DSD64], the Melco/Mojo combination revealed so much more of the character of these period instruments, the three violins in particular, as they danced the *Allegro* of this little-known chamber composition. Via my laptop these Russian performers had sounded quite flat, almost mundane, while the Melco revealed the true sensitivity of their playing. A delight!

THE BIG GUNS

While it's instructive to correlate this uplift in sound quality with the lab tests illustrated opposite, it's also reassuring to discover the N1-ZH60 can also reveal the hidden depths of 'big gun' USB DAC solutions such as Devialet's Expert 800 monoblocks. Connected via Chord Cable's USB SilverPlus [HFN Jul '13], the Devialet amplifiers – despite their inherently fine jitter rejection and substantive signal-to-noise – sound more dynamic still, with slicker transient detail painted onto even 'blacker' acoustic backdrops.

Regular readers will know I've been using the 'entry-level' Melco N1-AH40 to drive my Devialet amps via USB for some time, but N1-ZH60 proved more impressive still. Used with both B&W's 802 D3 loudspeakers [HFN Dec '15] as well as the new PL500 IIs from Monitor Audio [see p36], the N1-ZH60/Devialet combination sounded fractionally more refined, polished and subtly confident.

The close-miked, whistled harmonies of Livingston Taylor's 'Isn't She Lovely' from *The World's Greatest...* [96kHz/24-bit resample; Chesky SACD323] all but caressed my ears with its rich, silky tone while the Floyd-esque layers of David Gilmour's *Rattle That Lock* [96kHz/24-bit download, Columbia 88875123262] peeled away before my eyes. This is a reference-quality front end, make no mistake, one that combines punch with panache as it draws a veil from the most familiar of recordings to suggest new and ostensibly hidden musical textures.

Most readers will have enjoyed the thrill of a new component that refreshes their music collection and for the committed computer audiophile, or plain curious, Melco's N1-ZH60 is just such a beast. ☺

HI-FI NEWS VERDICT

If you are already using a high-end network music player/DAC solution then serving up the digital jewels via Melco's Ethernet 'Player' output may well offer a marginal improvement over a well-sorted NAS/router. No such equivocation is warranted if you are trading a PC/Mac USB output for the N1-ZH60, however, for in its guise as a 'USB transport' the gains, where measurable, are also audibly night and day.

Sound Quality: 85%

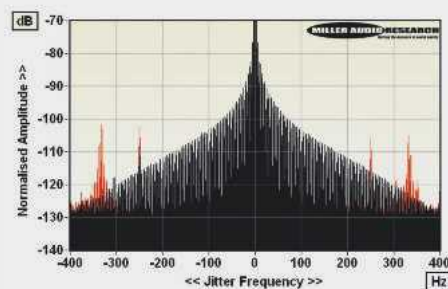


LAB REPORT

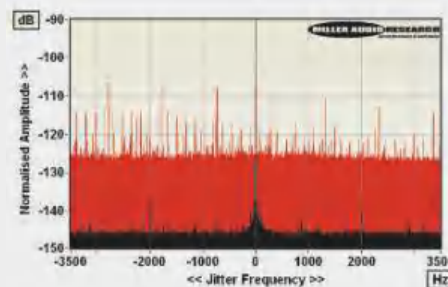
MELCO N1-ZH60

Because the Melco N1-ZH60, just like its companion models the N1-ZS10 [HFN Feb '15] and N1-AH40 [HFN Aug '15], is a data-delivery device this means that both any technical or subjective uplift in performance – over a conventional NAS or PC/Mac USB solution – can only be inferred via an attached, third-party streaming player or DAC. By way of experiment I used a basic StreamUnlimited Ethernet DAC solution, with very limited jitter suppression, which revealed the difference between a standard PC/router configuration (6170psec) and Melco's direct network player output (6120psec) to be just 50psec [red spectrum, Graph 1 below]. This doesn't mean the N1-ZH60's discrete network player is barely superior to a PC/router configuration, rather that most DACs with poor jitter suppression at their input also tend to incur high orders of jitter 'under the bonnet'.

The USB output gives us a far better illustration of the N1-ZH60's potential, not least because of the measurable reduction in noise (which could also be a form of uncorrelated jitter). Driven directly from the N1-ZH60's USB 3.0 output, a DAC with moderate suppression – the Inakustik 'Premium Headphone Amp No1' [HFN May '15] – showed a marginal improvement from 480psec to 465psec but a significant 86dB to 93.2dB gain in A-wtd S/N ratio. Another battery-powered DAC, Oppo's HA-2 [HFN Jun '15], enjoyed a similar '1-bit' improvement in low-level resolution, reflected in the uplift in A-wtd S/N ratio from 96.6dB to 102.7dB. Jitter, too, fell from 165psec to 115psec. However, the biggest improvement by far was witnessed by Chord's Mojo [HFN Jan '16]. This DAC/headphone amp clearly benefits from a noise-free USB hub where it enjoyed a significant uplift in S/N from 103.8dB to 110.2dB along with a near-elimination of any residual jitter from 85psec down to <5psec [see Graph 2, below]. PM



ABOVE: 48kHz/24-bit jitter spectra from Stream Unlimited Ethernet platform (red, via standard 'home network') and (black, via Melco N1-ZH60 'direct' out)



ABOVE: 48kHz/24-bit jitter spectra from battery-powered Chord Mojo over USB (red, via standard PC) and direct (black, via Melco N1-ZH60A USB 3.0 out)

HI-FI NEWS SPECIFICATIONS

LAN (1000BASE-T)	One via router, one direct to player
USB (USB 2.0/3.0)	Three ports plus one 5V charger
Digital jitter (StreamUnlimited)	6120psec (6170psec via PC network)
Digital jitter (Chord Mojo)	<5psec (85psec via PC USB)
Power consumption	14W
Dimensions (WHD) / Weight	350x65x370mm / 7kg

Audio Analogue Puccini Anniversary

The Italian manufacturer is in celebratory mood, with a new product designed to mark two decades of what is most certainly its best-known amplifier – the Puccini integrated
 Review: **James Parker** Lab: **Paul Miller**

What is it with the Italians? While resisting the temptation to indulge in a Kessleresque reverie extending from fine wines to Lambrettas to classic Bugattis, I have to admit that Italian designers and engineers have long had the ability to come up with something – well, different.

Maybe it's the connection with great music, but Italian-made audio has always had that ability to set itself apart, from the relatively simple Audio Analogue Puccini amplifier, the 20th birthday of which is celebrated in the £2999 Puccini Anniversary here, right up to behemoths such as the massive Sonus faber Fenice speakers [*HFN* Feb '11]. These were launched amid much hoo-hah in Venice some years back and then quietly renamed as The Sonus faber when some legal obstacle to the name cropped up – in itself, a rather Italian story.

SYMMETRY INSIDE AND OUT

And then there's the massive Opera Only amplifier, the cause of quite a stir at the Munich High End Show a few years back. Said to cost \$2.2m, apparently weighing 1500kg and delivering 160kW (although admittedly to date editor PM hasn't had his lab gear on it), it was striking as much for its claimed specifications as the way it came to life and unfurled itself to stand an eventual 2.5m tall when switched on. That, too, was an Italian design, the work of one Andrea Pivetto.

From Sonus fabers to Opera loudspeakers to Audio Analogue electronics, over the time I've spent involved in hi-fi, Italian products have always appeared to offer the 'designer alternatives' to the mainstream. These

range from the use of solid chunks of wood and leather trim on speakers to the simplicity of that original Audio Analogue amplifier when compared to its better-known rivals of the time.

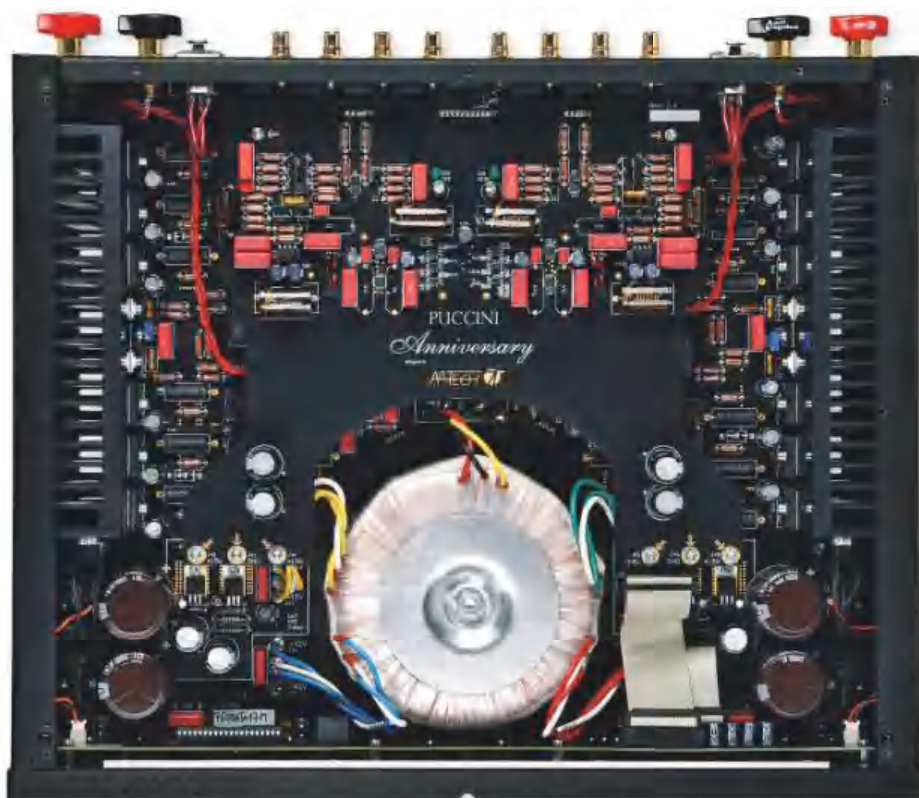
Then, when it was still fashionable to bolt as much as possible onto an amplifier, from tone controls to functions to bypass them(!), outputs for multiple pairs of speakers, tape loops, and even loudness buttons, the Puccini stripped things back to basics in same way as had, say, the original Fiat Nuova 500, launched a couple of years before Britain came up with the Mini.

Now we have the Puccini Anniversary, marking that 20th birthday and described as a 'zero feedback integrated amplifier', although as PM made clear to me, while

this claim may refer to the lack of global feedback, the amplifier must still use some limited local feedback to help keep things on an even keel in its various stages.

As is also clear, this is a dual-mono design, its symmetry not only obvious when you pop open the lid, but also evident in the layout of the rear panel, with inputs and outputs for left and right channels physically separated and mirror-imaged. Reflecting the central location of the toroidal transformer, the IEC mains input is at the centre of the rear panel, while the speaker terminals are out at the extremes, beyond the five line-ins – the 'outer' one of which is on balanced XLRs.

It's worth noting that, unlike the original Puccini models, there's no phono stage



RIGHT: A huge PSU feeds a power amp based on three pairs of bipolar ON Semiconductor transistors per ch. These devices offer a wide SOA and require limited corrective feedback



in the Anniversary version: it's line-only. In fact, this new amplifier is actually so far from the first designs to bear the name that describing it as a 'version' is perhaps misleading as it really is an all-new model.

POWER APLENTY

Within, the left and right channels each have three pairs of output transistors to allow it to deliver more power than any previous Puccini. It's rated at 80W per channel into 8ohm, rising to 300W into 2ohm, suggesting not only good dynamic ability and control, but also the ability to drive speakers of low or wayward impedance. And as PM's lab report illustrates [see p63], the Anniversary integrated amp not only lives up to its billing but goes beyond it, with an especially impressive dynamic power performance.

Minimal though this latest Puccini may seem from its input/output provision, it's not quite as simple as it looks, using four potentiometers (two per channel) for volume control, driven digitally by the single multifunction knob at the centre of the fascia. In practice, this knob doubles for volume control and input selection, as well

as being the Anniversary's on/off button. A short push powers up the amp, while a five-second push powers it down and a three-second push changes input. Indicators to the left and right of the control indicate the input selected, and volume.

I have to admit to finding all this rather more complicated than necessary, and can't help but feel the designers have allowed themselves to get a bit carried away here. Fortunately the remote control handset – which, by the way, lights

when you pick it up – offers rather more conventional access to these adjustments. It also controls other AA components, and allows the user to adjust balance, the brightness of fascia LEDs, and the

setting of the volume control.

This last element is unusual, indeed it's the first time I've encountered such a thing, providing as it does the choice between four 'curves' for volume, allowing an optimum range of level adjustment with speakers of different sensitivity. Of the four, settings B and C seem of the most interest. 'A' offers a 'standard' operation and D an entirely linear volume increase while, by contrast, B gives a slower increase in the

'I was immediately struck by the velvety rendition of Ella's voice'

ABOVE: Fascia is simplified by the use of one control for on/standby, volume and input selection. LEDs to its left show the input chosen, those to the right volume: all are dimmable

initial steps of the control's 'travel', being suited to speakers of higher sensitivity. 'C' gives a faster 'take-off' from the zero volume level, then flattens out in the midrange of the scale, and is designed for speakers of low or medium sensitivity.

AN ENJOYABLE BUSINESS

I spent a while playing with the adjustable volume scaling, noting the differences but not coming to any real conclusion as to which setting I preferred. Instead I found myself enjoying the smooth yet clean balance of the Anniversary so much that I finally decided to stop being distracted faffing around with volume curves, and get on with the seriously enjoyable business of playing some music.

And enjoyable this latest Puccini undoubtedly is, for firing up some Ella Fitzgerald via my Mac mini and a T+A DAC 8 DSD [HFN May '16] – her *Easy Living* set with Joe Pass [88.2kHz/24-bit from HDTracks; Pablo 0888072328419] – I was immediately struck by the velvety rendition of the singer's voice, still characterful if admittedly past her prime, and the easy-going rendition of Pass's guitar. The Puccini doesn't ever overplay things, but rather uses its warmth and control to convey the charm and technique of the two musicians, set in a fairly dry studio acoustic.

But before you get the impression that this is one of those lush, over-honeyed amplifiers best suited to chill-out listening and dinner party background music, I'm bound to say it's more than capable of bringing out all the drive and rhythm of music, even if it's not the most attacking piece of equipment available at this price.

So while it's perfect at wallowing in nostalgia with the remixed Beatles tracks on the *Love* album [Apple/Parlophone 0946 3 79810 2 3], what's also striking is the

BIRTHDAY BOYS

As the first product from Audio Analogue, the original Puccini could be seen as a statement of intent: it had little more than an input selector and a volume control on offer, along with a very decent phono stage. It was pretty affordable, and if you craved more power there was always the 'SE' version, increasing the output from 40W a side to 55W. However, what really set the Puccini apart from its competition at the time was the sound: it was almost impossible to provoke the little Italian amp into sounding rough or harsh, and as a result it was soon acclaimed as an intriguing alternative to the rather more complex, and rather more 'obvious-sounding', competition of the time. Over the years, the Puccini has gone through a variety of iterations, always keeping the same no-frills design, even if the SE Remote version gained a 'designer' handset back around the turn of the millennium. The power on offer increased, too: the Settanta version of 2009 took its name from the heady 70W per channel output available.

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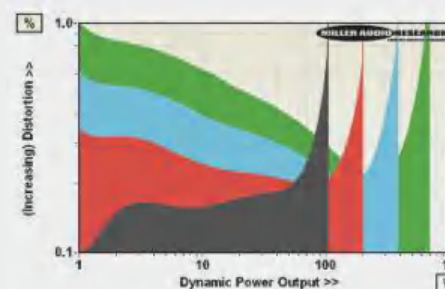
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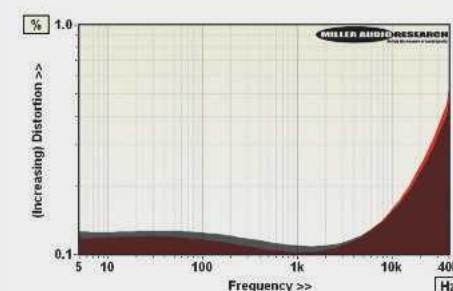
AUDIO ANALOGUE PUCCINI ANN.

While claims of 'zero feedback' are not uncommon with specialist audio products this usually refers to 'global feedback' as some local compensation is always necessary to manage the gain bandwidth of the various stages. Nevertheless, the lab results here certainly reflect a very limited level of self-correction as distortion *decreases* with increasing output and falling load impedance [see Graph 1, below]. Into a high 8ohm load, however, distortion is impressively consistent at 0.1-0.3% across the audioband over its full 80W dynamic range [see Graph 2, below]. Noise is well maintained too, the A-wtd S/N ratio still slightly above average at 88dB (re. 0dBW). All this promises a uniform tonal colour, with high impedance speakers at least, with slightly greater variation in distortion and system response into lower impedances, the latter in line with the amplifier's moderate 0.2-0.3ohm source impedance. Into a non-reactive 8ohm load the response falls by -0.3dB/20kHz and -4.5dB/100kHz, which is a near-ideal performance.

Power output, and the Puccini's ability to drive low impedance loads, is very impressive indeed thanks to its 25.6A dynamic current capacity (<1% THD/10msec). Rated at 70W or 80W/8ohm, depending on where you get your information, the amp actually delivers a full 2x100W/8ohm and 2x185W/4ohm at <1% THD. Reflecting the very stiff PSU regulation, dynamic power output is not much higher but it does increase magnificently into low impedance loads from 102W and 200W into 8/4ohm to 385W and 655W into 2/1ohm [see Graph 1]. Readers may view an in-depth QC Suite report for Audio Analogue's Puccini Anniversary amplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads. Maximum current is 25.6A



ABOVE: Distortion versus frequency at 1W/8ohm (5Hz-40kHz; black, left channel; red, right channel)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	100W / 185W
Dynamic power (<1% THD, 8/4/2/1ohm)	102W / 200W / 385W / 655W
Output impedance (20Hz-20kHz)	0.21-0.25ohm
Freq. response (20Hz-20kHz/100kHz)	+0.02dB to -0.3dB/-4.5dB
Input sensitivity (for 0dBW/80W)	56mV / 510mV (balanced in)
A-wtd S/N ratio (re. 0dBW/80W)	88.1dB / 107.1dB
Distortion (20Hz-20kHz re. 10W/8ohm)	0.11-0.23%
Power consumption (Idle/Max. o/p)	30W / 310W
Dimensions (WHD) / Weight	445x120x390mm / 18kg



ABOVE: There's no MM/MC phono stage here but the five line inputs include one balanced on XLR. Single speaker outlets feature substantial gold-plated terminals

way it delivers the emphasised bass and drums in this new version, reworked by the late George Martin for the Las Vegas Cirque du Soleil show. There's snap and drive a-plenty here, and the amplifier's dynamic ability is much in evidence when driving large speakers, creating a sound that's far from the stereotype of a huge wash of audio, but instead big, bold and dramatic.

PRECISE STOP AND START

With the stripped-down rock of John Moreland's *High On Tulsa Heat* in 96kHz/24-bit [Old Omens 0001], the Anniversary does a fine job of conveying the often gritty, always plaintive atmosphere of Moreland's songwriting and the performance of the musicians gathered here. The warmth of the amplifier doesn't romanticise the sound, but does give scale to the parched, rootsy ambience while bringing out both the weight of Moreland's voice and its angry, yearning edge.

What is beyond a doubt is that the Puccini Anniversary keeps your speakers under strict control. It uses its power to ensure they start and stop in a precise manner, and thus enhances their ability to image and focus a soundstage, while at the same time keeping rhythm sections as tight as they are rich.

Kick-drums are delivered with suitable thump, shifting plenty of air if the speakers are up to the job, but the Anniversary is just as adept with the crisper impacts on snares or toms, while the snap of stick on rim is precise and clean.

Only in the higher reaches of the kit can things sound a bit soft as cymbals shimmer rather than sizzle, even when a rock drummer is giving things some welly. Even the likes of Carl Palmer can sound just a shade polite through the Puccini Anniversary, although the impetus of

ELP's massive 'Karn Evil No 9' [*Brain Salad Surgery*, Manticore MC6669] remains undiminished.

The same attributes serve classical music well, with the rhythms of both orchestra and solo instrument in the new Hyperion release of Elgar and Walton cello concertos [see p108] tautly defined. The Philharmonia Orchestra under Paavo Järvi has wonderful weight and slam, while the cello of Steven Isserlis is treated to a beautifully resonant and rosy presentation, bringing all its character out to thrilling effect.

This Anniversary edition of the Puccini is significantly more expensive than the 1996 original, even while allowing for inflation, but just as that amplifier found itself up against significant competition when it was launched, so the new model is hardly alone in its sector of the market.

It's up against the likes of Arcam's mighty A49 and the fast, tight Naim Supernait 2 [HFN Nov '13] but, as has always been the case with the Puccini, manages to offer something different, from its looks and operational interface to its sound. It's an interesting alternative to the more obvious choices of integrated amps, and more than worthy of an extensive audition. ☺

HI-FI NEWS VERDICT

It's a very long way from the original Puccini of 20 years ago: while the latest anniversary version has similarly simple input and output options, it goes about servicing them in a rather more complex fashion, and is also able to deploy plenty of power to drive and control speakers. However, what is unchanged is the essential Audio Analogue balance: a mix of richness and detail that's easy to enjoy and a very rewarding listen.

Sound Quality: 84%



Fostex HP-V8

Headphone amplifiers come in all shapes and sizes, but power from 300Bs, a weight of over 30 kilos and a £7500 price tag? Welcome to the delightfully mad Fostex HP-V8

Review: **Ken Kessler** Lab: **Paul Miller**

As baffled as I am by the wilful hamstringing of headphone amplifiers – a few are actually integrated amps and more are preamps with neither speaker nor line outputs – they now form a defined sub-genre in our world. Some, like those from McIntosh, Quad and AudioValve, *do* add line outputs or speaker terminals, but bill themselves as ‘headphone amplifiers’ because it’s now a buzzword in the way ‘digital’ once was. And yet Fostex’s HP-V8 – one of the largest and costliest on the market and probably able to drive certain full-sized horns – doesn’t even include the now-obligatory DAC.

MINIMALIST TO THE MAX

At £7499, all you get is a headphone amplifier, period. It accepts only one source, although there’s a direct input option that allows you to feed the tube output stage via a separate preamp should you want to hook up a bunch of source components. What you see is what you get: selectable outputs for balanced (XLR) headphones or normal cans via a ¼in socket, a rotary that chooses between high and low impedance headphones, with both selections abetted by high and low gain settings, and a rotary volume control accompanied by a digital read-out. The latter changes its reading when the HP-V8 is set to direct-in mode.

At the back are the AC mains and a pair of RCA line inputs, but there are no balanced inputs – odd, when you consider that it caters for balanced *headphones*. Two tiny switches can be found on the back, one to choose between direct and normal for the input, and the other for an auto-standby option.

For a headphone amp of this size and weight it is absurdly minimalist. The lack of a DAC, of line-out socketry – I suppose we should instead be grateful for the

no-compromise innards – that substantial 31kg heft had to come from somewhere.

It has been claimed by Fostex that this is the first-ever pure headphone amplifier to use 300Bs; it isn’t, as Woo Audio, WBA Virtus, Hajdinjak and a couple of kit brands use 300Bs too, but nice try. Suffice it to say, this contains an abundance of glassware. Fostex’s proprietary system is called the ‘Stabilised Tube-controlled Power Circuit’ (ST-PC), with KT88s for regulation, and E88CCs and 300Bs in the amplifier stage. The power supply uses toroidal power transformers, heater transformers and a choke transformer made by Bando Electronics. The output transformers are custom-made for Fostex by Hashimoto

Electric, to address both the balanced and unbalanced outputs.

You certainly get your money’s worth in audiophile hardware, and tyre-kickers who value sheer mass will love this beast. Its aluminium base plate alone weighs

2kg and its assembly includes an oxygen-free copper plate with Teflon washers used for the power tube sockets to minimise the impact of any vibration. Anti-vibration feet provide further isolation. Inside

are custom-made electrolytic and film capacitors, and even the AC inlet is special: it’s made by Furutech.

As for the most crucial information, that of its specs *vis-à-vis* headphone choices, the selectable impedances are 16-600ohm

‘It sounded as rosy-cheeked as Kate Humble amidst the bulrushes’



RIGHT: Lifting the HP-V8’s bonnet reveals six tubes: two KT88 pentodes are used in the power supply regulation circuit with E88C and 300B triodes driving the headphone outputs



on the low setting and 48-600ohm on the high, but the specs have not been provided regarding the difference between low and high gain [but PM's Lab Report does, p67]. I ignored numbers regardless and set the gain and impedance by ear, because I tried over a dozen different headphones and none seemed to cause the HP-V8 any grief.

LUSH AND ROMANTIC

I have to say that the (early) review sample had evidently seen a number of cack-handed users before it reached me, as the sound in direct mode fed by an external preamp was noisy and buzzy and humming in an unacceptable manner. It wasn't down to the preamps, as I tried four completely different units and all suffered the same.

Hands down, the best sound was in 'normal' mode with the source fed

straight in and the volume controlled by the HP-V8's rotary. Fostex describes the level control as a 'pure audio grade electronic volume to eliminate the gang errors between L and R channels' and it is certainly quiet and precise in its feel.

As for the headphones, I used Audeze's LCD-X [HFN Sept '14] in normal and balanced modes, and the ¼in jack socket for Sennheiser HD414, B&W P5 and P7 [HFN Aug '14], AKG N60 NC, Beyer DT48, assorted Grados, Focals and Master & Dynamics. Even the ornery Beyers worked well with the Fostex, but the Audeze LCD-X extracted the most.

With only one input, it was a case of swapping between CD players, including the Pro-Ject Box DS [HFN Mar '16] and the Marantz DV8400. I also enjoyed a feed off the Astell & Kern AK Jr. I let the HP-V8 warm

ABOVE: Hard to believe all this is just for cans: switchable balanced or normal headphone sockets, low/high gain/impedance selector, digital volume display and accompanying rotary

up for an hour before doing any listening, and compared it directly to the Oppo HA-1 [HFN Sep '14] and Quad PA-One [HFN Feb '15] headphone amplifiers, using only their line inputs.

Let's make one thing perfectly clear: if you are not a committed valve lover, you will hate the HP-V8. The sound of the Fostex is invariably lush, warm, romantic and as rosy-cheeked as Kate Humble at dawn amidst the bulrushes. It flatters everything, and doesn't even have its own digital stage (like the Quad) in order to cool things down.

CHIMING WITH CLARITY

Jangly guitars can rattle in one's ears, so a healthy dose of The Long Ryders' *Final Wild Songs* [Cherry Red CDCDBOX21] was in order. 'I Want You Bad' will remind you of every great Rickenbacker'd country rock song that ever made you wish you could get away with hand-tooled cowboy boots. The Long Ryders mastered The Byrds' elegiac way with guitars on this track, and the innately metallic sound, the glorious ringing – they simply chimed with clarity but no edge. The speed of the Audeze (and, for that matter, the crispness of the Master & Dynamic headphones) complemented the sweetness of the 300B.

Instead of sogginess, or a sense of overly saccharine SET air-brushing, the ☺

PROFESSIONAL HERITAGE

How refreshing that something as oddball as an all-valve headphone amp could come from a corporation the size of The Fostex Company. It was founded in 1973 by Foster Electric Co, Ltd, one of the world's largest developers of OEM speaker and transducer products, which employs over 50,000 people in nine countries. I'll admit that all I knew it for was speakers, mainly with pro applications. Fostex was established to sell speaker components directly to consumers and dealers in Japan, where DIY audio is still popular. A headphone amp shouldn't have surprised me, as the company produces a number of affordable models, including amp/DACs for as little as £170, while the Fostex T20RP is said to be one of the most popular studio monitoring headphones in the US. Additionally, Fostex claims that its 6301B is the world's best-selling small powered monitor speaker for broadcast and professional use, in production for over 20 years. The company has produced multi-track recorders for some decades, a memorable offering being the X-15 of 1983 – the first portable, cassette-based four track.



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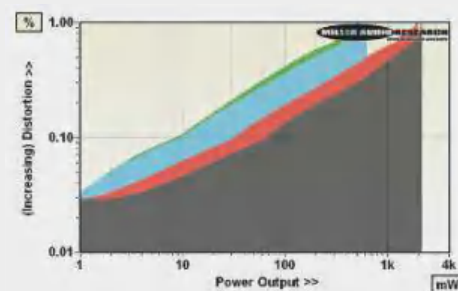
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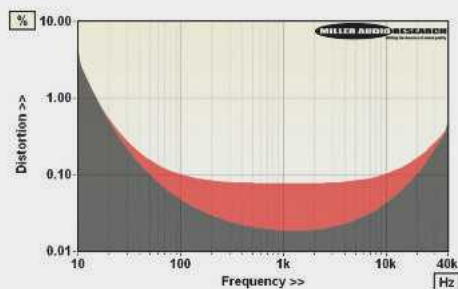
FOSTEX HP-V8

While a low-powered, single-ended 300B triode amp may only drive a limited range of loudspeakers to good effect, the same topology can drive a far wider gamut of *headphones*. For its HP-V8 amp, Fostex has employed Hashimoto Electric output coupling transformers with two taps – for ‘low’ and ‘high’ impedance phones – in both single-ended and balanced modes and with low and high gain settings for each. The four permutations (low imp/low gain, low imp/high gain, high imp/low gain and high imp/high gain) amount to +14.4dB, +17.0dB, +19.4dB and +22.1dB, respectively. There’s plenty of voltage swing from both low and high impedance taps (9V and 19V, respectively) to drive high impedance phones while power output falls from 2700mW to 2410mW, 750mW and 620mW/25ohm via the four modes, respectively [see Graph 1, below].

Frequency response has a built-in +0.9dB bass boost below 100Hz and a ‘sweetened’ treble that falls from –0.3dB/10kHz to –1dB/20kHz although the practical response will be influenced by the impedance trend (vs. frequency) of the connected phones. The ‘high’ impedance setting offers a 8.7-11.5ohm source impedance from 20Hz-20kHz while the ‘low’ impedance mode is still a moderately high 2.8-3.8ohm – not dissimilar to that of a standard 300B-based power amp, in fact. Distortion also increases with loading, power output and extremes of frequency [see Graph 2 below], ranging from 0.03%/1mW to 0.12%/100mW and 0.4%/1W in the midrange to 0.5%/20Hz and 0.16%/20kHz at 10mW. Readers are invited to view a comprehensive QC Suite test report for the Fostex HP-V8 headphone amplifier by navigating to www.hifinews.co.uk and clicking on the red ‘download’ button. PM



ABOVE: Power output vs. distortion into 25ohm ‘headphone’ load (black, low imp./low gain; red, high gain; blue, high imp./low gain; green, high gain)



ABOVE: Distortion versus frequency from 5Hz-40kHz (black, 1V/1kohm; red, 40mW/25ohm)

HI-FI NEWS SPECIFICATIONS

Maximum output (re. 1% THD into 47kohm)	19.1V (high imp./low gain)
Max. power output (re. 1% THD into 25ohm)	2696mW (low imp./gain)
Output impedance (20Hz-20kHz; low/high)	2.8-3.8ohm / 8.7-11.5ohm
Maximum gain (low gain to high gain modes)	+14.4dB to +22.1dB
A-wtd S/N ratio (re. 0dBV)	95.0dB
Frequency response (20Hz-20kHz/25ohm)	+0.85dB to –0.98dB
Distortion (20Hz-20kHz, re. 40mW)	0.076-0.48%
Power consumption	199W (1W standby)
Dimensions (WHD) / Weight	430x245x416mm / 31kg



ABOVE: Independent L/R PSU and output coupling transformers are clearly visible with protective cage removed. Analogue RCA ins only – no DAC in or pre outs offered

guitars maintained their attack without exciting sibilance. Better still, this Spectorian wall of (guitar) sound enjoyed a cohesive sense of wholeness, and yet you could separate one guitar from another.

HOW DID THEY DO THIS?

Bonnie Raitt’s sublime new release, *Dig In Deep* [Redwing RWR032] contains an unexpected, sleazy, sexy cover of INXS’s ‘I Need You Tonight’, one which is twice as dangerous as the original. Its percussive opening catches you unawares, so precise and vivid is the sound.

Then the bass slithers in, and you wonder how this could possibly contain 300Bs, never known for providing anything other than some lumpy semblance of a bottom end. Fostex has built in such wonderful control down below that it almost contradicts the sheer gentility of the uber-tubey mid and treble.

In the quest for out-of-the-head stereo, I turned to Conway Twitty, whose majestic ‘It’s Only Make Believe’ [Six Classic Albums; Real Gone RGMCD055] spreads the vocal backing across the room. In one’s head, the piano, bass and drums seek out their own segment of one’s skull. Twitty’s impassioned vocal nestles in one’s cranium, every breath enjoying the authenticity only conveyed when each little nuance is preserved. Valve-y lushness or not, this amplifier does not obscure the subtle details.

As captivating as is the Fostex, I was constantly reminded by that grey lump on my desk, the Quad PA-One at one-sixth of the price, that it costs £7500. And while you lose balanced headphone operation with the wee Quad, you gain a DAC, a

bunch of inputs and preamp output, and you lose a hernia. The Quad is nowhere near as quiet as the Fostex, but it is almost as lush, while being immeasurably more flexible and useable. An audiophile’s dilemma? The Fostex is so absurdly expensive and minimalist that one can only marvel at the sheer chutzpah it took to sign off this product. It’s like a car with a 200mph top speed, no luggage space and 6mpg fuel consumption. Yeah, it’s a tube marvel, but at what cost?

Then I listened to Freddy Cannon’s ‘Palisades Park’ from *The Swan Records Story* [One Day DAY2CD284] and heard stuff I’d never noticed before. A song I’d enjoyed – what? – a few hundred times? Mono, but layered with insane sound effects. A flippin’ calliope! Cannon’s raspy voice, as many circus noises and special effects as The Beatles squeezed into ‘Being For The Benefit Of Mr Kite’ five years later.

So maybe not so mad after all. ☺

HI-FI NEWS VERDICT

This truly overkill unit provided some of the best headphone listening I’ve enjoyed in the modern era. My reservations can be found above, and though serious they will not, nor should not, deter the sort of headphone devotee who has money to burn and a penchant for excess. It is as ‘tube-y’ as any valve headphone amp I’ve tried, as inescapably romantic in its sound, and it’s a load of fun. What’s not to like?

Sound Quality: 84%





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PS Audio DirectStream Junior

The next generation of PS Audio's DirectStream DAC, which converts all incoming data to high-rate DSD, is also more affordable. Meet 'Junior', the new kid on the digital block
 Review: **Andrew Everard** Lab: **Paul Miller**

They like to do things the hard way at PS Audio, though I'm sure they'd say it was simply the *right* way. The Colorado-based company avoids the low-cost outsourcing temptation to which so many have succumbed, with all but its least expensive models – such as the £475 Sprout mini-amplifier [HFN Feb '15] – proudly carrying the 'Built in Boulder' legend, simply because it believes keeping things in-house ensures optimal quality.

That's certainly the case with the DirectStream Junior DAC. Selling for £3750, it represents a considerable saving over the original DirectStream model [HFN Aug '14], yet contains much of that design's significant technology, and even surpasses the pricier model in some respects.

NETWORK AS STANDARD

Since that review of the DirectStream, the product has been upgraded several times with PS Audio's splendidly-named free firmware updates – seemingly taking a leaf out of Apple's nomenclature book, the most recent two were called Pike's Peak and Yale Final – and the company has also launched the NuWave DAC [HFN Apr '16]. So where does the 'DSJ' fit into the line-up?

Well, as I've already suggested, it's slightly unfair to view 'Junior' as a stripped-down version of its £5500 parent, although it does lose one or two features from the pricier model. For example, it has just one I²S digital input whereas the original has two; it loses the colour touchscreen control in favour of a conventional display; and has a simplified internal layout, with everything on one main board rather than the separated sections of its 'big brother'. All of this comes in slightly simpler casework.

But it also gains in some areas. It has a substantial, smooth-acting knob for the still-digital control of its analogue output, and has PS Audio's Bridge II network

capability built-in as standard, whereas on the senior DirectStream DAC this facility is on an optional 'card' – a £799 extra. More on that network functionality later.

At heart, however, the DSJ is much like its parent. At its core is PS Audio's 'everything to DSD' technology, which uses proprietary code running on a Xilinx Spartan FPGA to upconvert all incoming digital signals to a 10x DSD bitstream before outputting it at DSD128 (double DSD). That enables it to take advantage of the simple 'conversion' required for DSD: in essence this is no more than a low-pass filter to take out the superfluous high-frequency content, leaving the analogue audio signal to be fed to the output.

See PM's boxout [facing page] for more on this aspect of the design, but it's the work of PS Audio's Ted Smith, who says: 'Low-pass filtering a noise-shaped signal needs some quality capacitors – it's hard to make precision capacitors on a DAC chip

and even harder to make accurate high order filters. To use lower-order filters with less critical components, DAC chips employ a hybrid approach, digitally converting the DSD to a multibit noise-shaped signal so there's less analog filtering required, resulting in a loss of DSD's linearity.

'Our approach doesn't use DAC chips, thus allowing us to employ a full-width DSD architecture without compromise.'

AMPLE INPUT OPTIONS

So that's the essence of the DSJ – whatever you throw at it, from low-bitrate LPCM-based formats all the way through to DSD, gets turned into DSD128, then fed out through this simple filter/output section to the balanced and single-ended sockets. In fact, all that's really missing is a headphone output, which may seem like an unusual omission these days. For me, it's far from a deal-breaker, but of course your personal mileage may vary.



RIGHT: The DirectStream architecture is reduced here onto a single PCB – there are no DAC chips, a Xilinx Spartan 6 FPGA handling all input processing and upsampling to 'DSD640'. Output is direct, not transformer-coupled



However, there's no shortage of digital input options: AES/EBU on XLR, the usual S/PDIF optical and coaxial, asynchronous USB (on a Type B socket) and a single I²S input. The I²S format carries clock and data signals separately, potentially lowering jitter, and is used here to partner the DSJ with PS Audio's PWT CD/DVD player or the forthcoming DirectStream Transport, which will also offer SACD playback.

It's worth noting that although the I²S input uses an HDMI-style connection – and indeed a standard HDMI cable can be used between one of the PS Audio source devices and the DSJ – this socket isn't suitable for the connection of conventional sources with HDMI output, such as Blu-ray players.

Similarly, though there's a USB Type A socket, it's there for firmware updates, not the connection of portable devices or USB memory. Of more immediate use is the RJ45 connector allowing the DSJ to be connected to a home network via PS Audio's Bridge II interface. This allows it to be used as a network music player, accessing content stored on a home computer or NAS. It's controlled by suitable DLNA software

running on a computer or handheld device, which is used to find the music stored in shares on the network and then push it to the DSJ. The manual suggests JRiver Media Center, which worked very well during the test, but other software such as PlugPlayer will also do the job, these applications seeing the DAC as 'Bridge II'.

On the subject of software, as is usual with such DACs the DSJ works natively when used with Macs, but requires a driver (a free download from psaudio.com) when used with Windows personal computers.

But I'm bound to say that the universal remote handset is slightly obstructive, requiring some familiarisation to mentally 'map' the button labels to what

they actually do with the DSJ. Thankfully, it's simple to access the settings menu via the single front-panel control button, and make adjustments such as balance, phase inversion and output attenuation.

SMOOTH AND SWEET

One of the great advantages of PS Audio's 'everything to DSD' approach is that the DSJ just works, whatever file format

ABOVE: Just a (digital) volume knob, plus one input selection button that's all but hidden beside the display. Both controls also facilitate access and navigation of the on-screen menu

you choose to throw at it. Even better, it sounds extremely special with everything from low-bitrate radio downloads all the way through to hi-res DSD files.

There's no scarcity of high-quality DACs out there at the moment, and adding the proviso of the ability to be used straight into a power amp hardly narrows the field. However, even in what's becoming quite a crowded market, the DSJ's combination of impetus and subtlety, drive and detail, and weight and fleet-footedness makes it a prime contender.

What's immediately apparent is this DAC's ability to paint remarkably vivid pictures of a performance, whatever the musical genre or file format. Tracks spring to life with a freshness and vivacity that ensures they grab the attention, yet there's sufficient smoothness, sweetness and warmth to ensure things don't ever become overly aggressive or brash.

That's not to suggest that the DSJ ever pulls its punches. With the electro-pop of the latest Pet Shop Boys album, *Super* [x2 0008 CD1], which has some evil bass and the usual immaculate PSB production values, the DAC proves more than capable of pumping out the low stuff.

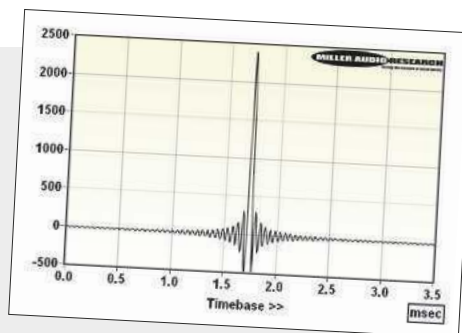
This underpins its lush mixes while still keeping Neil Tennant's distinctive voice focused and detailed, from the sweet nostalgia of 'The Pop Kids' to the anthemic 'Burn', which dares the listener to inch the volume higher to get more of its big, rich effect.

If there's a fault, it's that I suspect some listeners will wish the sound was even richer and warmer, mistaking the *definition* here for a hint of lightness in the low end. But to my ears the DSJ strikes a fine balance between substance and speed, counterpointing the ease and sweetness

"Junior" delivers impetus and subtlety, drive and detail,'

THE DSD DEBATE

In common with other progressive digital audio brands, not least Chord Electronics, PS Audio takes advantage of today's capacious processors to execute a bespoke software-based DAC solution. The DirectStream Junior is entirely DSD-based, not unlike T+A's 1-bit solution for its latest DAC 8 [*HFN* May '16], but PS Audio's approach extends to upsampling LPCM inputs to a 'DSD640' bitstream prior to conversion at DSD128. The theoretical advantages include simple passive filtering at the output and idealised monotonic conversion, as every Least Significant Bit (LSB) in a 1-bit DAC is necessarily the same size. However, upsampling and noise-shaping also involves digital filtering, as evidenced by the very extended pre/post echoes visible on the impulse response [see inset Graph] – the very thing that custom filters in other brand's DACs attempt to avoid. But, as PS Audio proves, achieving a 'musical' sound almost always involves a trade-off of technologies. PM





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OUTBOARD USB DAC



ABOVE: There are USB, coaxial and Toslink S/PDIF, and AES/EBU digital ins, plus I'S connections via HDMI, with RCA and XLR outs. Latest 'Bridge II' module adds Ethernet

in the midband and treble. There's nothing soft and fuzzy here, and hard-edged guitars or jazz instruments on the brink of 'cracking' are delivered with all their character intact, but the control and restraint ensures that the frisson of danger on offer is coming from the recorder, and not being imposed by the electronics.

As a result, sets such as Courtney Pine's remarkable bass clarinet outing, *Song* [Destin-E Records 777102468X], in which the soloist makes the big instrument swoop, shriek and boom against Zoë Rahman's understated piano, is as involving as it is intriguing.

THRASHING AND SAWING

Yes, the DSJ can occasionally sound just on the safe side of neutral, and as a result a little ambience can be lost in very atmospheric recordings. Included here is the Michael Tilson-Thomas/San Francisco Symphony's live recording of Copland's *Organ Symphony* [SFS own label, 96kHz/24bit], where the 'space' around the solo instrument is more apparent when played through some (admittedly pricier) rivals.

That said, the scale and impact of the full orchestra is pretty magnificent, with the brass especially ripe. The same 'band' with a little help from Metallica, this time with Michael Kamen waving the stick, sounds big, fast and tight on the *S&M* album [Vertigo 546 797-2], the orchestra weaving around the metal, and the DSJ getting deep into the extremely dense mix to allow the various strands to be heard. And boy, does the mixture of thrashing and sawing sound bold and solid!

Downshift to something just a little more intimate, but no less punchy, in the form of Magnus

Öström's *Parachute* album [Diesel DIESELC-54, 96kHz/24-bit], and the former EST drummer's quartet sounds superb. Yes, the prog-rock influences are still there, but there's a slinky groove going on here, too, and the clarity of the DAC serves the guitar of Andreas Hourdakos and Daniel Karlsson's inventive pianism as well as it does Öström's precise, powerful drumming.

Listen as he kicks in behind Karlsson's repeating piano figures on the opening track, 'Dog On The Beach', and you instantly get the measure of both the recording and how well the DSJ is handling it. Similarly, it also shines with the a good-time funk of 'The Shore Of Unsure', over which guest trumpeter lays beautifully resolved brass shards.

Best of all, this even-handed approach seems well-suited to the widest possible range of music, suggesting the DSJ would be an excellent all-round choice, whether used as a conventional DAC into an existing amp or connected straight into power amplification.

HFN has PS Audio's hefty Signature 300 monoblocks for review next month, and I really can't wait to see what they can do with this excellent DAC/digital preamp. ☺

HI-FI NEWS VERDICT

Combine effortlessly attractive sound with versatile facilities, and you have a DAC offering exceptional value for money. OK, so there's no headphone output, but the ability to cater for both the 'Macs and DACs' brigade and network streaming enthusiasts, and do so in style, more than compensates. Junior by name, but mature by nature, this is a worthy addition to the high-performance digital hardware arena.

Sound Quality: 85%

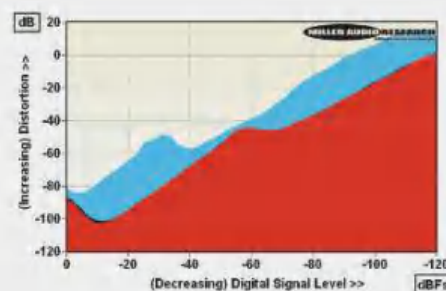


LAB REPORT

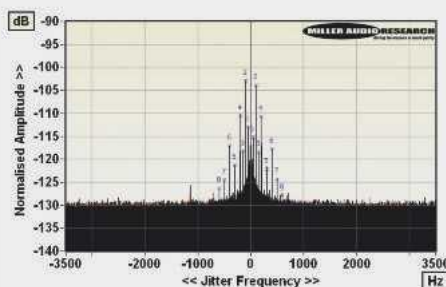
PS AUDIO DIRECTSTREAM JUNIOR

Leveraging off the PerfectWave DirectStream DAC's Spartan 6 FPGA-based DSD engine [*HFN* Aug '14], the 'Junior' shares many technical features while demonstrating a clear 'fingerprint' of its own. Once again, the impulse response shows extended pre/post ripples in the time domain [see Graph, p71] and an increase in requantisation noise through the audioband which reduces the A-wtd S/N to a '16-bit' 94dB (although errors in low level resolution of ± 0.5 dB at -100 dBfs suggest linearity is > 16 -bits). While also featuring a passively-filtered output, but minus the transformers, the Junior avoids the substantive increase in distortion at LF recorded for the bigger DirectStream DAC. The Junior incurs $\sim 0.005\%$ through bass and midrange over the top 30dB of its dynamic range but, like its bigger brother, this still increases by some 20dB at 20kHz [blue trace, Graph 1].

However, the Junior benefits from a flatter and more extended response through deep bass and (ultrasonic) treble. It's ruler-flat to within ± 0.02 dB from 20Hz-20kHz with 44.1kHz/48kHz media and shows a slight $+0.18$ dB bump at 35kHz (-0.01 dB/45kHz) with 96kHz media, before rolling-off to -3 dB/64kHz with 192kHz files. PS Audio still says measurable jitter is zero but sidebands linked to 100/200Hz PSU noise within the Junior are evident in this scaled-down DSD DAC, albeit at a relatively inconsequential 400psec [see Graph 2]. All these performance parameters, including the maximum 2.6V output and 104ohm (balanced) source impedance, are consistent between both USB and S/PDIF inputs. Readers may view full QC Suite test reports for the PS Audio DirectStream Junior's USB and S/PDIF inputs, when available, by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB dynamic range (S/PDIF 1kHz, red; USB input 1kHz, black and 20kHz, blue)



ABOVE: High resolution jitter spectra with 48kHz/24-bit data via S/PDIF (black) and USB (red) inputs

HI-FI NEWS SPECIFICATIONS

Max. output level / Imp. (Balanced)	2.58Vrms / 104ohm
A-wtd S/N ratio (S/PDIF / USB)	93.6dB / 93.6dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0047% / 0.0065%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.0076% / 0.19%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to 0.0dB/+0.2dB/-14.3dB
Digital jitter (48kHz/96kHz / USB)	420psec / 215psec / 420psec
Resolution @ -100dB (S/PDIF / USB)	± 0.5 dB / ± 0.5 dB
Power consumption	30W (1W standby)
Dimensions (WHD) / Weight	430x70x360mm / 8.1kg

Sonus faber Pryma 01

Few will dispute that Sonus faber's entry into the headphone scene is destined to become a design classic. But does its sound quality match those sumptuous looks?
 Review & Lab: **Keith Howard**

It had to happen. Sooner or later, Sonus faber – creator of some of the most stylish loudspeakers on the planet – would surely follow in the footsteps of other speaker manufacturers – B&W, KEF, Klipsch, etc – in turning its hand to headphones. The result, the £380 Pryma (designated Pryma 01), is intriguing for being both predictable and delightfully unpredictable, all in one.

What's predictable is that the closed-back, over-ear Pryma is a looker: the sort of headphone product that many will fall in love with the moment they set eyes on it. Plus it is solidly constructed and immaculately finished – as you'd also expect of Sonus faber.

BUCKLE UP TO FIT

But who could have anticipated the 'belt buckle' mechanism that's used to attach the capsules to the headband? Stylistically it's a work of genius, even if practically it means that headband adjustment proceeds in discrete steps, rather than the normal continuous slide manner, and those steps are a little too widely spaced to ensure optimum fit for every head.

The novel headband is also notable, alas, for being less than vibrationally inert. This is not something that makes itself manifest when putting the Pryma over your ears – its structure doesn't 'ping' obviously as some do – but wearing it for the impedance test (which involves pink noise being replayed over the left capsule only) I could clearly hear sound being carried across towards the inactive right capsule.

Exactly what effect this will have when replaying music is unclear but it's a pity that the headband isn't more effectively damped, despite its microfibre-filled leather covering.

Five different colour schemes are available. Pictured is the 'Carbon Marsala' option, at a £30 premium over the standard price, which combines a carbon fibre weave on the back of the capsules with a reddish-brown headband. 'Pure Black' has a black headband and capsule closures, relieved by the brushed aluminium capsule frame and polished stainless steel/copper buckles for the headband while 'Coffee Cream' combines a different hue of brown headband with matching cream-coloured capsule closures.

'Heavy Gold' is for wearers of very high-end Rolex watches, the silver metal elements of the Pure Black option being replaced by a garish gold finish, while 'Rose Gold & Grey' – am I allowed to call this the girlie option? – replaces black with dark

grey and has metalwork the colour of pink gin. The five different straps are available as add-ons, so other colour combinations are possible.

Comfort is a key issue with any headphone but particularly one intended for use on the hoof, as the Sonus faber Pryma clearly is. (It has a short, 1.35m lead with integral microphone and mini-jack termination – no other lead is supplied, nor is a ¼in jack adapter although, as the lead divides and

attaches to each capsule via mini-jack plugs, it's feasible to replace it.)

Here the arresting visual design fails to deliver in practice, at least for my head and ears. I found the head clamping force on the high side and the space within the coffin-shaped earpads too small to accommodate my pinnae without squishing and squashing. Smaller heads and smaller ears will fare better, which will suit female buyers in particular.

LOOKING FOR ENJOYMENT

Talking of which, I note with amusement that a review of the Pryma in a subjective-only hi-fi magazine was largely seconded to the editor's wife, echoing whispers in my ear during the preparation of this review that this is more a fashion product than a serious audiophile one. It's a tempting line to swallow but one I doubt that Paolo Tezzon – Sonus faber's R&D Manager – would endorse.

I contacted him for more background information and was told that he was 'One-hundred per cent involved in the headphone development' and that 'Our target... was obviously to achieve the best sounding results, first of all, with the Sonus faber loudspeaker "family sound" in our minds. But also we aimed [at] an

'Its emollient nature is a calm bookending to the working day'



RIGHT: This is just one of five colour ways – Carbon Marsala – in which the Pryma is available. Extra headbands are available



LEFT: Belt buckle headband is a touch of styling genius but makes capsule adjustment discrete rather than continuous – and it audibly transmits vibrations between the capsules

presence band oomph that gives music clarity, crispness and life.

A QUESTION OF BALANCE

So is this how it sounds? I conducted the listening using my familiar set-up of Teac HA-501 headphone amp [HFN Apr '14], fed analogue signals from a Chord Electronics QuteHD DAC, itself fed S/PDIF from a TC Electronic Impact Twin FireWire audio interface. A second-generation Mac mini running Windows XP and JRiver Media Center v19 played the music.

No, the measurements don't lie: the Pryma is obviously lacking the lower treble energy of a true high fidelity experience. I've seen this described elsewhere as reflecting the characteristic sound of Sonus faber speakers, but I demur: I've never heard one of the Italian marque's speakers with such an obvious hole where the presence band should be.

More accurate and more relevant, I'd say, is to draw comparison with Audeze and Oppo planar magnetic headphones which – while not identical in tonal balance – have similarly plunging corrected outputs above 1kHz. If you like the Audeze/Oppo tonal balance then chances are you'll like the Pryma too... and should probably ignore everything I say below.

I began my structured listening, having first run-in the Pryma on pink noise over a period of four days, with the second movement of Saint-Saens's String Quartet in E minor with the Fine Arts Quartet [44.1kHz/16-bit download; Naxos 8.572454], a piece that might surprise you if your knowledge of the composer is limited to the easier territory of *Carnival* ➔

enjoyable sound in every situation, having in mind... that this product was also aiming [at] simple situations like plugging the headphone straight into a smartphone.'

As part of the R&D process, commercial dummy heads were rejected as they didn't provide 'any useful info' and a proprietary alternative developed instead, comprising 'a human head-sized block of absorbing material, and custom – specially designed – internally mounted miniature condenser microphones.' Two microphones are included but are only used one at a time to measure frequency response.

I've gone into this detail about the design process not only because it gives the lie to the notion that the Pryma is merely a fashion statement, but also because it perhaps explains the distinctive sound quality with which it has been endowed. Even if you never normally look at our lab reports, take a dekko at the Pryma's corrected frequency responses [Graph 2, p77]. The three corrections that I apply – free-field, diffuse-field and Harman

– differ significantly but on one thing they all agree: that the Pryma has a big hole in perceived output above 1kHz, reaching up to 7kHz.

Is this because of the unusual 'artificial head' Sonus faber used? That seems at least feasible. Whatever, from this you'd anticipate that the Pryma lacks the

WORLD OF McINTOSH

The Fine Sounds Group is the Italian umbrella company that owns a stable of some of audio's most revered brands, namely Audio Research, McIntosh, Sonus faber, Sumiko and Wadia. In November last year it launched World Of McIntosh (WOM) in New York, the first of a network of WOM 'Experience Centers' set in strategic locations around the world. The ambition is to draw the well-heeled into our world of high-end audio via premises which place an emphasis on high quality interior design. But why did Fine Sounds choose to highlight just one of its brands in the name of this enterprise? It's an intriguing question, particularly as the distinction between Fine Sounds and WOM seems to be blurring and – with the Pryma – Sonus faber is somewhat written out of the script. Immediately below the Pryma name on the cover of the owner's manual appears 'WOM', and the address on the outside rear cover is McIntosh Group Inc. The Sonus faber name appears only in the declarations of conformity at the back of the book, and although it's on each capsule this is obscured once the headband is fitted...



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**NEW
PRODUCT
LAUNCH**

PS Audio launches DirectStream Junior



PS Audio's new DirectStream Junior DAC is a more affordable version of the global multi award-winning DirectStream DAC. Bringing you the benefits of a pure DSD based solution, DS Junior fulfils the promise of high-resolution analogue performance from digital audio.

DirectStream Junior at a glance

As with DirectStream, all incoming data regardless of format is expertly upsampled to 10 times DSD rate and out as pure analogue – directly into your power or preamplifier.

•
PS Audio's Network Bridge "ii" is included to connect to your NAS, computer or favourite internet streaming app.

•
Connect to PS Audio's Perfect Wave Transport or the "soon to be launched" DirectStream Transport to play your favourite CD and SACDs in DSD.

**DS Junior creates the perfect opportunity for you to own
one of PS Audio's highly acclaimed DACs.**

To hear how the DirectStream Junior can transform your music find your dealer at
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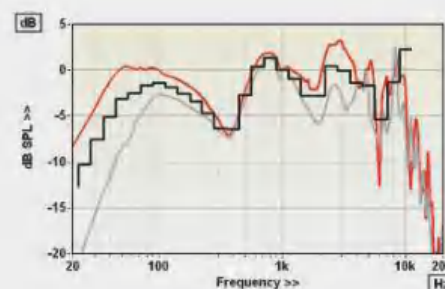
LAB REPORT

SONUS FABER PRYMA 01

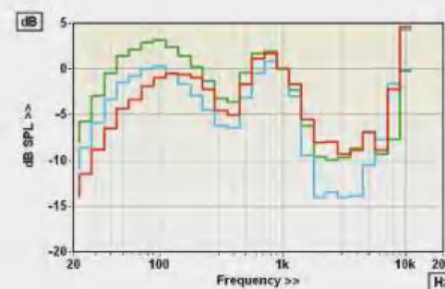
Sonus faber claims a sensitivity of 118dB SPL for 1mW for the Pryma 01, which would be unprecedented if true as it's equivalent to 133dB for 1V into the nominal impedance of 32ohm. Unsurprisingly, the Pryma isn't this sensitive in reality – our measured figure, averaged for the two capsules, was 123.0dB for 1V at 1kHz – but this is an unusually high figure nonetheless, of the order of 6dB more than we typically measure from medium-impedance headphones. There is no issue, then, regarding the Pryma's ability to achieve adequate SPLs from any source device with which it's likely to be used.

The measured impedance actually varied from 29.2ohm to 32.9ohm (re. 20Hz to 20kHz) – a small enough range to limit frequency response variations to 0.25dB via a headphone amp of 10ohm source impedance, or 0.51dB with a 30ohm source. The uncorrected frequency responses of the two capsules – each average from 10 separate measurements between which the headphone is removed from and replaced on the artificial ear – differ significantly at low frequency, suggesting a sealing issue with the left capsule [grey trace, Graph 1 below].

The capsule matching error of ± 7.5 dB (re. 40Hz-10kHz), is a typical figure for a headphone and represents in significant part the different interaction with left and right artificial pinnae which – like most real pinnae – are not exact mirror images of one another. Assuming the right capsule response is closer to Sonus faber's intention, its salient features are a significant dip at around 360Hz and an almost complete absence of the 2-3kHz peak required to achieve a neutral perceived tonal balance. Unsurprisingly, these two features are also manifest in the corrected responses, the missing 2-3kHz peak meaning that all three corrections – free-field, diffuse-field and Harman [cyan, green and red traces respectively, Graph 2 below] – register a large hole in perceived output above 1kHz. KH



ABOVE: Unequalised responses (L/R, grey/red; average 3rd-octave, black) show a lack of the 2-3kHz output typically required to achieve a natural tonal balance



ABOVE: Third-octave freq. resp. (red = Harman corrected; cyan = FF corrected; green = DF corrected)

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL at 1kHz for 1Vrms input)	123.0dB
Impedance modulus min/max (20Hz-20kHz)	29.2ohm @ 20Hz 32.9ohm @ 98Hz
Capsule matching (40Hz-10kHz)	± 7.5 dB
LF extension (-6dB ref. 200Hz)	27Hz
Distortion 100Hz/1kHz (for 90dB SPL)	0.1% / <0.1%
Weight (inc cable and 0.25in connector)	358g



Of The Animals. The violin plays a simple opening tune packed with a determined, dauntless energy while the other instruments offer plucked strings in accompaniment. Above all, the effect should be invigorating and energising.

The Pryma editorialised this piece, making it sound seductively warm but a little lazy and lacking its essential drive and restlessness. If you listen to music to pass the time and isolate yourself from your fellow human beings on the morning and evening commute, this emollient nature may be just what you're seeking – a calm bookending to the working day. But it's not a characteristic that gets you close to the soul of music like this, which isn't intended to be easy listening.

SEEKING A MATCH

You might say that, by contrast, the *Adagio* from Robin Ticciati's acclaimed interpretation of Schumann's Symphony No 2 (Linn Records, 192kHz/24-bit download) is a soothing balm. But it relies for its full effect on a clear exposition of the string harmonies and the distinctive quality of bow hairs stick-slipping across strings. Much of this information is in the presence band, so the Pryma's lack in this area of the spectrum had the inevitable effect of removing much of what is magical about this recording.

'Silent Promise', the title track of Turning Point's second album [Vocalion CDSML 8448], takes me straight back to the 1980s and brief flirtations with jazz-rock. The band's trademark was using Pepi Lemer's voice as another instrument rather than a purveyor of lyrics, and 'Silent Promise' is a good advert for the concept. This piece suited the nature of the Pryma distinctly better than the two classical items.

ABOVE: Comfort may be compromised by the moderate head clamping force and, for larger ears, the confined space within the coffin-shaped earpads

Bass guitar and bass drum were emphasised and the tonal balance warmed overall, but given that this is a period recording with limited transparency the changes might even be welcomed.

But the Pryma perhaps revealed the justification for its skewed spectral hue when – for the purpose of research rather than enjoyment – I played 'Eisai H Fonh' from Helena Paparizou's *Brisko To Logo Na Zo* [Sony BMG 88697318932]. It's a highly compressed piece of euro-pop whose chorus sounds distorted on a neutrally balanced headphone, and it was altogether more palatable via the Pryma as a result of the harshness in the lower treble being somewhat suppressed.

A well-heeled, style-conscious commuter listening to overly compressed modern pop on the journey to and from earning a crust? I think we may have identified the Pryma's target buyer... ☺

HI-FI NEWS VERDICT

Would Gok Wan be seen wearing the Pryma? I imagine he would because it is, undeniably, a fashion icon in the making – one which makes other 'designer' phones look crass or plain dull by comparison. But somewhere in all this style statement stuff someone has to point out that the Pryma's primary task is to reproduce music, and that it has too lacklustre a tonal balance to do this well for true audiophiles.

Sound Quality: 75%



Audiolab M-DAC+

Upgraded for compatibility with the highest-rate LPCM and DSD files, the 'Plus' version of Audiolab's M-DAC also boasts an internal PSU, extra inputs and a slick OLED display
Review: **Nick Tate** Lab: **Paul Miller**

Forget the vinyl revival, we're now nearly a decade into the 'return of the DAC'. Standalone digital-to-analogue converters such as the iconic Arcam Black Box became highly fashionable in the early '90s, but the advent of high-resolution players (SACD, DVD-Audio) pushed them out of the headlines for almost ten years. Suddenly though, just when hi-res digital migrated off physical media and on to computers, the breed reappeared...

ALL YOU COULD WISH FOR

The clincher was USB, followed by asynchronous USB connectivity – allowing the DAC's master clock to control the data transfer process down the USB lead, it conferred audiophile respectability on computer audio. Fast-forward to 2012 and the Audiolab M-DAC duly set the budget DAC market alight [*HFN* Sep '12]. It offered nothing that others hadn't already done, but its sheer all-round ability and flexibility made it an excellent package. With a £600 price tag, fine sound and a huge feature set, it did just about everything an audiophile on a budget could want.

Not only did the M-DAC offer 24-bit/192kHz LPCM playback via USB, it sported the (then) new and highly impressive ESS Sabre 9018 DAC – a chip that's gone on to prove one of the best performing of its generation – and switchable digital filters.

Again, custom digital filters weren't new in themselves, but designer John Westlake (responsible for the legendary, early '90s Pink Triangle Da Capo no less), took them seriously and made them a worthwhile addition. Indeed, so good is the M-DAC that it has given its maker something of a problem, albeit a nice one to have: namely, how do you improve on it?

The M-DAC+ is the answer, and it costs £800. The company says it is not a replacement for the original, more an

upgrade. I'm not so sure, myself, but the market will decide...

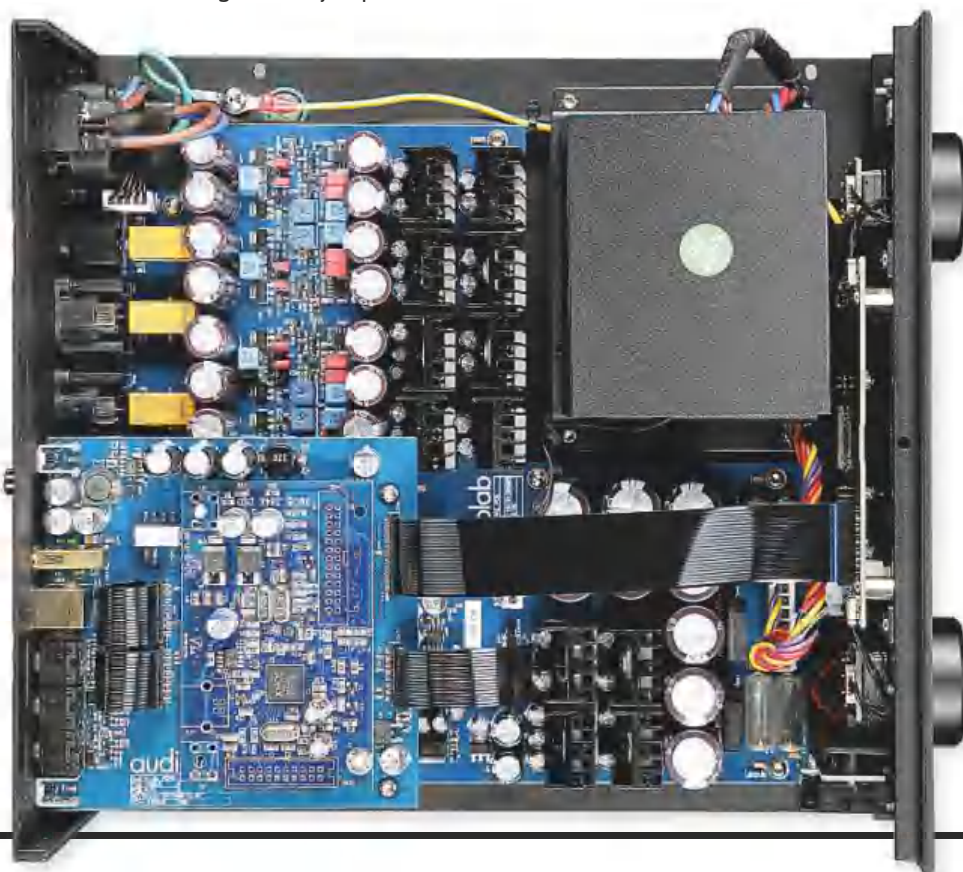
As a long-time M-DAC user, I'm well aware of its good and bad points. We'll start with the pros: great sound at the price; excellent connectivity and flexibility; and a superb display that tells you exactly what the DAC is doing. The downsides are the off-board power supply, which always gets in the way; the fiddly buttons on the fascia; and the lack of DSD compatibility. From this, you can guess what Audiolab has done: all those little wrinkles have been ironed out. The new M-DAC+ feels like a proper high quality hi-fi component in its own right, rather than some tweaky digital box of tricks that your average computer audio geek might covet.

The all-aluminium casework is finished to a very high standard, and the controls work with a pleasingly smooth action. Indeed the M-DAC+ gives every impression

of being costlier than its price-ticket suggests. So the centrally mounted OLED display is classy if, arguably, not quite so informative as the original. Styled in the idiom of the new 8300CD player [*HFN* Mar '16], with dual rotary control knobs replacing the plethora of buttons on the M-DAC, the new front panel is nice to look at too. A decent if undistinguished remote control is also supplied.

The power supply has now moved inside the box – which is half-width but much taller and deeper than the original – making for a slicker package, while a plethora of rear digital inputs are offered, alongside RCA and balanced XLR audio outputs. Thanks to this, the new M-DAC+ takes its place in the hi-fi firmament as a fully-rounded high quality DAC/preamplifier.

There's hardly any empty space inside this box [see inside shot, below]. The largish toroidal transformer sits in its own shielded



RIGHT: Inside shot (black chassis version) shows the uprated power supply and USB XMOs daughter board with latest firmware supporting LPCM to 384kHz/32-bit and DSD256



LEFT: The new user interface is much nicer than old M-DAC's. Left knob selects source and handles set-up; right is volume control. Crisp OLED display is slick and reasonably informative

enclosure and the power supply section sports numerous smoothing capacitors. The Class A analogue output stage sits right on the rear panel XLR and RCA socketry, to provide short signal paths.

The internal processing power has been beefed up, says Audiolab, and it's able to run LPCM right up to resolutions of 384kHz/32-bit thanks to a firmware update on the XMOS USB daughterboard. Admittedly, there is no commercially available music in this format yet, but in the fiercely competitive world of DACs, it's what's possible that counts rather than what is done. The same point applies to its newfound DSD functionality – more hens' teeth are currently on sale than Direct Stream Digital rock/pop music files, but the M-DAC+ heroically handles DSD64, DSD128 and DSD256.

In truth, most users will still run their M-DAC+s at ye *olde* 44.1kHz/16-bit, playing out their CD collections, and to this end

those user-selectable digital filters are a worthwhile addition, letting you tune the sound to taste [see PM's boxout, below]. Four filters that set the bandwidth of DSD playback have also been added.

SONIC SPRUCE UP

If its aesthetics and internal design have been spruced up, you might also say the same of the sound. For its £600 retail price, there was little to complain about, sonically, with the original M-DAC. It had a detailed, incisive, crisp and communicative sound with a wide stage and fine dynamics. The M-DAC+, as you might expect, has all of this and a little more. It's

not a 'night and day' improvement, but it's definitely worthwhile, leaving the impression of a more mature product.

Few aspects of the original's presentation aren't tickled-up at least slightly, but the headline news is this M-DAC+'s new-found clarity and lack of

grain. The old M-DAC, and the 8200CD that used many of its associated components, was just a bit 'swarthy' across the midband. Rather than offering a silky-smooth sound, there was a slight coarseness that never grated, but which never quite let you relax into its large, spacious soundstage. The M-DAC+ removes much of this sensation, and sounds cleaner and smoother.

However, it will never win an award for the world's sweetest DAC, as the default position for the M-DAC+ is not that of a sumptuous charmer. The M-DAC was always more of a punk rocker than a jazz funkster, but the new machine does move some way towards the latter. You might think that this would make it more boring, as it lost its rough edges, but the reverse is true – it steps out of the way of the music, revealing more of what we want to hear.

GREATER ENGAGEMENT

Take for example Buffalo Springfield's 'Expecting To Fly' from the CD *Again* [ATCO 7567-90391-2] via the coaxial S/PDIF input. This beautiful late-'60s rock opus with a brittle-sounding Neil Young on lead vocals and spacious Jack Nitzsche string arrangement can sound great, but digital audio tends not to flatter it, often making it seem cold and analytical. Interestingly, the new M-DAC+ doesn't fall into this trap as much as did the original.

There's a sense that the music is more direct, less mediated, and smoother and warmer too. The song pushes along in a more emotionally engaging way, with the M-DAC+ really able to communicate the poignancy of the music. By contrast, the old proved just a touch more mechanical.

Tonally, there's a subtle change to the new M-DAC+, but it's not a massive one. Some classic electronica from Kraftwerk, in the shape of 'Die Roboter' [*Mensch Maschine*; Kling Klang CDP 564-7 46131 2] proved an illuminating challenge. This analogue-recorded late-'70s classic is ➔

'Audiolab's 2012 M-DAC had set the budget DAC market alight'

FRUITFUL FILTERS

Audiolab's choice of Sabre's ES9018 '32-bit' ESS DAC still lies at the heart of the M-DAC+, but it's *your* selection of its seven bespoke filter algorithms that tailors the sound with LPCM inputs. The 'Optimal Spectrum' and 'Sharp Rolloff' filters are typical FIR types, their impulse responses showing pre- and post-ringing but achieving a superior rejection of alias images (–92dB and –83dB). The other five filters are optimised for transient performance and show little or no acausal pre-ringing at the expense of poorer HF extension and rejection of alias distortions. The 'Slow Rolloff' filter *should* trade limited pre/post-ringing for a gradual roll-off and a meagre alias rejection, but our sample must surely have had incorrect coefficients loaded [Lab Report, p81]. 'Minimum Phase' shows exclusively post-ringing (with increased phase distortion) and a –1.1dB/20kHz roll-off. The 'Optimal Transient', 'Transient XD' and 'DD' filters have no pre/post-ringing and offer the same gentle –1dB/12kHz to –3.2dB/20kHz treble roll-off (–3.8dB/45kHz and –5dB/90kHz with 96kHz and 192kHz files, respectively), but offer no suppression of alias images. These filters may be preferred with 96kHz+ files where aliasing is pushed well outside of the audioband. PM

AFFORDABLE HIGH-END

Revel Concerta2 loudspeakers combine elegant, sophisticated, modern design with the acoustical research and technical advances for which Revel is revered. Discover Affordable, High-End sound with the Concerta2 series.

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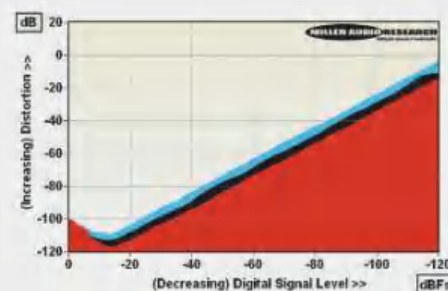
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LAB REPORT

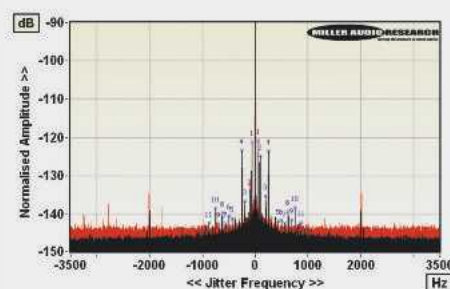
AUDIOLAB M-DAC+

Comparisons with Audiolab's original M-DAC [HFN Sep '12] reveal that the core performance of the M-DAC+ is largely unchanged (DSD compatibility is realised from an update of the XMOS USB input board). The balanced XLRs still provide a maximum 4.6V output from a vanishingly low 0.25ohm source impedance (this 'pre' will drive very long interconnects) with distortion also still just $\sim 0.0009\%$ at all frequencies at 0dBfs. This drops as low as 0.0001% between -10dBfs and -30dBfs [see Graph 1 below] with the S/PDIF inputs having a 1-2dB advantage in THD and noise over USB – the A-wtd S/N ratios being 115.3dB and 114.4dB, respectively, while low-level resolution is $\pm 0.1\text{dB}$ and $\pm 0.3\text{dB}$ over a full 100dB dynamic range. Jitter, on the other hand, is lowest at $\sim 15\text{psec}$ via USB although it's hardly 'high' at $< 65\text{psec}$ via S/PDIF [all rates, see Graph 2], the increase due to the fully enclosed PSU (the M-DAC is powered from an external wall-wart).

The response, time domain behaviour and stopband rejection is governed by the choice of digital filter [see boxout, p79]. Once again, there's no change over the M-DAC aside from the 'Slow Rolloff' option which surely has incorrect coefficients loaded, yielding a response of $-10\text{dB}/10\text{kHz}$ to $-30\text{dB}/20\text{kHz}$ with 44.1/48kHz media and $-7.5\text{dB}/20\text{kHz}$ to $-28\text{dB}/40\text{kHz}$ with 96kHz files! If you are using CD/48kHz-resolution files then the flat response and superior 92dB and 83dB stopband rejection offered by the 'Optimal Spectrum' and 'Sharp Rolloff' filters may make them the preferred option. Readers may download full QC Suite test reports for the Audiolab M-DAC+ (including every filter permutation), when available, by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



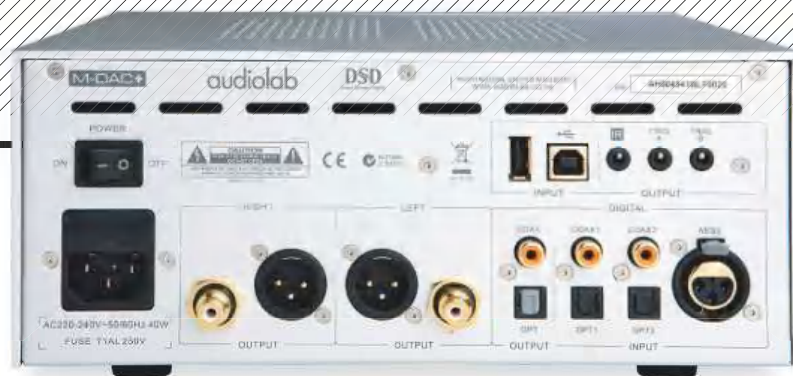
ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB dynamic range (S/PDIF 1kHz, red; USB input 1kHz, black and 20kHz, blue)



ABOVE: High resolution jitter spectra with 48kHz/24-bit data over S/PDIF (black) and USB (red)

HI-FI NEWS SPECIFICATIONS

Max. output level / Impedance	4.62Vrms / 0.2ohm (Balanced)
A-wtd S/N ratio (S/PDIF / USB)	115.3dB / 114.4dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0008% / 0.0002%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.0009% / 0.0003%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to -0.1dB/-3.0dB/-9.0dB
Digital jitter (48kHz/96kHz / USB)	65psec / 55psec / 15psec
Resolution @ -100dB (S/PDIF / USB)	$\pm 0.1\text{dB}$ / $\pm 0.3\text{dB}$
Power consumption	13W (1W standby)
Dimensions (WHD) / Weight	247x114x292mm / 3.7kg



ABOVE: Fixed and variable RCA and balanced XLR analogue outs are joined by DSD-ready USB (plus Type A port), AES/EBU, two optical and coaxial S/PDIF digital inputs

quite warm sounding, and the original Audiolab DAC has a slight tendency to turn the heat down by a degree or two. The M-DAC+ proved better, with a subtly fuller, more expressive bass. And again that smoother, less grainy upper midband came in handy for conveying the pure harmonics of those fantastic vintage synthesisers.

EXPLICIT DYNAMICS

Electronic percussion appeared to have more of a life of its own, too – apparently less dependent on whatever else was going on in the song. The song had an enjoyable fluidity to it that really pulled the listener in. This new DAC also handles dynamic contrasts better so the rim-shot sound pushed through in a more explicit way, coming from a more silent background.

The gaps between the beats were also more pronounced, which in turn gave greater emphasis to the percussion. Tonally, the Audiolab is not unbeatable at or near this price point: Chord Electronics' 2Qute costs £200 more, but sounds considerably sweeter up top and plusher low down... Still, the M-DAC+ is clean, powerful and commanding in a way completely unexpected at its price.

Via USB – with a MacBook Pro running Audirvana Plus – this new digital converter made a fine job of Wings' 'Band On The Run' [Band On The Run; 96kHz/24-bit, HRM-32148-02]. The original M-DAC is still to be admired for its expansive soundstaging (from left to right), and the M-DAC+ builds on this by subtly providing extra focus within those wide walls, and also allowing things to fall back just a little more.

This rather brought the classic McCartney track back to life, giving it a more tactile and three-dimensional sound. You'd never say the original recording was particularly 'hi-fi' but the

M-DAC+ didn't dwell on the (by today's standards) primitive studio technology, rather it let the music come forth in an unexpectedly involving way for an £800 DAC.

Switching to the balanced outputs gave more of the same, with an apparently quieter backdrop and wider soundstage that sounded just a touch more assured and unconstrained. This is the best way to hear the M-DAC+, with its internal volume control defeated so that it outputs a line-level signal.

Alex de Grassi's 'The Water Garden' on DSD [Special Event 19; Blue Coast] sounded superb. Many people believe that there's something about this format that's sweeter and more fluid than hi-res PCM, and the Audiolab did nothing to counter that. It gave a wonderfully delicate and tender rendition of the beautiful steel-string guitar work, complete with all the atmosphere of the event.

Indeed, aside from that subtle but trademark tonal dryness that the M-DAC+ and its cheaper sibling demonstrate across the range of formats and resolutions, it proved hard to 'place' the M-DAC+ as being a relatively affordable product at all. It's really that good. ☺

HI-FI NEWS VERDICT

If the £600 M-DAC is unassailable at its price then the new M-DAC+, at £200 more, is merely superb. The only shadow looming is Chord's 2Qute, which is an even more engaging performer costing a little more. True, it's nowhere near as flexible as Audiolab's M-DAC+, but goes to show how much the competition hots up the more the price rises. Highly recommended then, yet all the same it faces stiff competition.

Sound Quality: 84%





PWR-222 High End Mono Power Amplifier

£11180 | pair



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The PWR-222 delivers a staggering 250W/8ohm and can deal with even the most power hungry speakers. It features a 700W super low noise torodial power transformer, 44.000uF of RIFA capacitors, two 500amp MOS-FETS and WBT NexGen terminals.

The super low noise input stage and the carefully optimized PCB design enables a S/N ratio of more than 115dB and a bandwidth of far beyond 100kHz.

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The Gato Audio TwinFET technology has been developed to counter problems and compromises that are present in the majority of power amplifiers. Our TwinFET circuit solves these electrical and sonic problems at the point where they are created, thereby avoiding adding compromising correctional circuits and components.

This is the basic reason why you only will find two output transistors in the PWR-222s output stage, one for the positive and one for the negative part of a sine wave, nothing more, nothing less.

Features

250W@8ohm / 450W@4ohm | TwinFET technology output stage | High bandwidth power supply
Balanced and unbalanced input | Analogue multi display, clear and informative
12V standby trigger | Nonmagnetic enclosure | Designed, developed and build in Copenhagen, Denmark

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ACOUSTIC
SIGNATURE

Acoustic Signature WOW Turntable

The WOW is one of the newest turntables in the family of Acoustic Signature precision-engineered turntables. It comes with the same proprietary Tidorfolon Bearing design as used in all Acoustic Signature turntables, and with a 10-year warranty. Stunning Design with touch sensor operation so no button is on the clear designed surface. Brand new fully digital motor with a 20Mhz Micro Processor results in perfect speed stability. 4.5kg heavy duty Aluminium platter.

RB202 Tonearm and Audio Technica AT95e Cartridge included (image includes ta1000 arm).

£1360

Acoustic Signature Barzetti Turntable

The turntable "Barzetti" combines the precision of mass turntables with fresh modern attractive design, clear style, engaging 3D surfaces and soft radii. On a perfectly milled 50mm MDF-chassis Acoustic Signature use a 36mm aluminum platter with more than 6kg weight and the TIDORFOLON Bearing. The internal motor is controlled by their sophisticated motor electronics. As an absolute special The "Barzetti" comes with a 10-layered piano lacquer. This is the highest quality paint on the market with perfect mirror-like surface. The "Barzetti" is delivered in piano black or white or red, and other colors are available for small fee.

£2098



Acoustic Signature Challenger Mk3 Turntable

The Challenger turntable weighs in at 23kg, offering you an entry level high mass turntable. With this Challenger design, Acoustic Signature bring together one of the most sophisticated external drive and power supply drive systems, with a massive high mass 50mm thick platter, supported by a solid 40mm thick chassis. The Challenger is incredibly simple to set up, very versatile and sonically its performance is outstanding, making many other brand turntables costing up to three times the price sound poor in comparison. The Challenger design offers a remarkable and consistent performance at a highly competitive price, and has real visual appeal.

£3100

Acoustic Signature Thunder Turntable

Manufactured with the new revolutionary Silencer Platter 3 design, one of the most significant improvements in Acoustic Signature turntable designs. A 70mm solid aluminium chassis forms the base of the turntable, on which up to three arm attachments can be fitted for either 9" or 12" tone-arms of any make. The 50mm thick platter is driven by its remotely sited motor and AlphaDIG electronic control offers a perfect supply to the motor. The turntable base has been designed for optimum stability; the large footprint of the table generates more stability, to increase the weight concentration at the base of the turntable. The Thunder is engineered to provide exceptional sound, but its form is also attractively contemporary.

£7890



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Classical Companion

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Antal Doráti *Conductor and composer*

From the early 1950s, the Hungarian musician was a key figure in building the Mercury 'Living Presence' LP catalogue. **Christopher Breunig** chooses some current recordings

How do you do, ladies and gentlemen. Our castaway this week... That was Roy Plomley in 1960 introducing the first of two *Desert Island Discs* episodes where Antal Doráti was the guest. The composer chose part of *Fidelio*, 'O Namenlose Freude', as his single choice (in 1980 he opted for Mendelssohn's *Rondo Capriccioso* played by his wife, the pianist Ilse von Alphenheim).

Doráti was frequently heard in the UK in the early 1960s, as he was the BBC Symphony Orchestra's chief conductor from 1963 to '66 and, unsurprisingly, often programmed music by Bartók (with LSO concerts too). Bartók had been his piano teacher at the Budapest Academy, where he had studied composition with Kodály and Leo Weiner.

➔ A key recording from the Mercury 'Living Presence' catalogue: now on Speakers Corner 180g vinyl, or as a CD [see boxout]

↙ Antal Doráti, who was appointed to the BBC Symphony Orchestra in 1963



Born into a musical family in 1906, Doráti made his professional conducting debut at the Budapest Royal Opera aged only 18. He was appointed music director to the Ballet Russe de Monte-Carlo (a continuation of the company which had been founded by Diaghilev) in 1937, he then emigrated to the United States in 1941 and took up American citizenship two years later.

RECORDING FOR MERCURY

Within a few years he had transformed the Dallas Symphony Orchestra (1945-48) and had invited Janos Starker – also from Budapest – to join him as principal cellist. At the time, Starker was living in Paris but hoping for a solo career in the States. Having moved from Dallas to the NY Met in 1949, he was invited by yet another Hungarian emigré, Fritz Reiner, to spend time in Chicago. Like Doráti, Starker would record extensively for the Mercury label: in fact Doráti had introduced him to Mercury's Wilma Cozart Fine.

In 1951 the engineer C Robert Fine (her husband) had begun recording classical orchestral works

using a single microphone and the term Mercury 'Living Presence' was coined. In the stereo era, three mics were used and fed to discrete tape machines, mixed for a two-channel master. Mercury also used 35mm film which was thought to result in better sound. Mrs Fine supervised the Philips CD transfers and in 2004 we also had a limited selection of three-channel SACDs.

These included the Stravinsky complete *Firebird* ballet score, a revelatory recording made with the LSO at Watford Town Hall in June '59 [SACD 470 643-2, now out of print – but see boxout]. Decca has just made a 180g vinyl transfer,

acknowledging its inarguable audiophile status!

Doráti's first version of Bartók's *Concerto for Orchestra* (recorded in July 1962 at the

'He told Roy Plomley that he enjoyed shooting watermelons'

Wembley Town Hall) was also with the LSO yet, curiously, its first LP release here was on the French import label 'Magie du Son'. This was a fine competitor to the Fricnay/DG, Reiner/RCA and later LSO/Solti Decca versions. All Hungarians of course, only Szell blotting his copybook by insisting on rewriting the finale!

Incidentally, Doráti at first thought the 'Intermezzo Interrotto' quoted Lehar's *The Merry Widow* but was told by the composer that it was indeed Shostakovich's 'Leningrad' Symphony that was parodied.

Three of Yehudi Menuhin's recordings of Bartók's Second Violin Concerto were with Doráti: Dallas 78s in 1946; Carnegie Hall in 1957; and in 1965 with the NPO [Warner Classics 5854872]. Their 1947 Mendelssohn Concerto [see pic] is claimed to be the first studio film made of any classical performance.

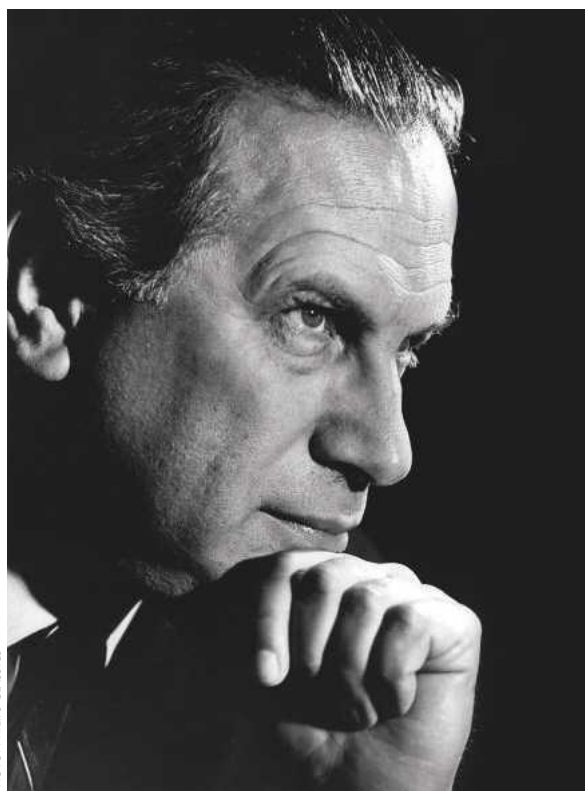


PHOTO: PHILIPS CLASSICS

Doráti's sympathies with the music of (or just before) our time were reflected in a 2003 Speaker's Corner 3LP slipcase set of Berg, Schoenberg, Webern and Günther Schuller (whose *Seven Studies on Themes of Paul Klee* was particularly attractive). It's no longer available but the items can mostly be found on CDs, some as licensed Presto Classical reissue discs.

But it wasn't all Bartók and Stravinsky with Doráti, who was also a fine Tchaikovsky conductor. In 1954/5 when he had moved from Dallas to Minneapolis, he made complete premiere recordings of the three ballets, *Swan Lake*, *Sleeping Beauty* (there was a later Philips version with the Concertgebouw) and *Nutcracker* (also with the LSO and Concertgebouw). Then, of course, there were the legendary *1812 Overture* productions, mono 1954 and stereo 1958, with added gunfire and bells [see boxout]. Of



greater *musical* interest were the four Orchestral Suites with the New Philharmonia [now Decca 4781708].

THE HAYDN PROJECTS

We've had more than one project to record all 104 Haydn Symphonies which has foundered, but Doráti's 1970s set (including supplements) is the edition most widely published. It was made with the Philharmonia Hungarica, a group of exiled musicians after the Soviet invasion who had moved to Germany in 1956 [Decca 4781221 – download only now; bargain price £50 for 44.1kHz/16-bit quality].

At about the same time, Doráti recorded eight Haydn operas, most not previously undertaken, with world-class singers and the Lausanne Chamber Orchestra [Decca 4781776, 20 discs].

Antal Doráti also composed between 1926-86 and was a fine

→ The complete *Firebird* ballet – an audiophile must-have disc – is now on Speakers Corner as 180g vinyl and on Decca too

← YouTube has – in a blurry 1947 film from Hollywood – Menuhin with Doráti playing the Mendelssohn Concerto



painter too. As a hobby, he told Roy Plomley he enjoyed shooting watermelons (he disliked the idea of killing anything). His compositions ranged extensively from chamber works, orchestral pieces and concertos – eg, for his second wife, von Alpenheim, and for Starker – to vocal and choral music. (Complete listing at www.dorati.com.) It would be idle to suggest these have either the stature or uniqueness of Boulez's output [HFN May '16] and he's probably remembered more for his 1940 Johann Strauss II ballet concoction *Graduation Ball* [VPO/ Doráti – Eloquence ELQ4767522]. Antal Doráti also wrote a somewhat bland 1979 autobiography, *Notes of Seven Decades*.

He was certainly a prolific recording artist, busy in the studios with his four, post-BBC orchestras: the Stockholm Philharmonic (Sibelius; two of his own symphonies on BIS), the National SO Washington (Tchaikovsky tone poems), Detroit SO (some fine American music CDs and Stravinsky remakes for Decca) and the RPO (a disappointing Beethoven cycle, but an entertaining Phase 4 *Peter and the Wolf* with Sean Connery narrating).

'Toni was never still. He didn't waste a single moment. He was always planning, doing, thinking something... The busiest person, but he never lacked self control', said von Alpenheim, in an interview with Bill Newman [www.mvdaily.com]. ☺

ESSENTIAL RECORDINGS

Bartok: *Concerto for Orchestra*, etc

Mercury 4320172

The LSO version [see text], with *Dance Suite*, *Two Portraits* and *Mikrokosmos* excerpts.

Copland orchestral works

Decca 4307052

With Doráti's last orchestra, the Detroit Symphony (1977-84), *Appalachian Spring*, *Rodeo*, *Fanfare*, *Dance Symphony*, *El salón Mexicó* in good (all-digital) sound.

Stravinsky: *The Firebird* (complete ballet)

Mercury 4320122

No more thrilling version has been recorded, although the Davis/Philips runs it close. The CD listed here includes *Scherzo à la Russe*,

Fireworks, *Tango* and *Le Chant du Rossignol*. (180g LP: Decca 4788318 or Speakers Corner.)

Stravinsky orchestral works

Mercury 4343312

On CD, Doráti's exciting Minneapolis *Le Sacre du Printemps* [LP shown above] is coupled with *Petrouchka*, in the 1947 version, and with the LSO, the *Four Études*.

Tchaikovsky: *1812 Overture*, etc

Decca 4758508

The legendary Mercury 1812 from 1958, with brass band, cannons, musketry and church bells (plus spoken commentary). It's coupled with the *Capriccio Italien* and – with the LSO – Beethoven's *Wellington's Victory*.

Vinyl Release

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Gene Vincent *Bluejean Bop* (180g)

The sound was of a raw rockabilly band letting rip yet it remains one of the most exciting LPs ever to be released. **Steve Sutherland** hears *Bluejean Bop*, reissued on 180g

I that am curtail'd of this fair proportion/ Cheated of feature by dissembling nature/ Deform'd, unfinish'd, sent before my time/ Into this breathing world, scarce half made up/ And that so lamely and unfashionable/ That dogs bark at me as I halt by them...'

It's not often we begin with a quote from the Bard but these are the words that were haphazardly roiling around Jack's brain as he waited at London Airport North on the chilly morning of Saturday the 5th of December 1959 while the thin, stooped figure shuffled across the tarmac. Red felt ice hockey jacket. Grey conservative slacks. Jack didn't much like what he saw.

IS THIS A DAGGER I SEE?

The jet-lagged fellow extended his hand. 'Hello sir,' he said quietly. 'I am very happy and proud to make your acquaintance.'

Jack shook the hand in dismay. He was expecting, as he later recalled, 'a dagger boy... the rock 'n' roll screaming end...' And here was this... this... ageing square.

The welcoming committee included a group of devoted young bucks called

The Firing Squad, and as they burst into a fannish rendition of the fellow's greatest hit, Jack began to sweat. Think Jack think. What to do? What to do?

It had been Jack's idea to invite Gene Vincent to the UK and feature him on *Boy Meets Girls*, Jack's weekly music show on ABC-TV. *BMG* was the follow-up to Jack's sensational *Oh Boy!*, Britain's first proper music TV programme featuring short, sharp performances amidst a milling live audience – a template Jack set for all the great music TV broadcasts to come.

These shows had been instrumental in launching the careers of Britain's nascent rockers – Cliff Richard, Tommy Steele, Billy Fury, Marty Wilde, *et al* – but with long-term careers in mind, these home-grown talents were drifting towards showbiz balladeering leaving Jack with a problem when it came to supercharging his latest TV offering.

Recalling the furore around Jerry Lee Lewis' abortive tour a year earlier when

'Jack began to sweat. Think Jack think. What to do? What to do?'

STEVE SUTHERLAND

Steve edited NME from 1992-2000, the Britpop years, launching NME.com and reviving the NME Awards. Previously he was Assistant Editor on Melody Maker. Among his many adventures he has been physically threatened by Axl Rose, hung out awhile with Jerry Garcia and had a drink or two with Keith Richards...



the singer's marriage to his 13-year-old first cousin saw him driven from our shores, and mindful of the wild scenes that accompanied screenings of rock 'n' roll movies like *Blackboard Jungle* and *Rock Around The Clock*, Jack decided to import some more of the Real Thing. It came in the twisted shape of Gene Vincent.

SHATTERED LEG

The invitation couldn't have been more timely for Gene. Born Vincent Eugene Craddock in 1935, young Vince was

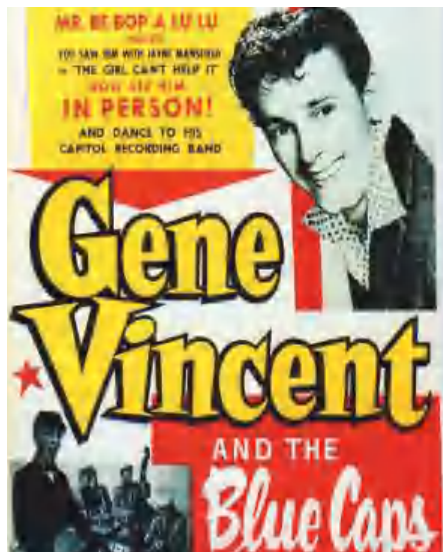
looking forward to a promising career in the US Navy when he crashed his Triumph motorcycle while on leave in 1955, leaving him laid up in hospital with a shattered leg that the surgeon decided to

amputate. Vince wouldn't allow it and was left with a crushed limb encased in an iron sheath which enabled him to hobble about in permanent pain.

Vince spent his recuperation writing songs, mostly in the vein of Elvis Presley which was where the smart money was at the time. Once up and about, he recruited a band – named The Blue Caps in honour of the Navy – and recorded a demo of a little ditty he'd knocked up called 'Be-Bop A-Lula'. Capitol records, on the look-out for another Presley, signed him up and released 'Be-Bop' as the B-side of 'Woman Love', another smouldering rocker deemed so salacious that it was banned from many radio stations.

No matter. Deejays took to flipping the disc and the sobbing, throbbing 'Be-Bop', now considered one of the very greatest singles of all time, rose to No 7 in the US charts in 1956. Vince – swiftly styled Gene to sound sexier – next set about recording a peerless run of rockabilly songs never bettered by anyone, including Jerry Lee, Little Richard, Buddy Holly and Elvis himself.

They were songs that made great singles and were mostly included on three



Gene Vincent poses for a Capitol Records promo shot from 1957 (left) while a poster shows the singer and The Blue Caps after they'd appeared in the 1956 movie *The Girl Can't Help It*



➔ Priced at £19.99, the 180g reissue of Gene Vincent's *Bluejean Bop* is available to order online at www.amazon.co.uk

fabulous LPs, 1956's *Bluejean Bop*, Gene Vincent & His Blue Caps ('57) and *Gene Vincent Rocks! And The Blue Caps Roll* ('58).

But the States was proving to be a tough place for rockers, public taste was turning MOR, the payola investigation that nailed Alan Freed was underway and Gene, who drank too much to offset his pain, found his career in a shambles. The taxman was on his trail, his band had reported him for non-payment of fees and his records weren't selling any more.

REBELLIOUS FANTASY

Then... the transatlantic telegram from this Jack Good fellow. Nothing to lose. Except... the Gene that arrived at London Airport wasn't in the least what Jack was expecting. How to equate this polite, dishevelled, probably past his prime Southern gentleman with the hot-wired, hepped-up, crazed cat sounds on 'Be Bop A Lu-La', 'Woman Love' and the album we're here to celebrate, the one that started it all, *Bluejean Bop*? How to create a look to represent the rebellious fantasy barely contained within its grooves?

Take the title track, beginning with a threat to his girlfriend that she'd better be faithful or else. 'Jumps, Giggles And Shouts', whose four solos showcase Dickie Harrell's skittish percussion, Jack Neil's tub-thumpin' bass and, star of the show, Cliff Gallup's lead guitar, the fastest and fiercest in rock 'n' roll history. 'Jump Back, Honey, Jump Back', impossibly nearly as good.

Then there was 'Who Slapped John?' What a number! A blow-by-blow bar fight over a girl! 'Bop Street', an ice-cool crawl through a city's sleazy underbelly. And a handful of trad ballads – 'Ain't She Sweet', 'Up A Lazy River', 'Jezebel', all lavished with otherworldly echo to the point where their sentimentality is rendered psychotic.

These were songs that could barely contain their wild performances. And yet... that red felt jacket! What to do? Jack drew



on his theatrical past – his days spent studying at the London Academy of Music And Dramatic Art, his tenure as President of Oxford University's Drama Society.

This was Jack's thinking: 'I was a Shakespeare fan so hobbling to me meant Richard III.' He recalled Laurence Olivier's sinister take on Shakespeare's 'Poisonous hunch-back't toad' and swiftly dismissing the tempting but crazy idea that he could actually create Gene a false hunchback, he diverted his musings to *Hamlet*.

Gene, Jack decided, should be tortured like the loathsome King Dick and 'moody', like the lachrymose Dane. Make him isolated, lonesome, pained and sad and dangerous, smooth with some evil intent lurking within. Dress him in black, head-to-toe. Even better, all black leather, like a biker. 'I once played a murderer, Lightbourne, with gloves on,' he reminisced, 'so I added that too.' Viola! Gene's creepy gauntlets.

MAXING OUT THE DRAMA

Jack chuckled in a medallion for good macho measure and Gene was ready for his UK TV debut. Or that's what he thought. But Jack wasn't finished yet. Re-acquainted with his inner thespian, not to mention a sadistic streak, Jack was determined to max out the drama so he had a set of stairs built on the set so that the audience would witness Gene the cripple struggle to mount

the stage. Trouble was, once the cameras were rolling, Jack realised that Gene was pretty adept at negotiating stairs and, to his utter dismay, 'hardly looked as if he was hobbling at all.' At his wits' end, Jack did what Jack had to do. 'I yelled out: "Limp, you bugger, limp!"'

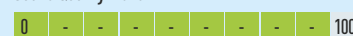
Gene duly obliged, the kids freaked out and flocked to a hastily arranged UK tour, drinking in the danger. Among the naughty truant schoolboys bunking off to the shows, masters Lennon, Harrison, Daltrey, Davies... a veritable who's who of the revolution to come. ☺

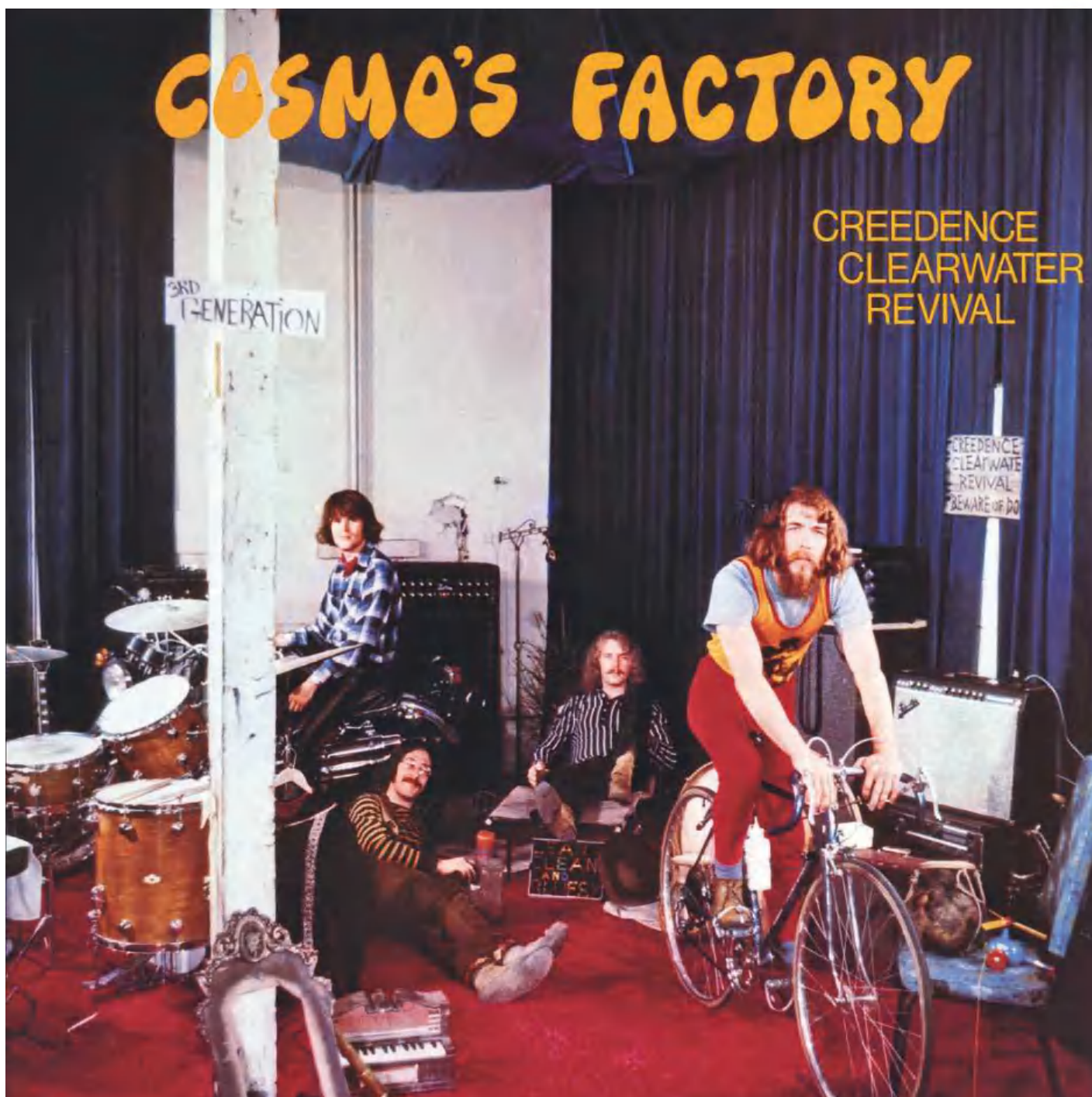
RE-RELEASE VERDICT

Released on the Pan Am label, this 180g reissue mirrors the running order of the 1956 Capitol release and includes two extra tracks – 'Brand New Beat' and 'Flea Brain'. A new set of liner notes supplements the original ones, both of which are printed crisply on a sleeve made of thick art card.

We were just as impressed with the quality of the pressing itself which was flat, free of noise across both sides and remarkably dynamic sounding. Amazon price includes a free downloadable MP3 version of the album. *HFN*

Sound Quality: 90%





CCR *Cosmo's Factory*

It was an album that not only gave a nod to the way LPs were put together decades before its release, but one that can now be seen to have anticipated the way in which many contemporary musicians regard albums today. Now that's what we call a classic...

Words: **Johnny Black**

In 1970, Creedence Clearwater Revival, led by songwriter John Fogerty, was the most successful band in America without question, and that year's album, *Cosmo's Factory*, was their most successful ever, spending eight weeks at No 1 in the Billboard chart, and eventually achieving quadruple platinum status.

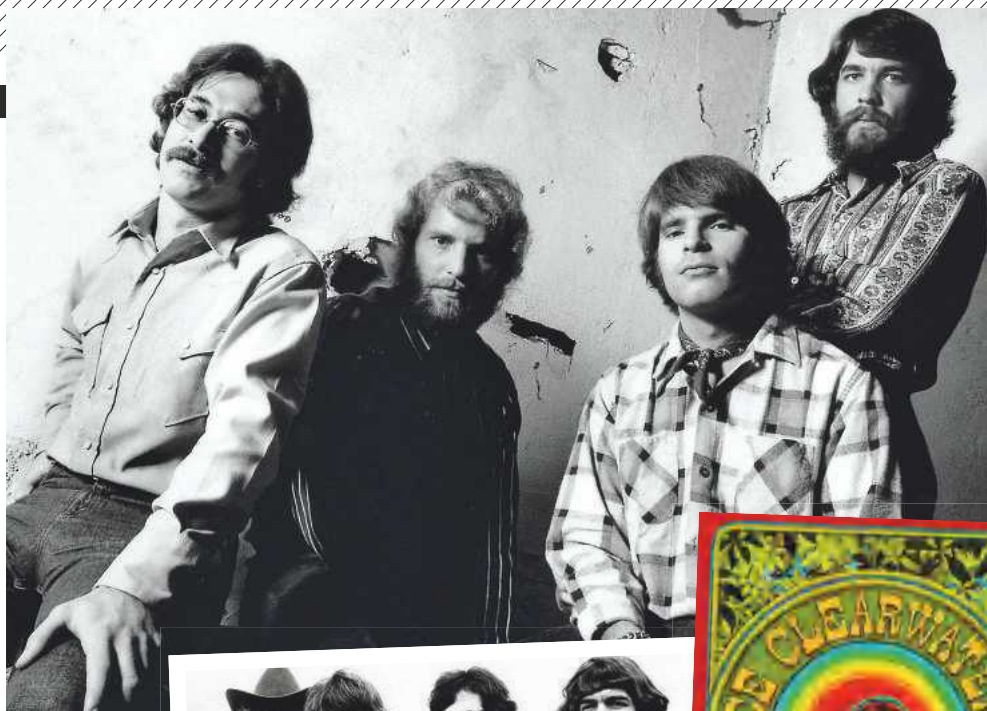
And yet to call *Cosmo's Factory* an 'album' flies in the face of almost everything that has long been accepted about how iconic past albums have been made. The classic LPs of The Beatles, Rolling Stones, Beach Boys and others tended to have been recorded in a well-defined period of time in a studio, emerging as a coherent body of work whose running order was carefully chosen to enhance the listening experience.

EXISTING HITS

Cosmo's Factory broke all of those rules and not only harked back to the 1950s, when albums were routinely cobbled together from a string of existing hit singles, but looked forward to the present day when many artists release individual tracks online and think of albums almost as an afterthought.

'*Cosmo's Factory* was really a collection of singles,' points out Creedence bassist Stu Cook. 'That album was recorded over ten months. We'd just go in and record A and B sides, release them, and we had over half the album done before we went in to record "Grapevine" and the cover tunes... "Ooby Dooby" and whatever else.'

The bulk of the LP was recorded in June 1970 but its best-known cuts, 'Who'll Stop The Rain' and 'Travelin' Band' were done late in 1969, while 'Up Around The Bend'



ED CARAFFE

➔ The band (l-r) Stu Cook (bass), Tom Fogerty (guitar), John Fogerty (vocals, guitar) and Doug Clifford (drums)

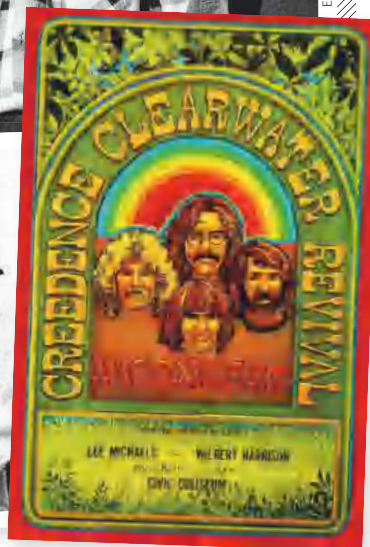


JIM MARSHALL

➔ Promo shot in the late '60s

➔ Poster for a 1980 gig in Vancouver, Canada

➔ Rear sleeve of original vinyl release and Fantasy Records label



and 'Run Through The Jungle' were recorded in March 1970. In other words, the June sessions were mostly cover versions – the aforementioned 'Ooby Dooby', plus 'My Baby Left Me, Before You Accuse Me' and 'I Heard It Through The Grapevine'. The opener, 'Ramble Tamble', is a seven-minute long guitar workout, so the only genuinely new song from that period is the evocative closer, 'Long As I Can See The Light', which is, admittedly, a John Fogerty classic of the highest standard.

'Fogerty's genius was for tightly-structured three-minute rock gems'

'It may actually be our best record,' declared the quartet's presiding genius, John Fogerty, in 1997. 'I always thought it was the culmination. By that time, Creedence had all these records,

and we looked back and put everything on it. It was almost redemptive, you might say.

'We'd done all these things and it was like,

"Boom! There, I said it again".'

Russ Gary, who engineered *Cosmo's* and several other Creedence albums, recalls how, 'At a time when rock 'n' rollers were developing increasingly flamboyant looks, Fogerty, in his simple jeans and flannel shirt, came across as more of a shaggy-haired working man than a rock star. But even just standing around, he gave off an intensity that drew your eye to him.'

Although based in the psychedelic stronghold of Berkeley on the San Francisco Bay, the band



SAID IT AGAIN

With all of this in mind, why does *Cosmo's Factory* merit our coveted Vinyl Icon status? Simple. However haphazardly it was assembled, the result remains one of the most enjoyably listenable experiences ever committed to disc.

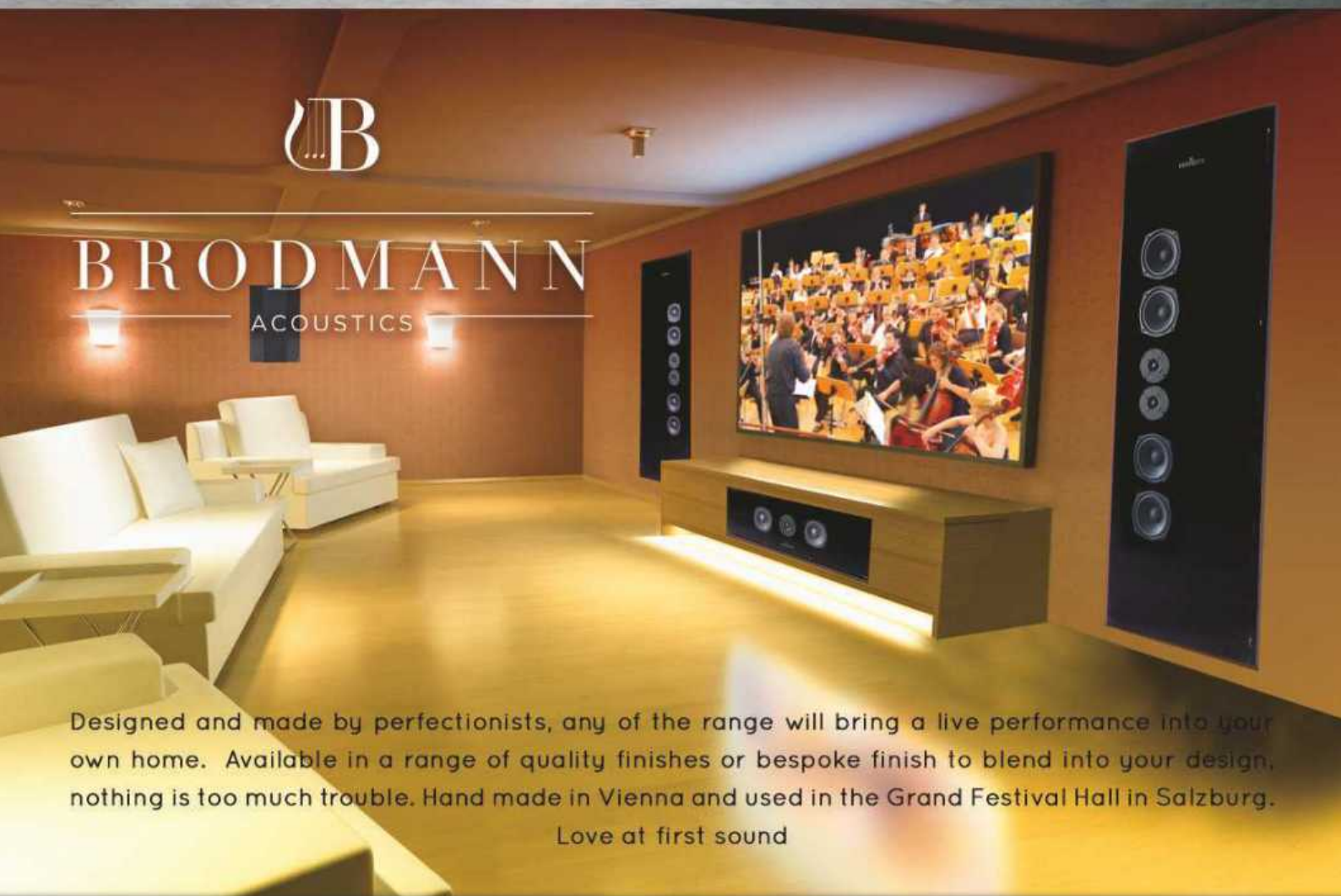
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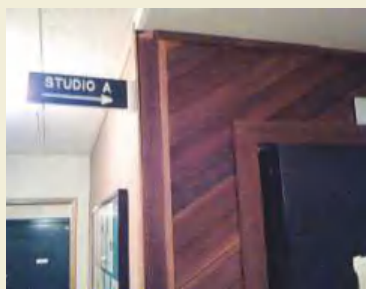
PRODUCTION NOTES

Cosmo's Factory was recorded in Wally Heider Studios in San Francisco. Engineer Russ Gary oversaw the sessions, on a Frank DeMedio custom-built recording console, using a 3M 8-track recorder with Ampex 401 and Scotch 201 tape. Gary's preference was for the Scotch tape, because it 'seemed to have a sweeter, brighter top end'. Shure SM56 mics were employed, which Gary also favoured because, 'they had a natural peak at around 2k or 4k. I don't know why, but that mic made instruments sparkle a little bit without funny EQ.'

Studio trickery was kept to a minimum, but there was one effect that became an integral element on nearly every Creedence recording: slap-back. Fogerty's fondness for the effect came from having grown up (as did Gary) listening to Elvis and Sun Records recordings.

Gary achieved the Creedence slap using two Ampex 440 2-track machines and the studio's echo chambers. 'During most mixing sessions, both 2-track machines would be running and I would delay the signal going to the chamber to get it slapping and bouncing around. Then there would be one to mix on.'

In the studio, Fogerty was a hard taskmaster, virtually a dictator. He



was famed for editing Doug Clifford's drum tracks to get the beats exactly where he wanted them and, rather than let the band sing harmonies, he'd multi-track them himself. Effectively, he treated the others like session musicians, writing all of their parts and teaching them how to play them. He also supplied all overdubs.

Fogerty's control-freakery was to eventually break the band apart, but he was always unrepentant. 'There's a lot of time being consumed in bands where everybody's having their say,' he was to say later. 'Then you have a meeting, you take a vote – you see what I'm getting at...'



were never part of the same hippy movement that gave birth to The Grateful Dead, Jefferson Airplane and Country Joe And The Fish. You'll look in vain for rambling, esoteric guitar solos, freaky time signatures and primitive electronic experimentation on Creedence hits, because Fogerty's genius was for tightly-structured three-minute rock gems with eminently singable choruses. Unfashionable maybe, but they sound as fresh and uplifting now as they did then.

Even the covers on *Cosmo's Factory* are beautifully executed, and perfectly integrated with the new material. Their 11-minute take on Marvin Gaye's 'I Heard It Through The Grapevine', for example,

has become as well-loved as many of Fogerty's originals. Cook has acknowledged that 'Grapevine', 'had a little jammy character to it, but they were all pretty structured. Live, there was a little bit of noodling, but in the studio we always tried to nail the arrangement.'

ORDINARY JOE

Many of the early Creedence hits, 'Proud Mary', 'Green River' and 'Down On The Corner', had dealt with simple Ordinary Joe topics, but by 1970, the socio-political scene in America was riling Fogerty. One obvious example of such concerns on *Cosmo's Factory* is 'Run Through The Jungle', which is still frequently mistaken to be an anti-Vietnam war rant. 'I was talking about America and the proliferation of guns, registered and otherwise,'

he has explained. 'I'm a hunter and I'm not anti-gun, but I just thought that people were so gun-happy – and there were so many guns uncontrolled that it really was dangerous. It's even worse now.'

POLITICALLY CHARGED

'Who'll Stop The Rain', despite its hauntingly evocative sound, is every bit as politically-charged. And this time, it actually was about Vietnam, and how the American government didn't seem to represent the way Fogerty and millions of other young

people felt.

'Protest songs were always kind of done with a real loud approach vocally and a harmonic

a la Bob Dylan,' he told Craig Rosen of *Billboard* magazine.

'I really wanted to do a song about the times, but I didn't want to be obvious. I wanted to say what I wanted to say and come to people in layers, so they were absorbing the beauty of it and enjoying the song, before it ever occurred to them what it was actually about.'

Misinterpreting Fogerty's lyrics seems to be almost a national pastime in the US, where the country-rockin' 'Lookin' Out My Back Door' is frequently described as a drug song. Not according ➔



← The double A-sided single 'Run Through The Jungle' / 'Up Around The Bend', which was released in January 1970 and 'Lookin' Out My Back Door' / 'Long As I Can See The Light', which came out in the July

← Inner sleeve with portrait of the band

← Inside the Wally Heider Studios complex, now called Hyde Street Studios

↓ John Fogerty poses for the camera in 2012





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Alternate Format Discography



HEINRICH KLAFES

➤ Fogerty live in 1971 at the Ernst-Merck-Halle, Hamburg

to Fogerty it isn't. 'I wanted to write a kid's song for my son Josh who was three years old at the time,' he explains. 'There was a Dr Seuss book I loved when I was a child called, *And To Think That I Saw It On Mulberry Street*. This story filled me with wonderment and I wanted to write a song that felt the same way.' He succeeded.

The clutch of cover versions on the album was intended to reveal the musical inspirations that first motivated Fogerty, and so too did one of his own compositions, the solidly rock 'n' rollin' 'Travelin' Band', which he described as, 'my salute to Little Richard'.

Unfortunately, Little Richard's publishers considered it to be so similar to 'Good Golly Miss Molly' that they slapped a lawsuit on Fogerty, which he eventually settled out of court.

OVERLOOKED CLASSIC

The album closes with a frequently overlooked Fogerty classic, 'Long As I Can See The Light', a blissfully simple song about trying to make a way home through the dark which finds him singing at his most soulful. It's hard to imagine a more perfect ending for *Cosmo's Factory*, because it exemplifies all of the things – clarity, melody and lyricism – that make John Fogerty a timelessly imaginative songwriter.

Released on July the 16th, 1970, *Cosmo's Factory* spent eight weeks at No 1 in Billboard, reached No 1 in the UK on September the 12th and was certified gold in the US on December the 16th. It took another two decades, but the album was finally certified for quadruple platinum – four million – sales on December the 13th, 1990. ☺



ORIGINAL VINYL (1970)

As might be expected of an album beloved by millions, *Cosmo's* has been re-released, re-mastered and regurgitated in almost 150 versions since it first appeared in 1970. What follows is my, hopefully useful, survey of those versions which I consider worthy of the attention of any committed Creedence devotee.

Fantasy Records was a notoriously low-budget, not to say cheapskate, small-scale indie set-up. Even after several years of success, Creedence still didn't get the kind of big recording budgets they would have enjoyed with CBS, Warners, or any other major label.

Fogerty, however, was used to overcoming monetary restrictions, so the original vinyl release [Fantasy 8402] still sounds good thanks to the elegant simplicity with which he ensured it was recorded. Intelligent microphone placement, for example, costs nothing, and can radically cut down on mixing time and post-production tweaking.

Mastered and pressed by RCA in Hollywood, this remains a desirable artefact, on which the audio perfectly complements the music – although the narrow stereo mix now sounds somewhat antique.

CASSETTE (1970)

Curiously, the US cassette seems to have been issued with the first and second sides of the vinyl swapped, for no obvious reason [M 58402]. The other contemporary cassette editions, UK [FACC505] and Europe [C-30055], replicate the vinyl running order.

8-TRACK CARTRIDGE (1970)

This 8-track cartridge appeared in the US, but because of the restrictive 'endless-tape-loop' format, the running order was mercilessly hacked around to make

the songs fit. The most obvious example is that the 11m-long 'Grapevine' takes up all of side four, causing the remaining tracks on side three to be juggled and requiring the addition of 'Travelin' Band' (originally on vinyl side one) to make up the required playing time. Given the many other drawbacks of 8-track, I can only recommend this to seriously smitten collectors of the format.

MFSL VINYL (1980)

Using the original master tapes, MFSL had them half-speed re-mastered with the Ortofon cutting system at Original Masteringworks. Specially plated and pressed on high-definition super vinyl by the Victor Company of Japan Ltd [pictured below], this goes for silly money on eBay, because it offered a significant improvement on an already remarkably good original. Catalogue number is MFSL 1-037.



FIRST CD VERSION (1985)

By this time, Fogerty's original narrow mixes had been appreciably widened and it is these which appear on most later issues. This [CD 33872] showed up in Australia, via Festival Records, glass mastered by the US-based company Digital Audio Disc Corporation.

A fully-fledged US CD [FCD-4516-2], however, didn't arrive until 1989. Having been re-mastered by the estimable George Horn, then Chief Mastering Engineer at Fantasy in Berkeley, it has the stamp of authority. The acclaimed Mr Horn now runs his own outfit, George Horn Mastering, from Fantasy's studios.

24-BIT REMASTER (1993)

The internationally-renowned Steve Hoffman, then at DCC Compact Classics Inc in California, was the next to make significant improvements to *Cosmo's* on CD,

with this 24-bit remastered gold disc [GZS-1031].

180G VINYL RE-ISSUE (2002)

Fantasy put this one [ORC-4516] out to meet the requirement for a product that would appeal to the growing audiophile vinyl audience. It was mastered in California at AcousTech Mastering under the watchful eyes of Steve Hoffman and Kevin Gray.



SACD (2002)

Hoffman and Gray were also in charge for this reissue from Analogue Productions [CAPJ 8402 SA], which carried a 'Hybrid Multichannel Super Audio CD' sticker on the cover, but the Super Audio is apparently in stereo only. Nevertheless, it's highly-rated!

40TH ANNIVERSARY EDITION (2008)

Until this [UCCO-9197] appeared in Japan, none of the numerous versions had boasted any extra tracks, but this one throws in a remake of 'Travelin' Band', a live 'Up Around The Bend' and a real rarity – a version of 'Born On The Bayou' which features Creedence and Booker T And The MG's jamming in the studio together.

Attractively packaged as a CD-sized paper sleeve album replica, with informative sleeve notes, obi-strip and various inserts, it's a desirable little object, mastered by George Horn.



Meet the Producers

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

New
Series

Sir George Martin

The role of the producer is to oversee the creative process in the recording studio, but there are those who have become as famous as many of the artists they have produced. **Steve Sutherland** begins a brand new series with a look at the work of 'the fifth Beatle'

For me, making a record is like painting a picture in sound... Not only are we painting sound pictures, but our palette is infinite. We can, if we wish, use any sound in the universe, from the sound of a whale mating to that of a Tibetan wood instrument, from the legitimate orchestra to synthesised sounds...

'The fascination of recording is that you really do have an unlimited range of musical colours to use. That's one of the main reasons I enjoyed working with The Beatles so much, because our success won me artistic freedom... Now, at last I was able to say: "Let's have a go at this. It doesn't matter about the cost – we'll just try it".'

George Martin, *All You Need Is Ears*, Griffin press, 1979.

'The Beatles sounded great when they were The Beatles. But there's not a lot of roots in that music. I think they got carried away. Why not? If you're The Beatles in the '60s, you just get carried away – you forget what it is you wanted to do. Some people think *Sgt Pepper's* is a genius album, but I think it's a mishmash of rubbish.'

Keith Richards, *Esquire*, 2015.

ART VERSUS ANGST

There are two schools of thought and one certainty about George Martin. The first school, admirably expressed by producer Stuart Price (Madonna, The Killers...) on the occasion of George's recent death, is that, 'He invented the idea of the studio as a place to make music that was more esoteric than could be achieved on stage – the studio as an instrument.'

This, according to Mr Price and a multitude of other contemporary



ADAM SHARP

→ Sir George Martin at work in the early '60s. The picture was used as cover art for a 6CD box set released on the Parlophone label in 2001 to mark Sir Martin's 50-year career as a record producer

← Sir Martin caught on camera backstage at rehearsals for The Beatles' *Love* show at The Mirage hotel in Las Vegas in 2006



record producers, was such a visionary achievement that George Martin's work, especially with The Beatles, completely changed for the better the way we make, and hence hear, and hence appreciate music to this very day, and probably forever. In other words his canon casts the long shadow we reserve solely for the absolute genius.

The second school, as expressed by Keith Richards above, is that George Martin was pretty much responsible for castrating rock 'n' roll and turning a bad-ass anti-social sonic expression of sexual, political, generational... Whatta you got? We're against it!... angst into Art with a capital A – something to be appreciated for its crafted attributes rather than experienced like a boot to the gut.

When Bernard Butler, producer and erstwhile Suede guitarist, said, 'What he did that was important was to say, "What if?" That's the

biggest question a producer can ask... "What if you take something and make it something else?,"' he was obviously being laudatory.

But... what George Martin enabled The Beatles to do in Abbey Road Studios with the limitless time and expense success afforded them was to totally abandon the visceral thrill of live performance for something communicating solely from the studio, George's laboratory of sound. As a blogger on *NME.com* recently noted, 'It signalled the beginning of music taking itself far too seriously, and that is something pop may never quite recover from.'

CREATIVE LEAP

Ultimately whether you consider 1967's *Sgt Pepper's Lonely Hearts Club Band* the seismic point where popular music was elevated to the standard of fine art, a creative leap so brilliant that trying to match it reduced Brian Wilson, another



genius, into a hopeless, dribbling wreck, or whether you think, like the *NME* blogger, it's a record you can admire but never love, 'an album for failed sound engineers', is entirely down to you and the way your ears talk to your heart.

RECORDING REVOLUTION

What *is* certain, though, is that George Martin revolutionised recording history, in the attitude to the way records were produced and in the actual technique of recording. And his background had a great deal to do with it.

Born into what we might call a lower middle class family in Holloway, North London in 1926, by the early 1940s he was being promoted through the Fleet Air Arm of the Royal Navy to the rank of Commissioned Officer. He then left to pursue his musical interests at the Guildhall School Of Music & Drama where he studied piano and oboe, specialising in composition and orchestration.

On graduation he joined the BBC's Classical Music Department and then Parlophone, a rather beleaguered offshoot of EMI. In 1955 he was head of the label and, in a bid to establish a new identity, began to record comedy acts including Flanders & Swann and The Goons; all with encouraging payback.

← Billy J Kramer in 1965

➔ Cilla Black, whose 1963 debut single was produced by Martin

➔ Martin with The Beatles at Abbey Rd in the mid '60s

← Gerry & The Pacemakers in 1964

➔ From 1967 – 'Strawberry Fields Forever'

But his big break, as we all know, came in 1962 when he decided to sign, on pretty much gut instinct alone, a new beat group who, unbeknownst to him, had been turned down by pretty much every other British major label.

That group was The Beatles and over the next eight years, George worked with them at EMI's Abbey Road Studios as, according to Paul McCartney, their fifth member, producing what is the most famous and fabulous catalogue of recordings there's ever likely to be.

Of course, George also successfully produced a number of other chart-

topping artists – Cilla Black, Gerry & The Pacemakers, Billy J Kramer & The Dakotas, mostly out of Beatles' manager Brian Epstein's roster – but I hope you'll forgive me if we concentrate on the Fab Four out of necessity here as, without them, it's doubtful the other opportunities would have arisen.

There's no way to capture all the amazing things George did in 1500 or so words, so let's take a quick look at some of the recording techniques which George introduced to the studio and, in many cases, actually invented.

Attitude: Up until George and The Beatles, the band played the songs and the 'producers' recorded them. That was about it. There was no *sympatico* whatsoever.

'The curious thing is that our relationship moved in two different directions at once,' he said of their partnership. 'On the one hand, the increasing sophistication of the records meant that I was having a greater and greater influence on the music. But the personal

relationship moved in the other direction. At the start I was like a master with the pupils, and they did what I said. They knew nothing about

recording but heaven knows they learned quickly: and by the end, of course, I was to be the servant while they were the masters...'

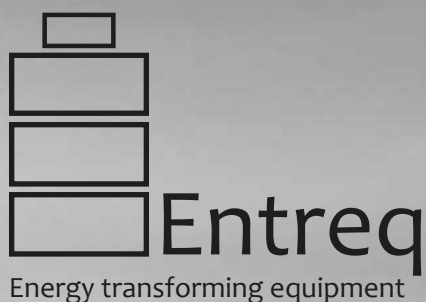
“Martin invented the idea of the studio as a place to make music”

MULTIPLE NUANCES

Double-tracking: Mastering the possibilities brought about by the arrival of stereo, George encouraged the multi-tracking of vocals on Beatles' songs, his brilliance at balancing perfection with feel enabling the words being sung to capture multiple nuances.

Butch Vig recalls that, when he was producing Nirvana's *Nevermind*, singer Kurt Cobain was refusing to double-track his ➔





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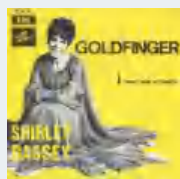
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BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW



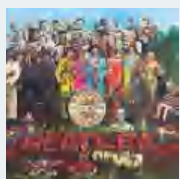
1962

George Martin produces the single 'Love Me Do'/'PS I Love You' at his first recording session with The Beatles. It climbs to No 17 on the British singles chart



1964

Produces 'Goldfinger' for the 007 film. The song gives Shirley Bassey her only Billboard Top 40 hit while in the UK the single reaches No 21 in the charts



1967

The Beatles and George Martin begin working on the *Sgt Pepper's* album. It takes four months to complete - unheard of at the time for a rock album



1974

Sir Martin enters the studio to begin work on *Holiday*, the first of seven albums he produces for the band



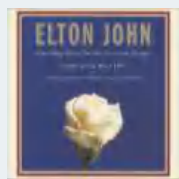
1975

Blow By Blow, the first of two instrumental albums Martin produces for Jeff Beck, is released. Beck's best and best-selling album, it reaches No 4



1995

First volume of The Beatles' 'Anthology' series, produced by Martin, enters the US album chart at No 1



1997

Sir Martin produces and scores Elton John's best-selling single 'Candle In The Wind '97', a tribute to the recently deceased Princess Diana

vocals for fear they would sound fake. When Vig mentioned that John Lennon double-tracked with George Martin, Cobain ceased to resist and went on to double-track most of the rest of the album.

Feedback: The first five seconds of The Beatles' 'I Feel Fine' single is the sound of Macca's bass being picked up through Lennon's semi-acoustic. Most producers would have wiped it. George did the opposite.

Broadening horizons: There are tons of examples. Here are two. It was George who persuaded McCartney to

let him score 'Yesterday' for a string quartet when Macca was sceptical that it would sound too soft. It was also George who arranged for the famous Bach piccolo trumpet solo to be applied to 'Penny Lane' and for a sceptical 40-piece orchestra to improvise between the highest and lowest notes for 'A Day In The Life'.

BAROQUE 'N' ROLL

Varying speed: Lennon wanted something 'baroque-sounding' for the solo during 'In My Life' but didn't have a clue how to achieve it. George Martin played the piece at half tempo on a piano then sped it up to create the song's famous 'harpsichord' sound.

Reversing: Accidentally discovered by a stoned Lennon, it was George who harnessed the

mishap to create a new psychedelic language, including a backwards vocal on 'Rain' and the George Harrison guitar solo on 'I'm Only Sleeping'.

SPICE AS NICE

Splicing: Arguably George's greatest achievement was discovering an aural translation to fit John Lennon's tripped-out childhood reminiscence, 'Strawberry Fields'. Apparently Lennon considered the early 'live'

takes too raw and then rejected further takes where Martin had introduced an orchestra of horns and strings as too grand. George's comment that

Lennon was 'splitting hairs' led Lennon to suggest that George in some way combine the two despite the fact that they were recorded at different speeds in different keys.

George accepted the challenge and with a pair of editing scissors, spliced the tapes together to conjure the track's unique woozy, acid-drenched feel.

Sampling: It was George, who on Lennon's whim for something circus-sounding, cut up and spliced random tapes of various steam organ recordings on 'Being For The Benefit Of Mr Kite'. He also imported a BBC recording of *King Lear* for the weird end of 'I Am The Walrus'.



↑ **The Beatles'** 'I Feel Fine' single from 1964. The song starts with five seconds of feedback

↓ **Sir George Martin** pictured with Yoko Ono in 2008 at the Grammy Foundation's Starry Night Gala held in Los Angeles at the University of Southern California

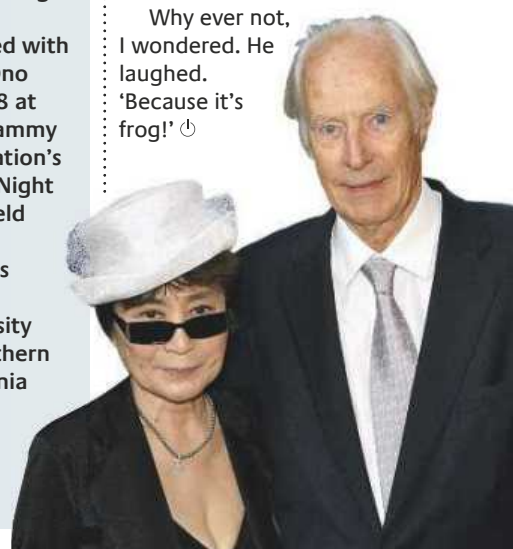
Along the way George Martin became a Sir, being knighted in 1996. He also formed his own Associated Independent Recordings (AIR), which ran studios in London and on the island of Montserrat. I met him once, fleetingly. This was in 1983 and he was, as everybody

said in their obits after his death at the age of 90 on the 8th of March this year, extremely gracious.

I remember telling him I was about to visit his Montserrat studio (since wrecked by Hurricane Hugo) where Duran Duran were recording their third and largely forgettable album, *Seven & The Ragged Tiger*.

He grinned and offered me the following piece of sage advice. 'Whatever you do, if they offer you Mountain Chicken, don't eat it.'

Why ever not, I wondered. He laughed. 'Because it's frog!' 🐸



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ALBUM REVIEWS: VINYL



LOVE

Reel-To-Real

High Moon Records HMRLP-03 (180g vinyl)

When a band delivers a monumental LP like *Forever Changes* (let alone three if you count *Love* and *Da Capo*), a seemingly lacklustre swan-song with only one of the original group might seem desperate. But that person was Arthur Lee, an erratic genius of Syd Barrett-grade imagination and/or lunacy. With this 1974 release Lee surrounded himself with musicians like Buzzy Feiten and Canned Heat's Harvey Mandel, and Vanetta Fields among the backing vocalists. The resultant work, expanded by 13 tracks via a free download, is patchy but fascinating, and in need of reassessment – it's more of a Sly-style soul/funk effort than a slice of West Coast psychedelia. And the sound? It's a killer! **KK**

Sound Quality: 92%



BOB DYLAN

Bob Dylan's Greatest Hits

Mobile Fidelity MFSL2-417 (two 45rpm discs; 180g vinyl)

There's a lot more Dylan to come from MoFi, but this is an ideal choice for those who are neither salivating fans nor completists. It's a perfect one-off choice, too, if you only care about early Dylan, for the ten tracks – seven of which were issued as singles in the USA – stop at 1966. But what riches: 'Rainy Day Women #12 & 35', 'Blowin' in the Wind', 'The Times They Are a-Changin'', 'It Ain't Me Babe', 'Like a Rolling Stone', 'Mr Tambourine Man', 'Subterranean Homesick Blues', 'I Want You', 'Positively 4th Street' and 'Just Like a Woman'. Dylanologists might quibble, but this is a crash course in genius, every track a masterpiece and sounding magnificent. **KK**

Sound Quality: 90%



THE EVERLY BROTHERS

The Songs Of The Everly Brothers

Sundazed LP5491 (two discs; 180g vinyl)

Recorded between 1956 and '76, the 36 songs in this set cover a side of the Everlys that is often overlooked: their song-writing skills. Because a number of their biggest hits were written by Felice and Boudleaux Bryant, it's easy to forget that they penned at least one rock-solid classic equal to any of their many other successes, the exquisite 'When Will I Be Loved'. The rest were doomed to be demos or album tracks or even hits for others, such as 'It's All Over', which gave Cliff Richard a No 9 hit in 1967, but there's a reason why this set isn't merely three-dozen also-rans: this is the Everly Brothers, the duo that remains the gold standard for harmony. **KK**

Sound Quality: 89%



CARMEN LUNDY

Soul To Soul

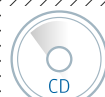
Pure Pleasure PPAN AFP13812 (two discs; 180g vinyl)

Aaah, old school jazz singing! But this 2014 release from Lundy – her 14th – contains mainly originals instead of the usual fall-back on the Great American Songbook (which is no a criticism of those who do prefer to reinterpret Gershwin, Porter, et al). And, like the title says, this is also a soul album, but it's more Randy Crawford than Aretha, and so smooth and silky that it could have been recorded in 1957. Lundy surrounded herself with amazing musicians, with Bennie Maupin on sax, pianist Patrice Rushen and Randy Brecker on trumpet adding 'studio legend' gloss to an exquisite set. Spreading 13 tracks over four sides gives it maximum vinyl real estate, too. **KK**

Sound Quality: 90%



AUDIOPHILE: DIGITAL



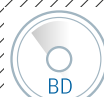
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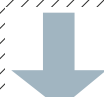
DVD



BLU-RAY



VINYL



DOWNLOAD



CARLY SIMON

Carly Simon

Mobile Fidelity UDSACD2165 (stereo SACD)

On the heels of a fine career retrospective comes her eponymous debut in SACD form. This set from 1971 is, understandably, nowhere near as polished or compelling as its immediate sequel. She'd get there quickly, though, and is now something of a singer-songwriter deity. However, along with Carole King's *Tapestry*, this defined the template for women who really shouldn't have anything to whine about. The reason it transcends *Ally McBeal*/*Girls*' unjustifiable, solipsistic kvetching about self-inflicted misery is down to the music: it's gorgeous, involving and personal, especially her breakthrough, 'That's The Way I've Always Heard It Should Be'. KK

Sound Quality: 87%



LOU REED

The Sire Years: Complete Albums Box

Sire 081227951986 (10 discs)

If you're hoping to find a post-Velvet Underground-fest here, you'll be disappointed, because this deals with his later years, from the magnificent *New York* in 1989 to 2004's *Animal Serenade*. The eight albums include *Song For Drella*, the wonderful homage to Warhol recorded with his fellow VU member, John Cale, two live sets and enough special guests to make you reconsider your focus on the arguably peak solo years of 1972-80. Reed's voice, like Neil Young's or Dylan's, is love-it-or-hate it, but the music was always so compelling that he could have sung like Donald Duck and you'd still listen. Now he's up there rocking with his buddy, David Bowie. KK

Sound Quality: 89%



YAMINA

How Deep Is The Ocean

Opus3 CD25001 (stereo SACD)

Truth be told, Opus 3 is a genre unto itself. Despite issuing classical, jazz and blues, and not restricting itself to Swedish artists, everything the label releases has a 'Scandi' feel to it: Yamina's brand of lounge singer 'cool' is a perfect fit. This oddity is a concept album based on *The Little Mermaid*, mixing her originals with a couple of standards, like the title track. It works in a laid-back way, though at times you'll scream for some fire. More relevant is that it was recorded in 8-channel native DSD128, the hardware listing will have audiophiles drooling, and it was 'mixed 100% analogue', never seeing the PCM domain. So, yeah, it sounds rather special. KK

Sound Quality: 87%



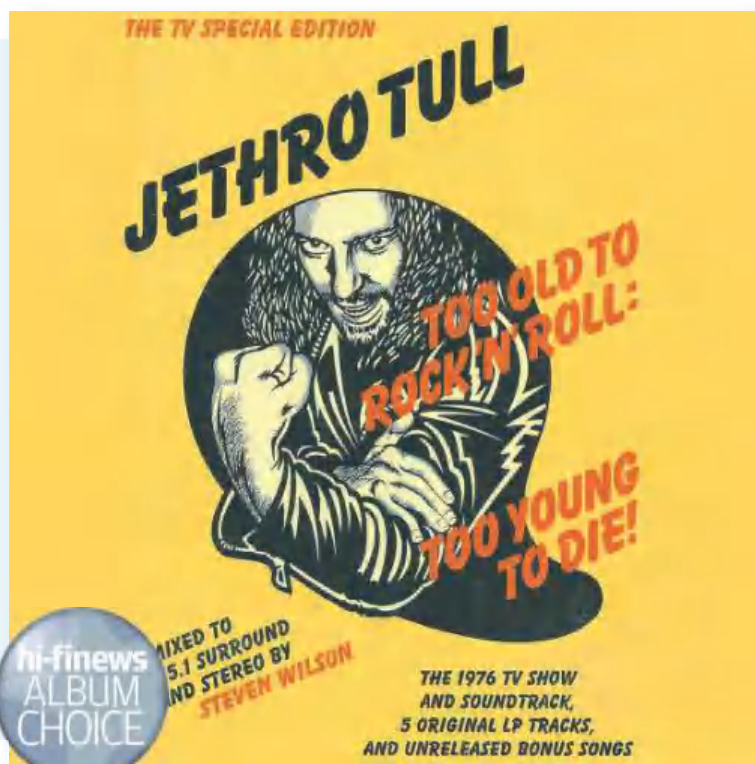
JETHRO TULL

Too Old To Rock'n'Roll: Too Young To Die!

Chrysalis 0825646035519 (two CDs + two DVDs)

This closet Tull fan is delighted the band has found enough archive material to release 4-disc versions of the original LPs. This instalment offers the 1976 release in every imaginable (digital) form: two CDs with the original album and as re-recorded for a TV special, plus 14 bonus tracks. One DVD contains the TV film in Dolby stereo and 5.1, 96kHz/24-bit stereo PCM and DTS, plus five audio tracks in the same formats. The audio-only DVD provides the bonus material in all formats and – crucially – the album in DTS and Dolby 4.0 in its original 1976 'quad' mix, as well as in 96kHz/24-bit stereo PCM. In a gorgeous package, with an 80-page book, this is a model of rock scholarship. The much-loved *Aqualung* is next – hooray! KK

Sound Quality: 90%





ENYA

Dark Sky Island (Deluxe) (96kHz/24-bit, FLAC)

www.hiresaudio.com; Warner Music Group 2553131

Eithne Ní Bhraonáin is back with her eighth set, apparently five years in the making, inspired by the night sky over the small Channel Island of Sark, and nearly 30 years on from her 1988 album *Watermark*. The good news – for her legions of fans, at least – is that *Dark Sky Island* sounds every bit an Enya album... all swathes of sound and echo-laden vocals against electronic swirls, and I'm not exactly sure the performer has moved on much in the

past three decades. Working with long-standing collaborators, producer Nicky Ryan and his lyricist wife Roma, Enya delivers another set that's just perfect for late-night chill listening, if you like that kind of thing. But the curmudgeon in me would argue she's not exactly advancing the state of her art. Lush, weighty and very 'hi-fi' it may be, and able to flatter almost any system, this album is everything you'd expect. **AE**

Sound Quality: 88%



REICHA

Wind Quintets; Thalia Ensemble (44.1kHz-192kHz/24-bit, FLAC/ALAC) www.linnrecords.com; CKD471

A fellow-pupil with Beethoven in Bonn, Antoine Reicha (from Prague) wrote no fewer than 24 wind quintets, represented here by an *Adagio* for cor anglais and wind quartet and Quintets in G and B-flat. Eight CPO download volumes from the late-1980s cover the complete output, but the young artists here were recorded in York by Philip Hobbs in July 2014. Formed in Amsterdam three years earlier, the Thalia Ensemble plays historic or period copy instruments – and very well too. Reicha set some devilish tasks for the natural horn in particular: trills and rapidly repeated notes in the D-Minor *Adagio*, for instance. In its time, listeners would probably be socialising, with only half an ear to the music and perhaps this genre is of greater interest to players than to audiences. Hobbs has provided a wide soundstage with the instruments clearly delineated. **CB**

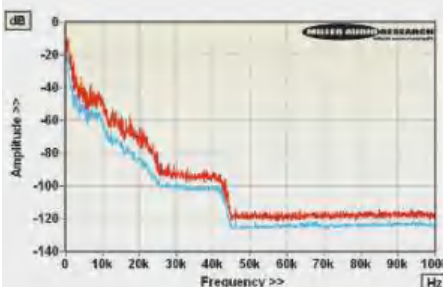
Sound Quality: 85%



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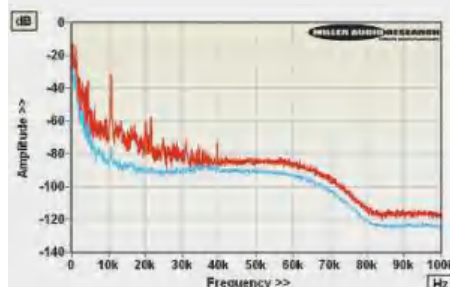
Following our Investigation feature [*HFN*, Jun '11] where we examined the claimed quality of high-resolution downloads, *Hi-Fi News & Record Review* is now measuring the true sample rate and bit-depth of the HD music downloads reviewed on these pages. These unique reviews will be a regular source of information for those seeking new and re-mastered recordings offered at high sample rates and with the promise of delivering the very best sound quality. (Note: asterisk in headings denotes technical reservation explained below.) **PM**

LAB REPORT



Produced, to the best of my knowledge, on a sophisticated Lawo mc²90 console, the analogue signal chain may add some white noise to the mix (trks 2-5), but I might otherwise have guessed this was a 88.2kHz mix, upsampled to 96kHz... **PM**

LAB REPORT



Another fine 192kHz recording by Philip Hobbs, available in several resolutions from MP3 up to the 192kHz/24-bit download tested here. In practice, the 96kHz version should capture as much 'real' musical information. **PM**



COMPACT DISC



SUPRAAUDIO



DVD



BLU-RAY



VINYL



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BECCA STEVENS BAND

Perfect Animal (96kHz/24-bit, FLAC)

www.hiresaudio.com; Universal Music Classics/Decca 4724275

Well, this turned out to be an unexpected treat: Becca Stevens plays multiple instruments to an annoyingly high standard, but does so with such style and in so easy-going a manner that the result is anything but annoying. She also sings superbly, too: her voice is warm and lush, but packed with expression, and capable of wonderful harmonies with accordion/keyboard player Liam Robinson and bassist Chris Tordini. Oh, and she writes great songs into the bargain, such as the attractively clever title track of this, her third album, which was recorded in multiple studios (and indeed three separate states) by producer Scott Solter. It's a fine multilayered crossover between jazz, folk and rock, combining Stevens' originals with great covers – her version of Steve Winwood's 'Higher Love' has both style and solid bass, and like the whole set an open, informative balance. *AE*

Sound Quality: 85%



CARRIE NEWCOMER

The Slender Thread (DSD64; 88.2kHz/24-bit, FLAC)

www.hiresaudio.com; Stockfish Records SFR 357.4088.2

Despite the name, Carrie Newcomer is far from, well, a newcomer. With more than 15 albums behind her, and a career stretching back 25 years, she's both a performer and writer – of both songs *and* books – and even a US cultural ambassador, and has toured with the likes of Alison Krauss and Mary Chapin Carpenter. So as you might expect, this set (her debut for Germany's Stockfish label) is a mature, soulful album, beautifully recorded along with a large supporting group of musicians that cleverly showcase Newcomer's rich, warm voice amidst what the label calls 'a warm, autumnal glow'. It's just the sort of 'audiophile' singer-songwriter album you might imagine, and I can see it cropping up in more than a few demonstrations. However, lovely though both the voice and the recording may be, there's more than a hint of 'haven't we been here before?'. *AE*

Sound Quality: 80%



PROKOFIEV/TCHAIKOVSKY

Piano Concerto No 2/Piano Concerto No 1; Beatrice Rana, Orch di Santa Cecilia, Rome/Antonio Pappano (96kHz/24-bit, FLAC)

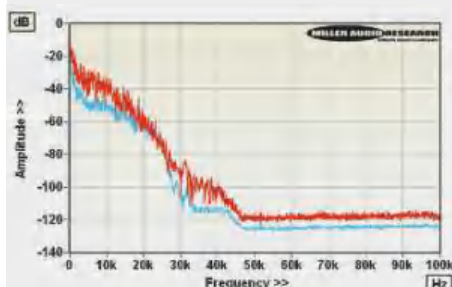
www.hiresaudio.com; Warner Classics 2564600909

This young Italian pianist was silver prizewinner at the 2013 Van Cliburn Competition and makes her Warner concerto debut with Pappano. They had not worked together before but in May are touring with the Tchaikovsky – which Rana had been playing for almost ten years. And 3-4m in she certainly hits her stride: arguably her first-movement cadenza is over-complicated but mostly this is as good as its gets – robust technique, a wide dynamic range and real bravura at the ends of (ii) and (iii). Pappano provides a big, even brash, accompaniment and the piano is well balanced in the big hall acoustic. Rana equally has the technique for the Prokofiev – it's a heavier alternative to the Bavouzet/Chandos, which has more light and shade. Cover-art only with this HRA download. *CB*

Sound Quality: 80%

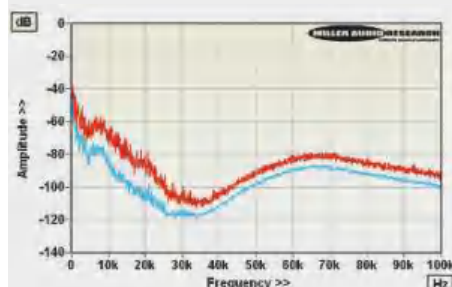


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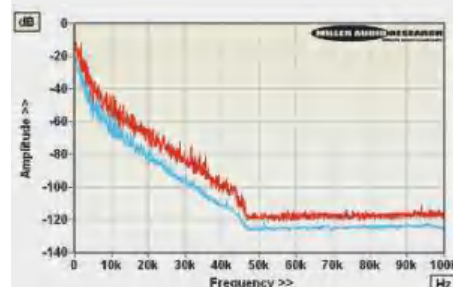
Recorded in five different studios in three US states, and possibly a digital/analogue mix, the final multitracked master is offered here at 96kHz although there's little content >30kHz. Some spurious tones and signs of clipping. *PM*

LAB REPORT



Also released as a hybrid multichannel/stereo SACD and, via highresaudio.com, as an 88.2kHz LPCM FLAC file, this DSD64 download is – unlike other DSD files I've tested – a genuine, native 1-bit offering. Recording levels are low, however. *PM*

LAB REPORT



Big and brash indeed but this 96kHz digital recording captures every harmonic, not only of Rana's piano (to about 12kHz) but also of Italy's Orchestra dell'Accademia Nazionale di Santa Cecilia right out to ~46kHz. *PM*

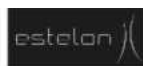


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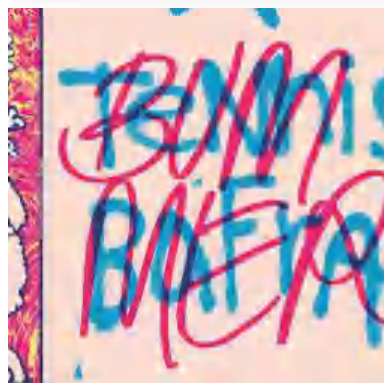
LAURA GIBSON

Empire Builder

City Slang SLANG50091P

If you were paying attention when we reviewed Gibson's last album, *La Grande*, back in 2012, you've hopefully been wondering when she'd resurface. Since then, she's upped sticks from Portland, Oregon, and moved to New York City, where the apartment block in which she was living was destroyed by a gas explosion, killing two neighbours. Any decent songwriter, of course, deals with disaster by writing about it, and Gibson is actually much more than decent. She's one of a handful of contemporary songwriters blessed not just with a beautiful voice, but with the ability to craft ingenious lyrics that easily get under your skin. Songs like 'Damn Sure' and 'Empire Builder' come along so rarely you should grab them while you can. *JBk*

Sound Quality: 93%



TENNIS BAFRA

Bummer

Nomethod Records Nomethod 116

These chaps don't hang about. From the opening seconds of track 1, 'Boyfriend', it's best just to hang on tight and not get shaken off by the frantic pace of Tennis Bafra's '90s retro-rock onslaught. It's said they spent 15 years rehearsing at home in Uppsala, Sweden, before releasing anything, and they're certainly tight enough for that to be true. The intricate guitar interplay of 'Devil's Daughter', the crazed rocket ride of 'S**t For Brains' and the unexpectedly tender ending of 'Elevated State' all make this essential listening for anyone who loves grunge, punk or indie rock. And yes, it does all sound pretty much the same, but so did The Ramones. *JBk*

Sound Quality: 85%



BLAIR DUNLOP

Gilded

Gilded Wings Records GWR001

I've received a glut of male singer-songwriter albums this month, but Blair Dunlop's third album easily stands out as cream of the crop. Born in Derbyshire, he's the son of Fairport Convention's Ashley Hutchings and starred as Charlie in Tim Burton's 2005 movie of *Charlie And The Chocolate Factory*. Neither of those, of course, are reasons why you should pay him any mind. Essentially, he's a traditional acoustic folkie, but there's a passion in his voice, an imagination in his lyrics and a melodic gift in his tunes that make him hard to resist. Anyone who can coin a witty couplet like 'I knew that it was fate, let the violins arpeggiate' is all right by me. *JBk*

Sound Quality: 90%



HIGHASAKITE

Camp Echo

Propellor Records PRR193

Scandinavia is still punching well above its weight with bands like Highasakite flying Sweden's red, black and white flag high. Fronted by songwriter Helene Håvik, it's a band with serious political concerns, including global warming, terrorism and the cynicism of world leaders. Håvik traces her obsessions back to the 9/11 terrorist attacks but, fortunately, she doesn't let her weighty lyrics stand in the way of making fantastic rock music, employing twitchy electronic rhythms, solid dance beats and soaring vocal melodies and harmonies to make her points. Highasakite is a one-of-a-kind band that needs complete attention but they repay that effort in spades. *JBk*

Sound Quality: 90%



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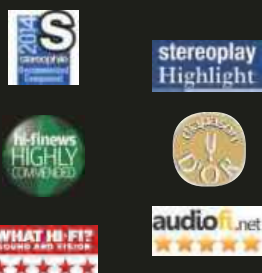
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KENNY BARRON TRIO

Book Of Intuition

Impulse! 4777802

After decades at the top, Kenny Barron is an institution, but he still sparkles. To follow his 2014 *Art Of Conversation* duo album with bassist Dave Holland, the master pianist returned to the studio with his current trio partners, bassist Kiyoshi Kitagawa and drummer Johnathan Blake. 'Magic Dance' launches things with Brazilian sunshine, infectious melody and orchestrally rich harmonies, but then comes a dazzling new version of Barron's Powell tribute 'Bud Like'. Later you can hear him in Monk mode with an uptempo 'Shuffle Boil' and a lightly-served 'Light Blue', and a helping of Barron's fresh, elegant originals makes this a stylistically varied feast. *SH*

Sound Quality: 89%



JOÃO GILBERTO, STAN GETZ

Getz/Gilberto '76

Resonance HCD-2021

One of a pair of new issues offering unreleased material from May '76, when Stan Getz spent a week at the Keystone Korner in San Francisco and was taped by the club's owner Todd Barkan. On a companion album, *Moments In Time*, you hear Getz with Joanne Brackeen, Clint Houston and Billy Hart. But in between his quartet sets, Getz brought on singer/guitarist João Gilberto, and this reunion is captured here (a lot of Gilberto but not that much Getz). Though his sidemen are barely audible, Getz does play some amazing solos, notably on 'Chega de Saudade'; and 'Doralice' comes close to the spirit of the original *Getz/Gilberto* album of 1964. *SH*

Sound Quality: 80%



DR LONNIE SMITH

Evolution

Blue Note 00602547618986

Energy undiminished, the veteran Hammond player who got started in the '60s alongside George Benson and Lou Donaldson appears here on his first Blue Note album since 1970. This time he's working with younger players and newer idioms: his funky opener, 'Play It Back', has Robert Glasper guesting on piano and the next two numbers have stirring contributions from saxophonist Joe Lovano. But the core band is pretty vibrant anyway, with various horns and the versatile guitar of Jonathan Kreisberg driven powerfully by drummers Joe Dyson and Johnathan Blake. Smith knows how to build up tension and release it, and every track tells a story. *SH*

Sound Quality: 90%



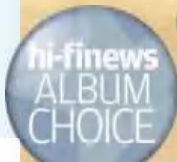
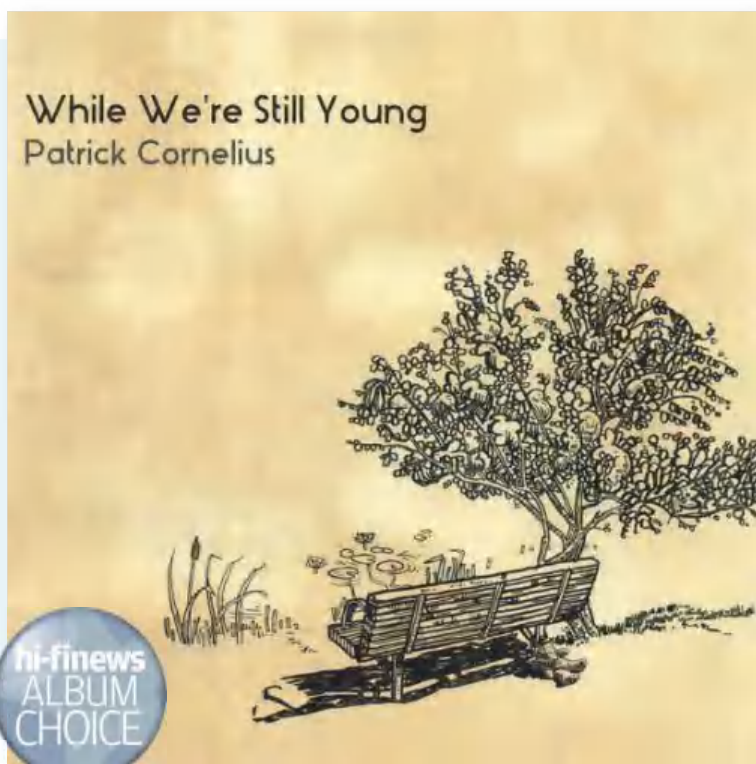
PATRICK CORNELIUS

While We're Still Young

Whirlwind Recordings WR4682

His musical influences range from Ellington to Bach to Debussy, but saxophonist/composer Cornelius also loves A A Milne. For this project, he wrote and arranged six pieces inspired by *When We Were Very Young* poems, and assembled a talented octet to play them. The other horns are fellow saxophonist John Ellis, trumpeter Jason Palmer and trombonist Nick Vayenas, who between them conjure up a bracing wind across the beach in 'Sand Between the Toes', while guitarist Miles Okazaki and pianist Gerald Clayton create peaceful ripples for 'Water Lilies'. 'Jonathan Jo' is a bustling soul blues but 'The Invaders' takes us to a quiet spring morning, with the bass clarinet of Ellis and lovely ensemble writing. *SH*

Sound Quality: 92%





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ELGAR/WALTON/HOLST/I HOLST

Cello Concertos/Invocation/The Fall Of The Leaf
Steven Isserlis, Philharmonia Orchestra/Paavo Järvi

Hyperion CDA68077 (downloads up to 96kHz/24-bit)

It's 28 years since Steven Isserlis recorded the Elgar Concerto (with LSO/Hickox). Also produced by Andrew Keener, this new version from Henry Wood Hall comes with three works new to his discography: the Walton, Holst's *Invocation* and a solo piece by his daughter, *The Fall Of The Leaf*. He's opted for a gut-stringed cello (steel in his Prokofiev/Shostakovich Frankfurt coupling with Järvi: CDA68037). In technique and interpretative decisions the Elgar is, I'd say, flawless – with matching, alert accompaniment. Isserlis puts his personal stamp on the Walton too, although here I prefer the greater immediacy of the Watkins/Gardner BBC SO Chandos production. **CB**

Sound Quality: 87%



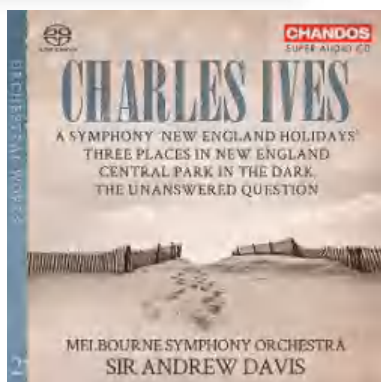
BEETHOVEN

Symphonies Nos 4 and 5
Concentus Musicus Wien/Nikolaus Harnoncourt

Sony Classical 88875136452 (downloads up to 96kHz/24-bit)

Nikolaus Harnoncourt had been planning a rethought Beethoven cycle to be given with his authentic instruments group at Graz, then took a break from conducting but sadly passed away on the 5th of March. Sony had earlier released these two live performances from the Musikverein, Vienna, given last May. An absorbing booklet note sets out all of Harnoncourt's concerns for accurate performance (the Fifth, incidentally, has double-repeats in the scherzo). But the chord spacing at the end of No 5 – more *Sibelius* 5 – is questionable, and No 4 emerges more gruff than graceful. Even so, a thought-provoking swansong. **CB**

Sound Quality: 80%



IVES

Orchestral Works (Vol 2)
Melbourne Symphony Orchestra/Sir Andrew Davis

Chandos CHSA5163 (SACD; downloads up to 96kHz/24-bit)

With his marching bands, overlapping American songs and complicated tempo indications, Charles Ives was a true eccentric – his music in recordings mostly the province of native orchestras. But the intrepid Sir Andrew is undertaking a series with his orchestra 'down under'. Vol 2 has *The Unanswered Question*, *Central Park in the Dark* (which gets really crazy!), *Three Places in New England* and the 'New England' Symphony – premiered by Dorati as late as 1954. He explains how some of the technical difficulties with Ives (whose scoring Boulez said was 'unachievable') were overcome here. Atmospheric stuff. **CB**

Sound Quality: 85%



SIBELIUS

Symphonies Nos 5 and 7; En Saga
Hallé Orchestra/Sir Mark Elder

Hallé HLL7453

A very fine account of the tone poem *En Saga* recorded in an empty Bridgewater Hall shows how much the presence of an audience dims the sound – the two symphonies here were 'live' in 2014 and 2010 (as long ago as that...). And while I admire the clean brass attack and string bowing, and Sir Mark Elder's rather low-key 'ego-free' readings, after several hearings I cannot say they are sufficiently out of the ordinary for recommendation. In fact there's the exact same programme from Sir Colin Davis's Boston Sibelius cycle on Pentatone PTC5186177 (SACD). It helpfully subdivides No 7 too: just one track here. **CB**

Sound Quality: 70%



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WARRANTY

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Direct Stream Digital

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The AK Jr gives everyone the opportunity to comfortably listen to high resolution audio, supporting 24bit/192kHz and DSD files while fitting comfortably in your pocket.

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MQA
DSD
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PIONEER • XDP-100R
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FLEXSON • VINYLPLAY • DIGITAL TURNTABLE

Gives the best-of-both-worlds: an excellent record player that's easy to use and can be simply integrated into a streaming system.



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Bluetooth
AirPlay



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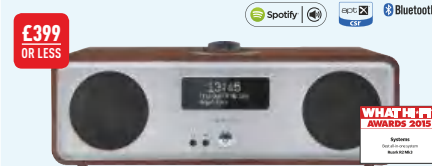
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aptX
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WHAT HI-FI?
AWARDS 2014

MARANTZ • CD6005 / PM6005 • CD / AMPLIFIER

Replacing the 6004 models, the 6005 amp gains digital inputs using the same 24-bit/192kHz DAC as the CD player which now features enhanced USB playback and improved performance.



£199
OR LESS

SAVE £50

5 YEAR
WARRANTY

£199
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SAVE £50

NAD • C 516BEE / C 316BEE • CD / AMPLIFIER

Received an outstanding product award from Hi-Fi News magazine who described the C 316BEE as an "absolute barnstormer of an amplifier". The C 516BEE is the perfect partner.



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GRADO • SR325e HEADPHONES



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AWARDS 2015



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WHAT HI-FI?
AWARDS 2015

DENON • D-M40DAB • CD/DAB SYSTEM (EX SPEAKERS)

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AWARDS 2015

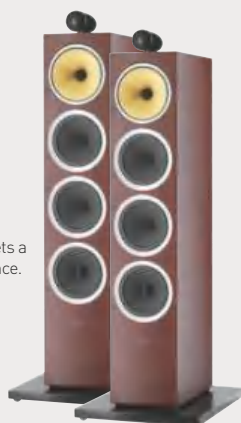


BOWERS & WILKINS • 685 S2
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Best speakers
Home Cinema
November 2015



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Best speaker
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Q ACOUSTICS • 3050

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3050 Standard finishes • Premium finishes £649

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Best speakers
Home Cinema
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Q ACOUSTICS 3020i

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Premium finishes £249

WHAT HI-FI? AWARDS 2015
Best speakers
Home Cinema
November 2015



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Hi-Fi News Review September '15



Paul Miller Editor

Technician and writer on all things audio for some 30 years, Paul Miller took over the editor's chair in 2006. He invented the QC Suite, used across the audio industry

Heart of the matter

As *Hi-Fi News* celebrates its 60th birthday, current editor **Paul Miller** looks back at the musical experiences and equipment that defined his early years, eventually turning a hobby into a career

Visitors to the *Hi-Fi News* website can already read something of our key contributors' 'hi-fi journeys' [see www.hifinews.co.uk/news/default.asp?atg=34], but for this very special 60th anniversary issue, I thought we'd all travel back a bit further and uncover the roots of our shared passion. With hindsight, my generation was probably the last not to suffer the distraction of games consoles, VCRs and other paraphernalia of the digitally-driven consumer electronics revolution.

I bought my first and only pocket calculator during my A-level years – a Casio fx-120 that sits to this day on my lab bench – while the likes of the BBC Micro and Sinclair ZX Spectrum arrived while I was at university. But the hi-fi bug had bitten a good few years earlier, as evidenced by the walls of my college room – plastered with posters of then-aspirational kit from Quad, KEF, Celestion, Michell and other audio icons.

FORMATIVE YEARS

Looking back, the social circles of my secondary school – the same institution a certain David (Bowie) Jones had attended a few years earlier – were broadly defined by our musical loyalties. Odd, perhaps, bearing in mind this was a technical school with engineering workshops and science labs – none of us had any special musical talent.

And yet travelling to numerous of the now 'Classic Venues' featured in *Hi-Fi News* over the last few years – The Rainbow, Hammy Odeon, The Greyhound and, latterly, Wembley Stadium – were high points of my formative musical years with schoolmates. I remember Lemmy in his prime (the Bomber tour), Rush delivering their '2112' anthem live for the first time in the UK, and missing

the last train back from Croydon, the sound of Angel Witch still ringing in our ears as we walked and jogged the dark streets home.

By then I'd already bought a basic turntable from Hi-Fi Markets – the name escapes me – with a rather fine Sansui integrated feeding a pair of multi-way floorstanders of my own design. The bigger, the better, I seem to remember.

But aural memory is a funny thing, for when I listen to those early heavy rock albums now, some rendered into '96kHz/24-bit' downloads, they never sound quite as dramatic – certainly not as *dynamic* – as they seemed back 'in the day'. Listening through the crystal lens of a modern, high-end audio system is so often a double-edged sword!

GOOD CHEMISTRY

At university, I may have been studying chemistry, but hi-fi had my heart. I'd been using a superb direct-drive from JVC, the QL-Y5F with its servo-assisted arm, and worked day and night through the hols to afford a pair of KEF's supreme R105.2 flagships, powered by big Hitachi MOSFET power amps – the HMA7500s in BTL mode.

My musical tastes mellowed as I devoured the technical features and reviews from the journals of the day – *Practical Hi-Fi*, *Hi-Fi for Pleasure*, *Hi-Fi Answers* and, of course, the granddaddy of them all – *Hi-Fi News*. Plus Imperial

College had an extensive engineering resource and a vibrant Audio Society hosting weekly meets and guest seminars by the cream of the British hi-fi industry.

The JVC gave way to an early Pink Triangle with Helios Orion arm and Technics pick-up. Then there were the London Audio shows, including Swiss Cottage, where a young Ricardo Franassovici of Absolute Sounds was to establish the blueprint for high-end audio distribution in the UK.

'We heard amps from Threshold; plus Koetsu and the Oracle deck'



ABOVE: The Ed's first 'serious' speaker – KEF's R105.2, affectionately known as the 'Daleks' [see *Vintage Review*, *HFN* Mar '12]

We heard amplifiers from Threshold, the Koetsu Rosewood MC and the original Oracle deck. They're brands we remember, and some, like the Etude loudspeakers, many will have forgotten.

FACING THE FUTURE

But the genie was out of the box. After six years at IC, I turned down the job created for me by the generous scientists, and fellow mavericks, at the Innovations Division of Laporte Industries to strike out on my own. Armed with a £10,000 loan from the bank, I bought enough second-hand test equipment to populate a small lab.

In short order I went from NMR, infrared and mass spectrometry to 'low frequency' analysis in our audioband. It was a fork in the road fuelled by the enthusiasm and optimism of youth, untempered by experience, but driven by an unquenchable passion to explore every facet of high-fidelity reproduction. And I've never looked back. ☺

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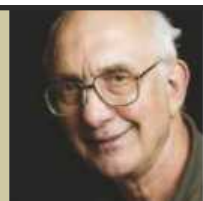
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Barry Fox Technology journalist

Barry Fox trained in electronics with the RAF and worked as a patent agent, but he gave that up to enter journalism. He is one of the world's top technology writers

Rewind and repeat

Spendor BC1s, battles between rival formats and debates on all the big audio issues of the day... **Barry Fox** looks back over his own hi-fi journey and themes that appeared time and time again

Way back in the 1970s I was working as a patent agent and the club rules of the profession obliged me to write about my hi-fi hobby under the pen name Adrian Hope. I wrote a feature for the June 1971 issue of *HFN* on how to turn concrete sewer pipes into speakers. I'd spent months tuning the ports with long-hair wool and comparing the live sound of my acoustic double-bass, with Reslo ribbon mic recordings played through the pipes.

The pipes only went to the garden, to become a home for hedgehogs and tortoises, when I could afford a pair of Spendor BC1s. With some of the same wool inside, they sounded as good as the pipes in the bass and far better and more directional in the mid and top.

BIT THE DUST

Those BC1s, with the 1976 day and date hand-written inside, probably by Spencer Hughes, only needed one service – after my teenage kids blew the cones at a parents-away party with bags of ice on my Rotel amp to defeat the overload protector. The BC1's legendary neutrality spoiled me for anything else I could afford, and only bit the dust early this year when the drivers gave out and I found surprisingly low cost replacements in a pair of Q Acoustics 3050s.

Rummaging through old box files of *Hi-Fi News* clippings and an attic stuffed with (mainly bought to keep) hardware threw up one consistent theme – our industry loves to fight format wars, even though they risk killing all the formats. There was the battle between different tape noise-reduction systems, which Dolby won over rivals like dbx – but failed with Dolby FM. There was the fight



ABOVE: Spendor BC1 from 1969 (left) and CX LPs (right) with which CBS tried to challenge CD

between quadraphonic surround systems to which *HFN* contributed a remarkable set of LPs that encoded the same music in four ways. Binaural headphone 'surround' has been re-invented and re-forgotten several times. Then, as now, simple stereo usually sounded best for well-recorded music.

Quad the company, which never bought into quadraphonics, fought long and hard to stop the press using the abbreviation

'quad'. Later, Bose tried to stop us talking about 'lifestyle' electronics.

Philips and Sony tore themselves to shreds with DCC versus MiniDisc. Before that there'd been stylus-read

digital discs from Telefunken and JVC to rival CD and even a move by CBS to release LPs with CX noise reduction to show that digital audio wasn't needed. The wonderful Technics SL-10, with parallel tracking and optical position sensing, was Matsushita/Panasonic's way of making the same point.

When vinyl starting making a comeback, I dragged my old SL-10 out of the attic, along with a B&O 1100 receiver, B&O 3000 parallel tracker and Linn-like AR deck with floating suspension. Thanks to the CD-era-enforced rest they still work well.

We covered the craze for the direct-cutting of discs, without the intermediary stage of analogue tape. We campaigned for recognition of how Alan Blumlein had invented stereo, but been denied his place in history because his family had innocently blessed a biographer who never wrote the biog.

We exposed music industry ignorance in trying for years to invent the impossible – a spoiler which stopped people taping LPs. We railed against copy protection which sucked frequency notches out of the music, and stopped some CDs playing normally. And we covered the absurd battle between DVD-Audio and SACD that effectively scuppered them both.

GOING BLIND

What I remember with most interest is the way *HFN* led the debate on big issues – such as valves versus transistors and analogue versus digital recording. Panels of listeners spent days judging comparative sound quality without knowing what they were listening to, with the blind results statistically analysed and compared with lab measurements. I would dearly love to see today's gadget gurus expose their blind enthusiasm for the latest best-ever sound quality to similar blind testing. ☺

'My kids blew the BC1 cones using bags of ice on my Rotel amplifier'

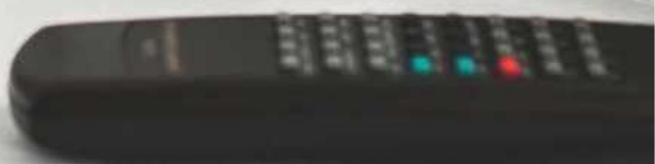


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Keith Howard

Audio and technical journalist

Keith Howard has been writing about all things audio since 1978. Best described as part scientist, part engineer, Keith performs our speaker and headphone lab tests

The fickle finger

From hi-fi hobbyist to hi-fi professional... **Keith Howard** traces his own audio odyssey from a discarded turntable through DIY kits to a chance opportunity leading to life as a full-time scribe

My parents were not musical and the only things we had at home to replay music when I was young (in the late 1950s and 1960s) were the obligatory tranny radio and, later, a small Sony reel-to-reel tape recorder, bought in Singapore on our way as ten-quid poms to New Zealand in 1963 as a means of sending taped messages back and forth to my mum's mum in Blighty.

Three and a bit years later – the NZ experiment having failed – I was packed off to a military boarding school aged 11 and it was there that I became interested in the arcana of sound reproduction. I wish I could regale you with the Damascene moment when this happened, only I really don't know how it came about. But by the time of our first house dance (probably aged 14) I was almost as interested in the sound system we assembled – it involved a WEM guitar amp/speaker – as the prospect of hands-on experience of the opposite sex. No, not really.

RAG-BAG ASSEMBLY

By the fifth form I'd managed to win our dormitory occasional dispensation to listen to music for 30 minutes after lights-out on a rag-bag assembly of equipment I've largely forgotten. We almost certainly played Santana (*Abraxas*), Elton John (*Elton John*), Black Sabbath (*Black Sabbath*) and Deep Purple (*Deep Purple In Rock*).

The first item of 'hi-fi' equipment I owned was a crummy cast-off turntable bought for a song from the chaplain in my fourth form. But the reward for a good clutch of O-levels and a return to the sixth form was enough to buy me my first system comprising a BSR

McDonald MP60 turntable with afromosia plinth, Goldring G850 pick-up cartridge, Trio KA-2002 integrated amp and a pair of Trio HS-1 headphones. I knew exactly what I wanted because by then I was an avid reader of hi-fi magazines (when I could afford them), and purchased the lot when passing through London for the new school year at G W Smith on Lisle Street and Laskys on Tottenham Court Road. Somehow I managed to schlepp it all back to the school train at Charing Cross.

TWO MISTAKES

I was barely more pecunious during my four years at Leeds University but one summer's labouring earned enough to buy the Powertran kit version of the John Linsley Hood *Hi-Fi News* 50W amplifier and

a pair of IMF Super Compact speakers.

Both were a mistake. I never really got on with the IMF speakers and can't even remember what became of them. The Powertran kit was

lousy (you had to bend resistor lead-out wires underneath the resistor body to fit the holes in the overcrowded PCBs) and, frankly, beyond my abilities to construct at the time. It never worked properly.

Life changed forever in the summer of 1977. I'd graduated from Leeds but had screwed up going to Birmingham to do research by applying too late, so would have to take a year out. I'd been labouring for a stone mason on Corpus Christi College, Oxford but that was strictly a summer job and in any case was brought to an end by my dropping almost a hundredweight of ashlar while attempting to hoist it from my shoulder to the first lift of scaffolding. It landed corner-first on the big toe of my right foot.

Fortunately – ridiculously fortunately – my girlfriend of the time, who was still



ABOVE: Early 1970s ad from BSR McDonald for its range of UK-made automatic turntables

reading *New Scientist*, saw a short advert in the classified section entitled 'Hi-Fi – is it your subject?' from which I learned that Haymarket Publishing was recruiting to one of its hi-fi titles.

So I went for interview, obviously said the right things (one of the tasks was to choose five upmarket pick-up arms for a group test and justify the inclusion of each – a doddle to me then, though I couldn't do it now) and was offered the job. So I found myself working as an assistant first on *Popular Hi-Fi* and then *Hi-Fi Answers*, while living in a bedsit in Brixton, South London.

FINAL ANSWER

That might have been the end of my career as a hi-fi journalist, although I carried on writing occasional features for *Hi-Fi Answers* while at Birmingham University. But after two years there, with my PhD going nowhere, I returned to Haymarket and soon thereafter became the editor of *Hi-Fi Answers*.

The unexpected, serendipitous transformation was complete: this hi-fi hobbyist had, miraculously, become a hi-fi professional. ☺



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- System Remote included

Sinfonia Anniversary, with Gold Lion valves (pictured), also available.



Barry Willis

Journalist for top American audio-video publications

While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

Early influences

An EICO valve amp, a Stomberg-Carlson tuner bearing the names of strange cities, and a father mumbling oaths as he wrestled with amp kits. **Barry Willis** recalls a childhood immersed in sound

The child is father to the man, according to the old adage. My involvement with recorded music and the equipment needed to play it goes back to pre-verbal days. I remember brightly-coloured red and yellow kiddie discs, and a little player whose operation I mastered when I was so small I could walk under the kitchen table without ducking. Or so it seems to me in recollection.

I grew up the oldest of four kids in a boisterous Anglo-Irish family. In our house no disagreement was ever settled rationally, but was instead propelled by shouting all the way to its final punctuation: always a slamming door, to this day a sound that fills me with dread. We had much love and affection for each other but also much rancour. Music was the healing balm, the antidote that restored balance.

GLOWING FACE

My father was a jazz fan. Dixieland and Swing Era stuff were his genres. He had a massive record library of 78s and LPs that filled a converted closet, which also housed a Garrard record changer, an EICO valve amplifier, and a Stomberg-Carlson shortwave tuner

that was later bestowed to my brother Bryan and me. It had a big glowing face festooned with the names of exotic cities – London, Oslo, Tokyo, Sydney – and I would stare into it as I turned the dial, listening to faint voices and snippets of melodies fading in and out, mysterious and maddening. The world was a much bigger place then.

In our living room was a pair of big loudspeakers that he had built from plans in *Popular Electronics*. My artist mother had carefully coated the plywood

RIGHT: The first issue of *Popular Electronics*, which hit the newsstands in October 1954. The cover shows a Heathkit A-7B amplifier being tested. Heathkit (far right) was the brand name given to electronic kits offered by the Heath company between 1942 and 1992. In 1955, Heath was sold to Daystrom



cabinets with glossy black lacquer, and decorated the grilles with a faux-Chinese design that evoked misty mountains.

The sound was huge and all-enveloping, the look elegant. Those speakers later moved into our bedroom when my father scraped together enough money to buy a

pair of Jensens, the only commercial loudspeakers he ever purchased. They stayed with him the rest of his life.

He loved jazz – at least, the jazz of his youth – but hated country music, which

reminded him of growing up poor in the rural South. He also hated the folk music and rock that we kids were immersed in.

My mother favoured classical, opera, and show tunes – all genres that he dismissed as pretentious, but he set up a portable record player for her in the kitchen and another one for us in our bedroom so that we could enjoy our own records without pestering him to play them on his big system.

There was much I enjoyed and loved in this musical diversity – I am still an

equal-opportunity employer regarding seemingly mutually exclusive genres – but there is a strange way that people interpret the same experience. I associate Big Band music with happy times at home; Bryan hates it because it reminds him of misery.

NO ACCIDENT

Like many hi-fi enthusiasts in the '50s and '60s, my father built his own gear. Fascinated by the parts and the process, I spent evenings by his workbench, inhaling solder fumes and cigar smoke and mumbled curses as he put together amps from Heathkit and Dynaco. I might have reached maturity with a higher IQ had I not ingested the toxins, but in those days no one cared.

It was no accident that in my 20s I went from being an unhappy student of natural sciences at UC Berkeley to an eager student of electronics at a high-intensity tech school. I was not a musician but wanted to be around music as much as possible. Working in audio gave me that and more – huge satisfaction if not huge wealth. My journey from technician to journalist is a separate tale. We'll have to save that for another time. ☺

'I spent evenings by my father's bench, inhaling solder and cigar fumes'

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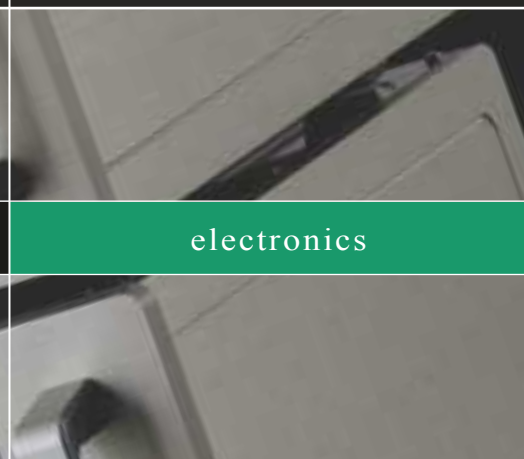
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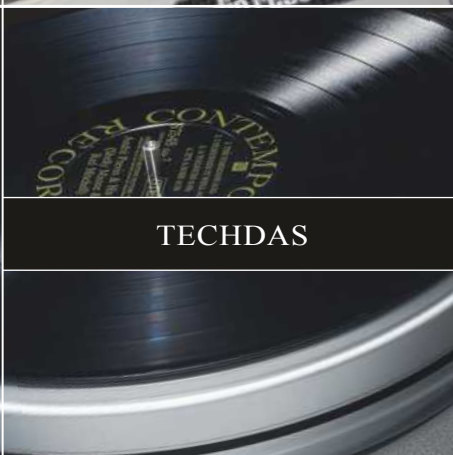
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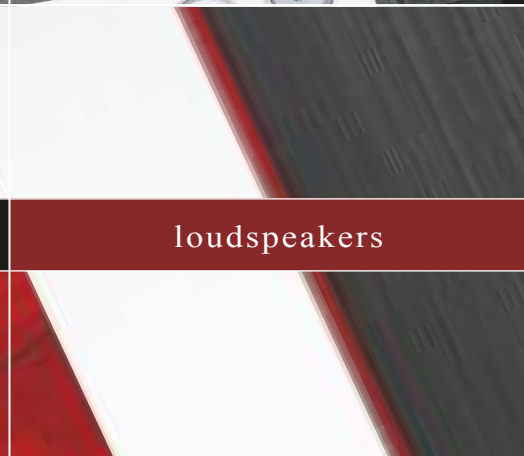
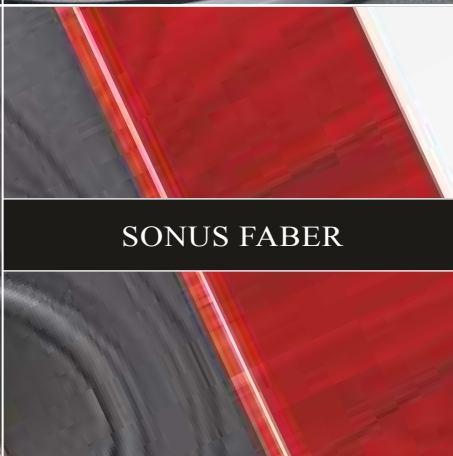
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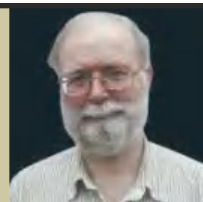


loudspeakers

THANK YOU

To everyone who attended our Reading HiFi Event
in April 2016. See you at next years show.





Jim Lesurf Science Journalist

Jim Lesurf has spent a lifetime in audio, both as an engineer at UK hi-fi company Armstrong and reader in Physics and Electronics at St Andrew's University

The greatest pride

With his imagination fired by Science Fiction, **Jim Lesurf** had set his heart on a career in science or engineering as a child. Despite setbacks he realised this ambition, with *Hi-Fi News* always at his side

I discovered and started reading *Hi-Fi News* during the first half of the 1960s and it changed my life. I'd already become fascinated by science and engineering when at primary school. And I was an enthusiastic reader of Science Fiction.

Back then, a lot of Science Fiction was true fiction rather than fantasy. So I was dreaming of become a scientist or engineer before I went to a Secondary Modern school, having 'failed' my 11-plus examination.

A PLACE TO LEARN

Hi-Fi News routinely included features which gave readers the details on DIY amplifiers, loudspeakers and even turntables and pick-up arms. It also printed many explanations of how hi-fi equipment worked, and discussed the basics of electronic and mechanical engineering upon which audio and radio were founded.

As a result, I found that by reading *Hi-Fi News* I was rapidly and enjoyably learning a lot about practical electronics. At the time I couldn't really afford to buy much more than the occasional transistor or some wire. But *Hi-Fi News* did more than show me what commercial equipment was available, and how to judge and use it. It also gave me the foundations for my career.

What I learned was how to think about, design, and understand the engineering involved. Experts such as Stan Kelly and John Linsley Hood gave me a clearly explained crash-course along the lines of the old proverb: 'Teach a man to fish, and you feed him for life'. The magazine fed my enjoyment and enthusiasm and served as the basis of almost everything I did in later life.

'I couldn't afford to buy more than the occasional transistor or some wire'



RIGHT: Jim Lesurf (second from left) pictured in 1981 when working for Armstrong Audio

During my fourth year at secondary school it was noticed that I was doing well at maths and physics, and I was transferred to a grammar school for my A-levels. And I went to university already knowing how to solder and build simple circuits.

When I became a research student it allowed me to design and build control and measurement systems that went into Concorde 001 for the 1973 Solar Eclipse measurements. And to make systems for telescopes in Hawaii and other exotic locations.

What I'd learned helped me to start work for Amstron Audio. By then I already knew how to design audio amps and FM tuners.

SOURCE OF INSIGHT

In the early 1980s I disposed of all the older back issues of *HFN* that I'd been collecting. No room, and moving home were the reasons. I have since managed to re-collect almost every issue. Only a few from Volume 1 continue to elude me.

I still often read back issues and rediscover information that I've forgotten. So for me, *HFN* hasn't simply been a wonderful introduction to a better enjoyment of music and the sheer pleasure of great sound. It has been a life-changer in terms of what I was able to achieve in my working life. And a source of fascinating insight.

CHERISHED HOPES

Perhaps what disappoints me most now it is that in recent decades the general interest people have in understanding the engineering details of audio, and DIY, seems to have diminished. But I still cherish hopes that recent developments such as the explosion of interest in the 'Raspberry Pi' and the revival of vinyl, with its understandable and tactile mechanical engineering, will stimulate a fresh interest in how things work.

I've written for many magazines and journals over the years, but *Hi-Fi News* has been the one that has brought me the greatest pride. So a 'thank you' to its editors and writers – past and present – for all it has given me. You helped me more than you ever knew. ☺

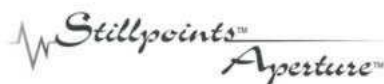


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Michael Fremer, Stereophile February 2015

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Steve Harris Contributing Editor

Steve Harris edited *Hi-Fi News* between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

Taking it steadily

Memories from hi-fi shows in Harrogate and the Las Vegas CES, and the outstanding review products that have transformed his system over the years. **Steve Harris** looks back...

There was hi-fi before there was *Hi-Fi News*, but only just. In its first few years, the magazine reported with authority on some truly epochal events, from the arrival of the Quad Electrostatic speaker to the introduction of stereo records and the start of FM stereo broadcasting.

Since then, of course, electronics have changed our world completely. Yet the best audio products from the whole 60-year span can still be used today.

CLASSICAL CALM

I'm sure we probably all have cherished recollections of how good certain systems sounded at certain times in our lives, perhaps many years ago.

Showing my age, I can still remember, at the bustling Harrogate show in 1978, walking into the Quad room at the Old Swan Hotel and sitting down in an oasis of classical calm. And I can still recall how, at home, the Linn/Grace/Supex

RIGHT: Bergmann Audio's air-bearing Magne turntable, which the author declared 'an outstanding example of the art' when reviewing it in the June '12 issue of *HFN*



combination started me rediscovering my record collection.

In 1992, when vinyl seemed about to disappear, I remember how, having tramped the unrelentingly digital corridors of the Las Vegas CES, I walked in to a room where vinyl was being played on a Rockport turntable and joining a group of happy listeners who really didn't want to leave. Another oasis.

Then of course, there are so many memories of outstanding review products, which have temporarily transformed my system over the years. Just a couple that I particularly hated saying goodbye to were the Renaissance Unity pre-/power amp and the Bergmann Magne air-bearing turntable, though there have been many others.

But all this is quite a different thing from the immediate short-term recollection of a sound heard a few seconds ago, in

a comparative listening test for example. A memory that we've stored after the event and perhaps over a long period is a subjective idea about the overall experience we enjoyed.

It was intriguing to hear from reader Jonathan Kempster ['Sound Off', May '16], who used to enjoy the sound of his old budget system, consisting of a Rega record deck, NAD 7020 receiver and Wharfedale

Diamond speakers. Compared with his current system, he said 'the old kit sounded better, though I really can't explain why this is so.'

Could this be a case of vinyl being more enjoyable than CD? An old analogue FM tuner sounding nicer than a modern synthesiser type? The changing sound of the BBC's broadcasts? Or just the cleaner mains and relative freedom from RFI in the old days?

CARELESS RAPTURE

If you feel like this, there are two ways to proceed. You can take the vintage route, which can be a lot of fun and

is still relatively inexpensive. Or you can happily plunge into the world of modern high-end hi-fi.

Personally, I'd hate to end up like those grey-haired born-again bikers,

desperate to re-live the excitement of that little learner bike they once enjoyed by buying a huge new Harley-Davidson.

So if you're struggling to recapture, as the poet says, that first fine careless rapture, take it steadily. If the equipment's any good at all, you can start enjoying it before you've gone the whole hog. And *Hi-Fi News* will still be there to guide you... ☺

'The best audio products from the past 60 years can still be used today'



ABOVE: Quad ad from 1978 – the year the author heard the marque at Harrogate

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Tim Jarman Electronics Engineer

Tim Jarman has been repairing and collecting vintage hi-fi for over 20 years. He is an authority on both classic B&O equipment and the Sony Walkman series

Digging for old gold

Beginning with a humble Philips recorder followed by a Sony deck with a hole in it, **Tim Jarman** hit the jackpot with a broken Nytech receiver he was able to fix himself. Then it was B&O all the way

I've always liked experimenting with and repairing electronics and my hi-fi story starts with old equipment found at jumble sales and donated by my parents' friends and colleagues.

The first proper unit to come my way was a late '60s Philips EL 3312 stereo cassette deck with built in amplifier. Actually it was the first stereo cassette machine to be produced, but alas I didn't know that at the time. I remember how good it sounded playing a new copy of *Now That's What I Call Music 5* – which shows how long ago that was! By then I was already hooked.

TAKING A CHANCE

The Philips deck was followed by a posh-looking Sony HST-139 cassette receiver, cheap because it had a massive hole in its fascia where the microphone sockets should have been. Alas, the capstan shaft was slightly bent, ruining the deck's speed stability. An attempt to straighten the shaft using a school lathe resulted in no improvement...

Things continued along similar lines until I chanced upon a Nytech CTA 252XD II receiver (the one that looks like a big calculator) which the owner said didn't work. So for a few pounds I took a chance. All that was wrong was that the



ABOVE: The Philips EL 3312 recorder as shown in the company's 1967 brochure



ABOVE: B&O Beolab 5000 amplifier as reviewed by the author in the Dec '13 issue of HFN

pre/power amp link was missing. I couldn't believe my luck – proper hi-fi at last!

This was partnered with a Sony PS-LX22 direct-drive turntable and an ITT 87 cassette deck inherited from my parents' system – a good match for the odd-looking Nytech. Loudspeakers were Philips Hi-Fi International models – a well engineered and under-rated series.

While all this was going on I'd wanted to 'get into' B&O, but anything decent was way out of my price range. An early Beogram 1500 record player was a great disappointment, but my luck improved when I spotted a Beocenter 1600 receiver/cassette unit in the local paper, which I could afford. When I arrived at the seller's house I found that it looked new, sounded amazing and had all the original paperwork with it. Lovely.

I couldn't find any suitable loudspeakers so saved up and bought new ones – piano black Beovox RL1000s, which cost nearly £200. What a difference though; finally I had a sound that I was really happy with, not to mention equipment with no holes in it or bits missing.

Since then I've had just about everything B&O made in its 'classic' period. I've kept the best, of course, such as the '60s Beolab 5000, the stunning Beogram 4000 and the big 8000 system. I still have

the little 1600 too, and to this day it looks like new.

I got into CD in 1991 with a Philips AZ6892 portable. Most of my players since then have been Philips too as I think they got it right first time with the old 14-bit models.

CHEAP GAME TO PLAY

FM radio and cassettes are still my sources of choice though. Done right, accurate preparation and calibration will make most cassette decks really sing. Apparently, cassettes are on the verge of being fashionable again; for me they never went away!

The great thing about being into old gear is that you can enjoy a vast range of hi-fi experiences for minimum outlay, especially if you can fix things

'I couldn't believe my luck – for a few pounds I had proper hi-fi at last!'

yourself. Prices are higher now than they used to be, but against that there's a buoyant market and no depreciation so it you have the capital it can still be a cheap game to play.

There's always something new to discover, hear and try out too; at the moment for example I'm exploring the Braun hi-fi range of the '60s and '70s and trying to put a nice early Sony system together. Does anyone have an ST-5100 tuner they want to sell? ☺

YOUR VIEWS

Sound Off!

Correspondents express their own opinions, not those of *Hi-Fi News*. We reserve the right to edit letters for publication. Correspondents using e-mail are asked to give their full postal address (which won't be published). Letters seeking advice will be answered in print on our Sound Off pages, but due to time constraints we regret we're unable to answer questions on buying items of hi-fi or any other hi-fi queries by telephone, post or via e-mail.

Send in your views to:
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please use 'Sound Off' in your subject field

WRONG-HEADED B&W HFN READER PUTS COMPANY RIGHT ON 803D3

I enjoyed reading your review of B&W's 803 D3 in the March issue, but 'the most compact "headed" speaker' the company has made? Oh, what short memories they must have in West Sussex if this is what B&W claims! I just checked the measurements on my Matrix 802 S3 loudspeakers, and they undercut the new 803 by several centimetres in every dimension.

Since there must be several thousand of these still in use in homes and studios throughout the world, why is B&W trying to whitewash away this part of its heritage? They were, and still are, superb speakers, quite capable of charming the birds from the trees, as my attached photo shows!

Alan Mosley, via email

James Parker replies: Well spotted, Mr Mosley: I contacted B&W for a response, and Senior Product Manager Andy Kerr replied that you are, of course, correct - he says 'The reference to "headed" should



ABOVE: For more on B&W's 803 D3 navigate to www.bowers-wilkins.co.uk

have been more specific to a curved headed enclosure (ie, Marlan or Turbine)', and that references to the compactness of the 803 D3 will now be amended where possible in the company's literature.

Paul Miller replies: I am acutely aware that *Hi-Fi News*' readers are the most hawk-eyed of the audiophile community, which is why we rarely pause to preen our feathers when there are facts and figures to be checked. Better to be red-breasted than red-faced!



ABOVE: Alan's B&W Matrix 802 S3 from the mid-'90s with a real-life tweeter on top

Why records mean riches...

DOES OWNING A VINYL COLLECTION MAKE YOU AFFLUENT?

A recent survey by insurer London Victoria will hopefully cheer up Ken Kessler. *The Independent* newspaper ran the findings under the headline 'Affluence is... vinyls, Aga and a playroom' while *The Mail* online site countered with 'An Aga, a wine fridge and a record collection: the possessions that reveal if you are rich'.

Both detailed the findings from the London Victoria report, which surveyed 1000 households in the UK with incomes of £57k plus and found that 18% of respondents have vinyl collections.

Barry Fawcett, via email

Ken Kessler replies: Hilarious! What the writers of these articles didn't say is that people with that level of income are also probably over 50 years of age, and it's more than likely that they kept the record collections they started when they were in their teens rather than ditch them when CD arrived.

Much though I love seeing hi-fi grouped with Agas, wine fridges and walk-in wardrobes, that particular demographic is more likely to buy audio components from B&O or Bose and listen to digital radio. As I have only two items on the London Victoria list, it's now confirmed that... I'm a pauper.

WhitWorld

OUR HI-FI WORLD THROUGH THE EYES OF WHITWORTH



A diamond in my eyes

READER LOOKS BACK OVER 60 YEARS OF HI-FI – AND HI-FI NEWS

I was but a mere lad of eight years when the first issue of *Hi-Fi News* was published in 1956. Still happily destroying my Dinky cars, and yet to graduate to building Airfix kits, it would be another eight years or so before I started my hi-fi journey.

My early path was marched to the strict beat of mono. It wasn't until shortly after the release of *Sgt Pepper's* in 1967 that I reached my stereo destination. Armed with knowledge gleaned from my first copies of *Hi-Fi News*, I parted with all my savings to acquire a Rogers HG88 Mk3 valve amp, a Garrard SP25 Mk2 turntable and a pair of Wharfedale RS12DD loudspeakers.

The latter would go on to occupy a series of self-built enclosures of various cubic capacities – what fun! These glorious examples of early engineering are still in daily use in my hobby room, the recently refurbished Rogers amp sounding better than ever and running on its original Brimar and Mullard valves!

I once had a large collection of *Hi-Fi News* magazines from the late '60s/early '70s. Of the few which have survived house moves, my favourite is the December 1974 issue.

During a difficult time for print media, current editor Paul Miller has laid down a challenge to his competitors by increasing the size



ABOVE: Photo taken by reader Alan of his chums listening to *Sgt Pepper's* in 1967

of *HFN* beyond 140 pages. How he must envy the halcyon days of 1974 when the December issue boasted a massive 300 pages, two-thirds of which were filled with advertising! At 15mm thick, that issue could double as a doorstep!

Ten years ago I kept the 50th Anniversary issue of *HFN* as advised by its then editor, who considered it unlikely we'd see another special collector's issue until the magazine's centenary in 2056! Thanks, Paul, for not making me wait that long!

Now but a mere 'lad' of 60 plus eight years, I look forward to following the magazine through its next decade, especially if the archives continue to be trawled in pursuit of such treasures as 'Vintage Review' and 'From The Vault'!

Many congratulations to all concerned on the occasion of the magazine's 60th anniversary.

Alan Scott, via email

Paul Miller replies: Thank you for your reminiscences, Alan, and your good wishes for the world's oldest hi-fi magazine! As I describe in our 60th Anniversary section [starting p26], the past ten years have been something of a rollercoaster ride. Nevertheless, thanks to the efforts of our small but dedicated editorial team, the contributions of the best and most experienced reviewers in the business, and the support of its loyal readers, *HFN&RR* is now as robust as it's been in decades.



ABOVE: The Dec '74 issue of *HFN* ran to 300 pages and cost a wallet-busting 30p

JITTERBUG

USB Filter



Can a £39 insect make all your CD files sound better than Hi-Res?

Yes and no: Using the same equipment and a quality DAC, a 24/96 file (for example) will always sound better than a CD 16/44.1 file ... but, even a single JitterBug will often allow a CD file to be more musical and more emotionally stimulating than a Hi-Res file without the benefit of a JitterBug.

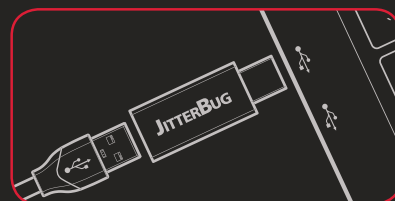
Noise is the problem. Real noise—the kind you can't hear directly. Most often, the word "noise" is used to describe tape hiss or a scratch on a record, but these sounds aren't noise; they are properly reproduced sounds that we wish weren't there.

Problem noise is essentially random, resonant or parasitic energy, which has no meaning. It can't be turned into discrete sounds, but it does compromise signal integrity and the performance of everything it touches.

JitterBug's dual-function line-conditioning circuitry greatly reduces the noise and ringing that plague *both* the data and power lines of USB ports, whether on a computer, streamer, home stereo or car audio front-panel USB input.

A single JitterBug is used in between devices (i.e., in series) as shown below. For an **additional "wow" experience**, try a second JitterBug into another USB port on the same device (such as a computer). Whether the second port is vacant, or is feeding a printer or charging a phone, JitterBug's noise-reduction ability is likely to surprise you. No, the printer won't be affected—only the audio!

While a JitterBug helps MP3s sound a lot more like music, high-sample-rate files have the most noise vulnerability. Try a JitterBug or two on all your equipment, but never more than two per USB bus. There is such a thing as too much of a good thing.



audioquest®

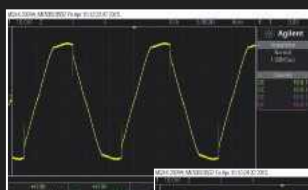
IsoTek® Powerful Innovation

Mains electricity is distorted by numerous factors as it travels from the power station to your home, eroding your system's performance and your listening pleasure.

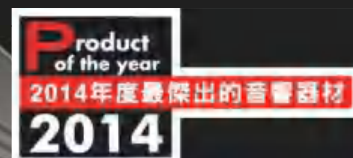
The **EV03 Mosaic Genesis** from IsoTek totally rebuilds a new AC mains sine wave, allowing your system to deliver class-leading performance with dramatically improved sound and picture quality. Protect your valuable equipment from power surges and voltage spikes with IsoTek.*

FULL AC MAINS SINE WAVE GENERATION

Standard AC mains supply



Output sine wave from Mosaic Genesis



"I plugged the Mosaic Genesis in not expecting much... I was wrong. It brought about an improvement of the scale I had not envisaged." **HI-FI CHOICE**

"It brings out the best in your system. Once heard it's hard to live without. Highly recommended." **HI-FI+**

EV03 Mosaic Genesis

Full mains sine wave generation system combined with the high current, low impedance 'Direct Coupled' circuit from the multi award winning IsoTek Titan.

- Removes Common mode noise.
- Removes Differential mode noise.
- Exceeds 85dB noise reduction, extending down to zero Hz.
- 99,000A progressive protection.
- 150W sine wave generation.
- 4600W high current supply.
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Need a new DAC/preamp

BELL TOLLS FOR CURRENT MODEL AS THE LURE OF NEW TECHNOLOGY PROVES TOO MUCH

Because my current DAC (an upgraded Bel Canto DAC 3) is now eight years old and DAC technology appears to have advanced considerably since I bought it, I'm wondering whether I could get a worthwhile improvement in sound quality by replacing it.

I've therefore started compiling a shortlist of DAC/preamps to audition against the Bel Canto so was particularly interested to read Andrew Everard's review of the Hegel HD30 in the January 2016 issue.

As the DAC in my system has also to serve as a preamp for all our audio-visual equipment, I require AES/EBU, S/PDIF on BNC and RCA, two Toslink optical and Ethernet digital inputs, and variable analogue output on balanced and RCA connections. My music library is stored on a NAS drive running MinimServer and I listen via Ethernet using the BubbleUPnP control app.

I'm also considering the PS Audio DirectStream DAC [see *HFN* Aug '14] and the Simaudio Moon Neo 380D, which was reviewed in the August 2013 issue in its pre-Neo form.

The *HFN* Sound Quality ratings awarded to the three DACs in decreasing-price order (PS Audio/Moon Neo/Hegel) were: 85, 86 and 88, but I'm sure it's not as simple as 'therefore buy the Hegel!'

The PS Audio is the most expensive, but its software is upgradable so in its current form probably sounds better than the version you tested. However, the connectivity it provides is not so comprehensive as the other models.

I imagine that at this price level it is not easy to arrange a group test of DAC/preamps as you did in 2012 and 2013 for network players. However, I would really appreciate



ABOVE: The outboard Bel Canto DAC 3 as reviewed in the January 2009 issue of *HFN*

any comments you might have on the relative merits of the DACs I have shortlisted, or likely models from other manufacturers.

David Lovell, via email

Andrew Everard replies: DACs with Ethernet connectivity are relatively rare, but then it's possible to run some NAS units straight into a DAC with a USB Type B 'computer' input, meaning that a network connection via Ethernet isn't always required.

Whether or not this capability is available on your particular NAS will depend very much on the operating system and the software loaded or available. For example, I know it can be done easily with QNAP and Synology models, and the Editor is currently running just such a set-up using the Melco N1A media player straight into the USB input on his Devialet amplification.

You're right, of course, that firmware upgrades can not only change the functionality of a DAC but also alter the sound (usually for the better!), so with models reviewed more than about five minutes ago – OK, I exaggerate, but you get the idea – the only answer, I'm afraid, is to listen for yourself.

However, it's also worth noting that the PS Audio has now been joined by a junior sibling based on the same DirectStream technology of the original. And it just so happens that we have a review of the 'DSJ' in this issue [see p70].



ABOVE: The HD30 is Hegel's flagship DAC and packs a pair of 'Velvet Sound' AK4490 DACs



NIGHTHAWK

AROUND-THE-EAR
SEMI-OPEN HEADPHONES



Remarkably comfortable NightHawk headphones not only don't feel like most headphones, they also don't give you that all-too-common "it's all happening inside my head" claustrophobia.

Listening through NightHawk is like listening to a pair of **astoundingly coherent** near-field speakers. Emotionally compelling and totally immersive.

In addition to **proprietary new design elements and materials**, NightHawk is the first headphone to apply many of the most advanced technologies previously only used in a few of the very best loudspeakers.

Please give NightHawk a listen!

audioquest

Help with placing a subwoofer

ACHIEVING SMOOTH BASS WHEN NEITHER LOUSPEAKERS NOR LISTENING SEAT CAN BE REPOSITIONED

My listening room is probably typical at 4x6m. My speakers are placed equidistant from the centre of the long wall while the listening seat is placed centrally along the opposite long wall.

I have my REL subwoofer against the short wall of the room, close to the corner. However, I have noticed that the lowest frequencies seem much louder if I stand close to the short wall at the other end of the room when compared to the volume I hear at the listening seat.

Where would be the best position for the subwoofer to obtain the most accurate low frequency reproduction? I am unable to change the listening seat or main loudspeaker positions.

Martin Phillips, via email

Keith Howard replies: While I understand fully the domestic imperatives that bear on this, I'm duty bound to say that by declaring your listening position immovable you are tying one hand behind your back in the effort to achieve the smoothest, most extended bass response you can. Optimising bass performance in any room is a source-receiver issue: the positioning of the speakers and listener both affect the result and both should be adjusted for best results.

Actually, by insisting that the main speaker positions are also fixed you are further restricting yourself. You don't say what the height of the room is but if we assume 2.5m then the internal volume is 60m³. If we guesstimate the room's low frequency reverberation time to be 0.6s then the Schroeder frequency will be around 200Hz.

This is the frequency at which, notionally, the density of room modes becomes such that individual modes are no longer discernible. So below this frequency room modes may – almost certainly will – prove to be a problem, and that range considerably exceeds the passband of your subwoofer. So the positioning of your main loudspeakers is a significant factor too.

But all is not lost. I can give you some basic advice, then it's up to you to experiment to achieve the best result you can within the confines of domestic reality.

There are actually two factors we need to consider. Room modes – standing wave resonances within the enclosed air of the room – I've already mentioned. The second factor is boundary gain. When you stand close to a wall and hear more bass, it can either be because you are standing

at a pressure antinode of a room mode or because of boundary gain. In my experience, usually it's a bit of both.

Let's deal with boundary gain first. This occurs because the walls of the room act as acoustic mirrors, so you hear not just the real sound source but also a number of virtual sound sources, these being the reflections of the real source. If we take the case of a corner (side wall, back wall and floor) there will be no fewer than seven virtual sound sources for every real source.

At sufficiently low frequency, where the path length difference from the real and virtual sources to the listener is much less than a wavelength, the output of the real and virtual sources interferes constructively, resulting in an 8x increase in both acoustic power output (+9dB) and sound pressure level (+18dB) compared to the same real sound source in free-field conditions.

As frequency rises, the outputs of the real and virtual sources can interfere either constructively or destructively, and so the frequency response becomes uneven. The worst-case situation occurs when the sound source is equidistant from all three boundaries that form the corner as this results in a notch in acoustic power output of -11.4dB at the frequency where the spacing is approximately a quarter wavelength. If we take the case of a sound source located 1m away from the floor and both walls, then this notch will occur at 97Hz.

What this means for your subwoofer is that it's best pushed as far as possible into a room corner, so that its driver is as near as possible to all three boundaries. This will mean that it benefits from boundary gain, increasing its output capability, while the potential notch is forced above the frequency range over which it operates.

For the main speakers the opposite applies: unless they are specifically designed to operate up against a boundary it is better to have them spaced well away from the walls, the distance to the floor usually being determined by the need to place the speakers' design axis at seated ear level. Ensuring that the three speaker-boundary distances are different will help obviate a severe cancellation notch.

Putting the subwoofer in a room corner has the potential disadvantage of efficiently exciting all the low frequency room modes but careful adjustment of the listening position can help smooth out the resulting peaks and dips in response, as



ABOVE: The positions of the listener and the speakers both affect bass response in a room

can appropriate use of equalisation if the subwoofer offers it.

What you can't avoid is there being a pressure node (a minimum) on the centre-line of the room caused by excitation of the axial width mode and its odd harmonics. In the case of Mr Phillips' room this will occur at a frequency where the longer room dimension is equivalent to a half-wavelength, ie, at about 29Hz, and thence at 88Hz (third harmonic) and 143Hz (fifth harmonic).

Here, two subwoofers are better than one, since placing them on opposite sides of the listening position and operating them in mono (so that each reproduces the sum of the left and right channels) will ensure that these modes are not excited.

If you can't get corner subwoofer location to give good results then try a centre-wall position. This will sacrifice some of the boundary gain but if the sub is placed between the loudspeakers this will obviate the problem explained in the previous paragraph. According to Floyd Toole, 'A single competent subwoofer, combined with competent measurement/equalisation, should be able to deliver respectable bass to a single listener.'

If you want to achieve good results over a larger listening area then you will almost certainly need to use two subs (try placing them at the mid-point of each side wall), with the optimum number – according to Harman research – being four.

In praise of the AR9!

TWENTY-SIX YEARS AND COUNTING THANKS TO SOME TLC ALONG THE WAY

It was with a fair bit of nostalgia that I read the 'From The Vault' feature in the December 2015 issue on the Mission 770s. For a number of years I used a pair of these great speakers in my studio, before they were stolen!

The cover of the March 1979 issue featured also flagged up a review of the then-new AR9 loudspeaker – a pair of which I still own after 26 years! Along the way they had their drivers refoamed and new capacitors installed but still sound amazing, especially since I upgraded my power amps from mid-1980s NADs to Emotiva XPA 100s. The sound is simply stunning in a large room.

Ian Laver, Australia

Adam Smith replies: You're a man after my own heart Ian. While it's fashionable to denigrate most 1970s loudspeakers as uncouth boom-boxes, there were some fine designs from the era despite their inexplicably falling from favour.

I have owned many models from the likes of Goodmans, Leak, KEF and others,



ABOVE: Acoustic Research's five-driver AR9 floorstander was released in 1978

and some have been very impressive indeed. One or two people I know rate the AR9s very highly and I have been searching for a pair for years to try myself.

Sadly, I have yet to find one but I'm still looking. I think they'll sit nicely alongside my 'work-in-progress' Leak 3090s, although my wife is less convinced!

Kicking vinyl's gremlins

UPGRADE YOUR KIT TO BANISH THE DOWNSIDES OF POOR PRESSINGS DECLARES READER

'Don't expect many of my generation to regress with you', wrote Robert Roy in the April Sound Off pages as he poured scorn on the young vinyl lovers of today.

Well I'm 67, and two of my hi-fi friends are 60 and 70 and lately we've all bought more vinyl than CDs. True, some of the LPs we have purchased

have been badly made, but not all of them. Having upgraded my turntable, arm, pick-up and phono stage, the downsides of bad vinyl have more or less disappeared. My Acoustic Solid deck isn't cheap, but it's worth it.

And I don't think the three of us are the only regressors. Sales are rising and this can't be due only to teenagers. I suggest Mr Roy makes a start on re-discovering the appeal of vinyl by playing a copy of The Beatles' 'Doctor Robert'.

Espen Lange, Norway



ABOVE: 'Dr Robert' first appeared on the The Beatles' *Revolver* album from 1966

Ken Kessler replies: To the delight of the vinyl revivalists, caught by surprise, the new LP-buying demographic is a mix of audiophiles, hipsters, 'baby boomers' indulging in nostalgia, under-30s who find the concept 'cool' and even fashionistas who want LPs so they can hang the sleeves on their walls. As far as I'm concerned, I don't care who's buying vinyl, so long as they continue to do so.

EXTREME?

IT IS NOW!

audioquest

Braun regie 510 receiver

Blazing a trail when it came to the aesthetics of design, this powerful, feature-packed receiver also boasted serious tech credentials. We find out how it shapes up today...

Review: **Tim Jarman** Lab: **Paul Miller**

Today Braun is best known in the UK for its shavers, electric toothbrushes and alarm clocks, but the company's roots are in the radio industry. The firm began making components for radios and complete sets as far back as the early 1920s with Braun-branded models appearing around 1933.

Production resumed after the war, but in the mid 1950s the company introduced new designs with a stark architectural look, coloured in plain white and grey with minimal ornamentation. This was at odds with the then-traditional German style for radios, which favoured dark varnished wood and lots of gilt trim.

A NEW AESTHETIC

The new look was largely attributed to designers Hans Gugelot and Dieter Rams, who in 1956 set out their design manifesto with the SK4 radio/record player. Technically conventional, it was housed in a white rectangular steel box topped with a clear plastic lid. This was the first appearance of a feature which would become ubiquitous across the industry.

Braun was quick to define an aesthetic for hi-fi, in 1959 introducing a recognisably modern system of free-standing stackable box-like components. That same year it offered a version of the Quad ESL-57 speaker built under licence and benefiting from a timeless 'Dieter Rams restyle'.

Seven years later the no-compromise Studio 1000 system was unveiled, complemented by a turntable of Braun's own design fitted with an SME 3009 arm. The company's hi-fi credentials were therefore beyond doubt.

Braun's first hi-fi receiver was introduced in 1968. Known as the regie 500, this



ABOVE: Braun is not well known for hi-fi in the UK, but it offered an extensive range of equipment for the German home market with catalogues that were as elegant as the products they described

model featured an AM/ FM tuner section with a stereo decoder and a 30W amplifier. The unit's aluminium fascia and large, simple controls matched the look of the rest of the Braun audio range. However, the use of newly developed solid-state circuitry meant that it could be compact, feature-rich and powerful.

In 1970 Braun started to release products finished completely in black, giving its audio ranges a sombre, more professional tone. The first all-black audio product in the Braun range was the regie 510 receiver of 1972, as reviewed here.

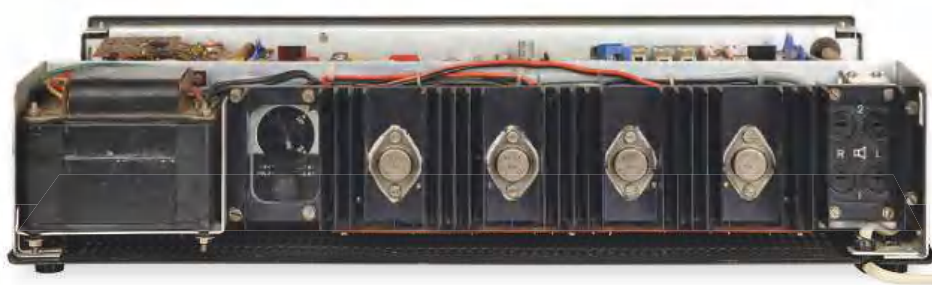
The styling has real impact even today, but imagine seeing it for the first time in the early 1970s when the bulk of Japanese equipment was still geared towards American tastes and a lot of British kit still looked slightly home made.

Credited to Dieter Rams, the regie 510 typified the new Braun look and was to set the standard in hi-fi design for at least a decade to come.

HIGH-END PRACTICE

Technically, too, the new model was a masterpiece. Rated at 35W/8ohm [see PM's Lab Report, p137], the regie 510 (or CEV 510 as the chassis was known) was in all respects a serious hi-fi design. Details such as the shortening of signal paths by moving the switches to electrically optimised

LEFT: Braun's regie 510 receiver employed a quasi-complementary power amp based around rugged 2N3055 (TO3-style) bipolar transistors, seen here mounted on the rear-facing heatsink





positions and then linking them to the controls by extension shafts, the placing of the input sockets underneath as close as possible to the preamp circuit and the use of star earthing in the power stages all showed that Braun's engineers were well versed in high-end audio practice.

As with many powerful amplifiers of this era, the output stage used 2N3055 transistors (known as the BD182 in Germany) fed from a single rail supply.

This necessitated the use of AC coupling to the speaker, but accuracy was maintained by extending the feedback loop out to the loudspeaker terminals at audio frequencies. Electronic protection prevented damage to the amplifier from short term overloads whereas long-term events were guarded against by a thermal cut-out attached to the heatsink located at the rear of the chassis [pictured lower left].

The AM tuner section, which covered all three bands, was conventional but the

FM channel was quite special. No fewer than four field effect transistors were used in the front end box and the IF amplifier was composed of five integrated circuit gain blocks coupled together by tuned transformers – a similar arrangement to that used in the Sansui 5000A receiver released in 1969 [see *HFN* Feb '16].

Meanwhile, a further integrated circuit could be found in the matrix section of the stereo decoder.

Braun turntables of this era typically came fitted with Shure cartridges such as the M75 or the V15. To cater for these, the

regie 510 included a decent phono stage which should also match the majority of modern MM cartridges.

As was common practice at the time, the other signals entering the amplifier passed through the phono stage as well. For this it was automatically switched to unity gain and flat response, although the

'Technically, too, the new Braun regie was a masterpiece'

ABOVE: A timeless piece of industrial design, the regie 510 set the standard for hi-fi styling for at least a decade. The red and white dots on the tuning knobs match those of the relevant scales

tape loop input bypassed this arrangement making it favourable for critical use.

Scratch and rumble filters, inter-station muting and the option to mute all stations bar those receivable in stereo were among the other facilities offered.

TRUE BRAUN

Real attempts were made to sell this model in Braun's export markets, including the UK. One stockist went as far to claim that the amplifier was powerful enough to enable the owner to run a mobile disco!

The high price of around £175 was a drawback, especially when the B&O Beomaster 3000-2 (the regie's rival in

BELOW: 'Reproduction that borders on absolute perfection' reads this ad for the 510. The brochure is heavy on technical detail, even giving circuit descriptions for each model



Der regie 510 ist der Spitzen-Receiver im Braun-Programm. Mit diesem Hörsystem präsentieren sich ein neues Qualitätsniveau in High-Fidelity. Die «Technik» des regie 510 ist zum Beispiel für den Warmmischpunktwechsel des Osmo-Verfahrens – ein Maß, das sich nur nach den Daten und Merkmalen registriert.

Die selbsttätige Verstärkerleistung ist auf dem höchsten Niveau und liefert genügend Kraft, um das hochqualitative, meist nicht getriggerte Lautsprecherverhalten auszugleichen. «Phono» zu produzieren.

Die Röhrenfunktion (UKW, F.M., MW und LW) bietet im UKW-Bereich eine Übertragungsleistung für alle

erhöhten Sender und vorzügliche Tonqualität.

Der regie 510 ist selbst gegen Netzspannungsschwankungen und veränderliche Drosselströmung mit maximaler Lautstärke. Er ist so aufgebaut, daß selbst bei fehlerhafter Anschließung keine Schäden entstehen.

Technische Beschreibungen des regie 510 die «absolute Spitzenqualität».

Der höchste technologische Qualitätsstandard wird durch die sorgfältige Beschaffenheit und sorgfältigen Möglichkeiten für die Klangreue.

Bedienungselemente

- 1 Ein-Ausschalter (Netz)
- 2 Kopfhörerausgang
- 3 Lautsprecher-Wahlschalter
- 4 Lautstärkeregler
- 5 Balance-Regler
- 6 Klangstärkeregler
- 7 Klangstärkeregler
- 8 Klangstärkeregler
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- 11 Klangstärkeregler
- 12 Klangstärkeregler
- 13 Klangstärkeregler
- 14 Klangstärkeregler
- 15 Klangstärkeregler

regie 510 HiFi-Stereo-Receiver



- 13 Sendeschalter
- 14 Abstimminstrumente
- 15 Taste für Stereo-Abstimmung
- 16 Stereo-Taste
- 17 Stereo-Taste
- 18 Stereo-Taste
- 19 Stereo-Taste
- 20 Stereo-Taste
- 21 Stereo-Taste
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- 30 Stereo-Taste

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VINTAGE HI-FI

RIGHT: Interior view shows how the chassis is partitioned with the power amplifier at the back and the FM tuner/stereo decoder on top. The AM tuner and preamp are underneath

terms of power, quality and designer appeal) could be had for around £140.

As with most Braun products, its operation is simple. The green button switches the unit on and anything coloured red, such as one of the tuning knobs and scales and the UKW (FM) button, is related to the FM tuner. Things connected with stereo reception are green, such as the indicator and the 'stereo only' button, whereas the AM section has a white scale and a white mark on its tuning knob.

All controls and indicators are labelled in German, but most are intuitive to use. The exception is probably the tape loop, which is marked 'band'. Pulling the volume knob outwards disables the loudness compensation, as those familiar with other Braun equipment will know.

The balance knob is unconventional in the way it works. It is, in fact, a small 'sub volume' control with two concentric sections offering 6dB of boost or -16dB of attenuation for each channel. The arrangement works well in practice and can also be used to extend the range of the main volume control, for example to deal with modern source components having excessive output levels.

The treble (*höhen*) and bass (*tiefen*) controls also have separate concentric sections, allowing each channel to be adjusted separately.

TIM LISTENS

Thoughtfully, an extra line level input labelled 'reserve' has been included, which is an ideal point to connect a CD player via a simple DIN adapter (only models for the US market had RCA connectors). It was this input that I used to hook up my Cyrus CD8 SE 2 CD player, further DIN adapters being necessary to attach my reference Monitor Audio PL100 loudspeakers. The FM antenna input is a European 2-pin 300ohm type.

'The track was conveyed with bags of punch and vigour'

Much German equipment of this era exhibits a midband presence dip, inevitably combined with heavy, ponderous bass. This can sound impressive in the showroom on small, inexpensive speakers but, to these ears at least, is tedious to listen to over the long term at home, especially when decent partnering components are used. The good

news is that the Braun regie 510 avoids this problem and has a real surprise in store.

With the volume knob pulled out ('linear' mode) it is a pleasingly lively performer. Bass is tight for an AC-coupled

design (which typically exhibit a damping factor that falls at subsonic frequencies) and the crucial middle frequencies are well integrated with the rest of the sound.

Spinning OMD's album *History Of Modern* [Blue Noise B003YVNC4S] helped reveal the regie's strengths. 'Part 1' of the title track was conveyed with bags of punch and vigour, the electronic effects lacking none of the sheen you'd expect to hear with the heavy stop-start bass line showing little evidence of smearing.

Part 2 is more about vocal clarity and again the Braun scored well. Voices were neither recessed and lost nor pushed forward and excessively prominent – two common failings of the lesser equipment of this era. The track comes over as powerful

too. Again the regie plays loudly easily yet manages to hold the sound together well – even at deafening volumes. Subjectively it seems to be more capable in this area than the rather modest ratings suggest.

If the regie 510 had a defining characteristic it was the sheer amount of detail it delivered, musical textures being plain to hear across a whole variety of recordings. On the downside, the treble could sound harder than might be expected from a European design as well as sounding splashy around sibilant singers. This was never unpleasantly so, but didn't make for as luxurious and relaxing a listen as one might expect from, say, the B&O Beomaster 4400 receiver [see *HFN* Jun '12].

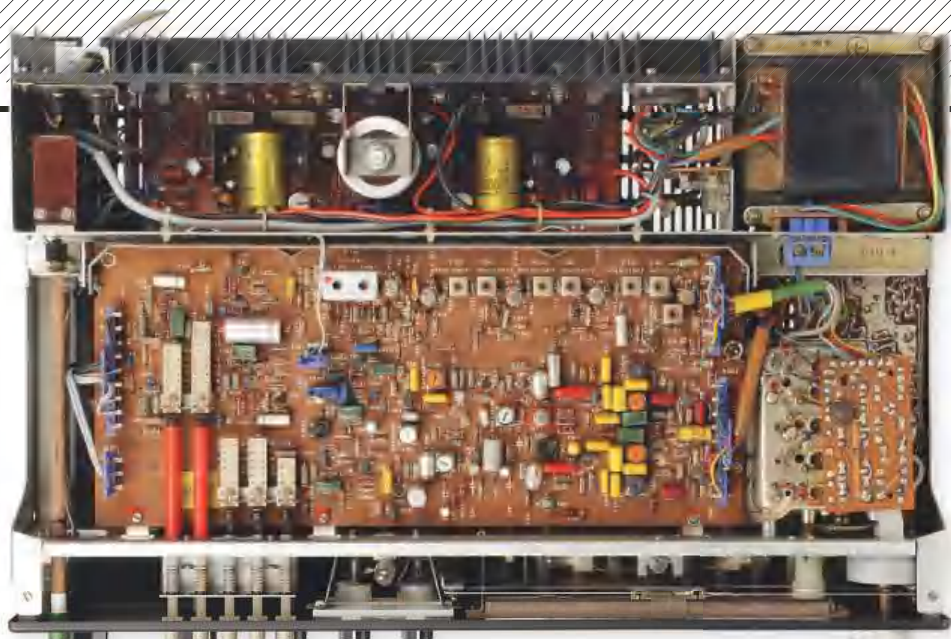
HISS-FREE STATIONS

That said, the Braun created a wide and continuous soundstage with no gaps, no smearing and no 'pools' of sound around the loudspeakers. This, the brisk treble and the silence between tracks (both through the loudspeakers and from the unit itself, whose hefty mains transformer is mercifully free of mechanical buzzing) make you forget this is a product from the 1970s.

The FM tuner fitted to the regie 510 is not the poor relation of the amplifier. It is sensitive and gave a good choice of hiss-free stations from my loft-mounted omni-directional antenna.

The performance of the stereo decoder was fair, although not quite up to the standard of the later generation of phase-locked loop designs when reception conditions were marginal. Under these circumstances, the stereo indicator glows weakly or blinks on and off, showing that

LEFT: The regie 510 is relatively large but the neatness of the design means that it does not look too bulky. The top cover could be ordered in silver but most were sold in dark grey, as here





RS3i

The ultimate standmount?

"To answer the question posed at the beginning of this review: Yes, my socks were blown off by the RS3i, landing in a smoldering heap in the corner of the room. The RS3i's are among the most engaging speakers I have experienced."

"I purchased the review pair so the socks will have to wait."

- Rob Johnson, *Tone Audio Magazine* - April 2016

"Put the lights out and you are left with only the music. You would think that you are listening to a pair of small full range speakers instead of stand mounts."

"It's easy to see that attention to detail is not just a slogan at Gamut."

- Henry Wilkenson, *Audiophilia* - March 2016

"The agility and speed of the GamuT speakers help give them qualities of both clarity (because the beginnings and endings of notes are so sharply defined) and a sense of 'you-are-there' immediacy, proving there is real substance behind GamuT's claim to have designed the speaker for correct phase and impulse response."

"This is a superb speaker and one I recommend without reservation."

- Chris Martens, *Hifi+* - October 2015



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VINTAGE HI-FI



ABOVE: No tatty rear panels here! All sides of the 510 are styled so that the unit can be placed centrally in a room without looking untidy. Mains cable exits underneath

the circuit is operating at or near its limits. BBC Radio 4's studio news broadcasts sounded clean and tight. Some tuners, for example the Aurex ST-F15 [see *HFN* Apr '15], can add a touch of warmth to presenters' voices, but the Braun didn't really do this. Yet it still remained engaging and pleasant to listen to.

The technical quality of BBC Radio 3's output gelled well with the regie 510's precision, *Late Junction* being an even more compelling listen than usual when sharpened up by what is clearly a very carefully designed FM section. At times the AFC tended to lock onto the wrong station when switching on from cold. A delay before this took effect would have been welcome.

BUYING SECONDHAND

An outwardly identical model to the regie 510 was produced for use with Braun's active speakers. Known as the CES 1020, this lacks an output stage, so don't buy one by mistake!

The first thing to inspect is the condition of the cabinet. Both the top and the fascia are steel and rust spots will break through the thin

paint if the unit has been poorly stored. Refinishing the top isn't difficult, but since the fascia bears screen-printed legends, repainting it is a far more difficult proposition.

With no dial glass to protect them, the radio scales are also vulnerable. As the unit's appearance is one of its key attributes, do look for a tidy, complete example.

Internally, these sets were tough and well built. The orange moulded electrolytic capacitors should be considered for replacement as they become problematic with age. The small preset resistors are also a source of problems, often disintegrating when touched.

The integrated circuits used in the FM tuner are difficult to find now, so it is best to ensure that this part of the circuit is working. The power amplifier, on the other hand, uses standard devices which are still widely available.

The use of voltage regulation in the circuitry means that a 220V model bought in Germany will operate correctly on UK 230-240V supplies and the tuner is easy to adapt between European and US standards. This means that buying a regie 510 abroad should offer no serious concerns. ☺

HI-FI NEWS VERDICT

This is a fine piece of audio engineering from a company not usually associated in this country with hi-fi. Braun's audio portfolio is expansive and contains some lovely equipment, to which the sturdy and powerful regie 510 receiver is an excellent entry point. It's a classic design in every sense and one which also rewards with a sound that's bright, breezy, expansive and detailed.

Sound Quality: 80%

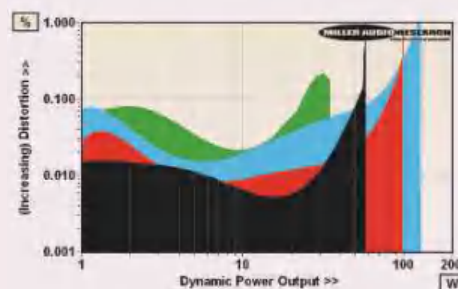


LAB REPORT

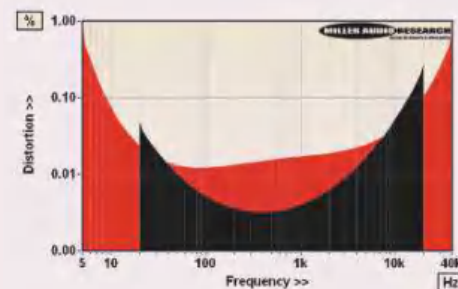
BRAUN REGIE 510 (Vintage)

Rated at a modest 35W/8ohm, Braun's substantial regie 510 receiver mustered closer to 2x51W/8ohm and 2x78W/4ohm on the test bench with sufficient headroom to accommodate 10msec transients of 58W, 100W, 128W into 8, 4 and 2ohm loads with 35W, limited by protection, into 1ohm loads [see Graph 1, below]. The 'balance/fine volume' control adapts the 510's gain to between +25dB and +41.5dB, the default '0' position yielding +35dB. Braun catalogued the 510's frequency response as '25Hz-35kHz ± 1.5 dB' although without a true tone defeat option – the 'Linear' volume mode does not bypass the tone or balance circuits – the flattest response was achieved by slightly backing off both the bass and treble controls (centred on 40Hz and 12.5kHz, respectively). Even here, the response has something of a 'loudness contour' shape with a broad +1.2dB bass lift between 30Hz-150Hz and shallower lift of +0.35dB between 9-30kHz. Expect a hint of 'boom and tizz'.

In practice, this idealised response has ± 1.5 dB limits of 15Hz-95kHz, assisted by the fairly flat 0.11-0.17ohm output impedance, and exceeds Braun's conservative specification. The 89.8dB A-wtd S/N ratio (re. 0dBW) is equally impressive, besting more than a few modern amplifiers, while distortion is 'state-of-the-art' for the era at 0.003-0.015% over its rated 35W range through the midband (lowest THD is at ~ 10 W/8ohm). Distortion necessarily increases at high and (AC-coupled) low, frequencies – from 0.26%/20kHz to 0.05%/20Hz at 10W/8ohm and 1% at 5Hz/1W [see Graph 2, below]. Readers may view a full QC Suite test report for the amplifier section of Braun's regie 510 receiver, when available, by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



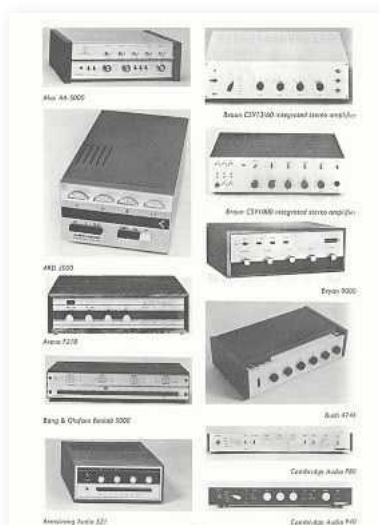
ABOVE: Dynamic power output vs. distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 8.0A



ABOVE: Distortion versus frequency at 1W/5Hz-40kHz (red trace) and 10W/20Hz-20kHz (black trace)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	51W / 78W
Dynamic power (<1% THD, 8/4/2/1ohm)	58W / 100W / 128W / 35W
Output impedance (20Hz-20kHz)	0.111-0.17ohm
Frequency resp. (20Hz-100kHz, 0dBW)	+1.2dB to -1.7dB
Input sensitivity (for 0dBW/35W)	45mV / 271mV
A-wtd S/N ratio (re. 0dBW/35W)	89.8dB / 105.2dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.0031-0.27%
Power consumption (Idle/rated output)	33W / 155W
Dimensions (WHD) / Weight	500x110x340mm / 15kg



ABOVE: Braun amplifiers (top right) featured in the 1970 *Hi-Fi Yearbook*

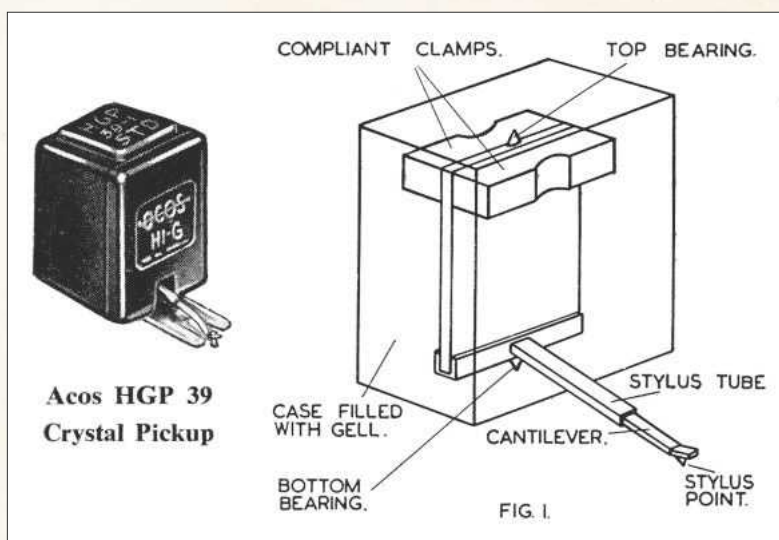
Submitted for test...

Ever wondered what were the first products to be reviewed in the world's oldest hi-fi magazine? *HFN* reports on two pick-ups and speaker enclosures

There are many types of pick-ups presently offered on the high-fidelity market [writes Stanley Kelly], and they can be divided into two basically different types: crystal and electro-magnetic. Condenser pick-ups have met with little success while variable resistance pick-ups, sometimes called frequency modulation types, have never passed outside the portals of the laboratory.

It is well known that crystal pick-ups give an appreciably higher output than magnetic pick-ups for a given mechanical impedance at the stylus point. The reason for the higher output is twofold: (a) the mechanical-electrical efficiency of the Rochelle Salt bimorph is appreciably higher than that of current magnetic types, and (b) the impedance of the crystal unit is again considerably higher than in the case of magnetic units.

Both factors, taken together with the extremely high input impedance of normal valve grid circuits, result



ABOVE: Figure 1 – diagram showing the construction of the head of the Acos HGP 39 crystal pick-up, pictured left

in an output voltage of anything from 10 to 100 times that of an equivalent magnetic unit.

A further fundamental difference is that the output from a crystal pick-up is proportional to the *force* applied to the crystal, whilst the output from a magnetic unit is proportional to the rate of change of flux linkages which is directly proportional to the *velocity* of the stylus point.

It can be shown that the output from an uncorrected crystal pick-up is proportional to the amplitude of movement of the stylus, but various artifices can be utilised in the construction of this pick-up which will modify considerably the response characteristics.

For instance, if the crystal is freely suspended, the output will be proportional to the acceleration of the stylus point, which for constant velocity records would be a rise of 6dB per octave. And if the restraining medium is a pure mechanical resistance, say castor oil, or soap, the output will be directly proportional to velocity.

The foregoing assumptions have, of course, neglected resonances. In the crystal cartridge, in addition to the stylus mass/record compliance (HF) resonance and the low frequency tonearm resonance,

there are usually a minimum of two resonances due to the crystal structure alone. But by correct dimensioning of the crystal and critical damping, these resonances can be mitigated. The fact that the output of the crystal is a function of applied force means that various mechanical artifices can be employed to correct, approximately, for the recording characteristic.

ACOS HGP 39

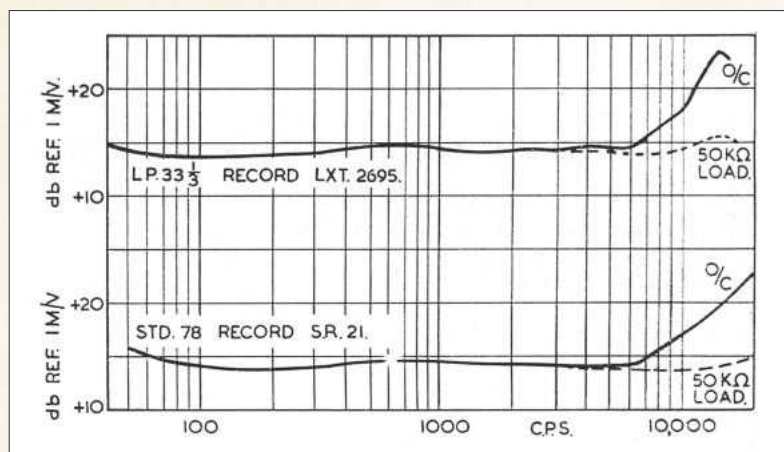
In the Acos HGP 39 this has been done, with the result that the pick-up can be played into a nominally flat amplifier with no correction being required for the recording characteristics. This feature, coupled with the high output of crystal types, renders the use of a preamplifier and its attendant correcting network unnecessary, thus effecting a considerable saving of equipment for the medium-priced market.

Figure 1 shows the construction of the HGP 39. The crystal is mounted vertically and the top end is clamped with a pure compliance. The lateral undulations of the record groove are applied as a torsional force to the bottom end of the

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crystal by the cantilever arm, the resonances being damped by the viscous gel, which is also used to seal the crystal against moisture.

The compliance of the cartridge has been increased to the limit to reduce as much as possible the playing weight of the pick-up, and to further this end, lateral and vertical friction of the tonearm bearing has been reduced to an absolute minimum by suspending the assembly on a single needle point.

This system also possesses the advantage that the vertical and lateral moments of inertia are approximately equal; whilst damping of these resonances is effected by the use of a highly viscous damping fluid between a swash plate and the centre spindle. The measured frequency response of the HGP 39 submitted is shown in Figure 2 [below]. It will be seen that the output of nearly half a volt on LP and

'Various artifices can be used in the construction of this pick-up'

about 1.2V on standard recordings is more than adequate for most requirements. The stylus resonance can be obtrusive if used with wide band speaker systems.

Intermodulation distortion was reasonably low at low levels when tested on the JH 138 Intermodulation Test record, but the pick-up jumped on the highest velocity groove. As this velocity is the

absolute maximum that can be cut, the HGP 39 should track all but the most heavily modulated records.

GOLDRING 500

The ultimate aim in the design of a magnetic cartridge is that it shall follow a true velocity response with no resonances whatever anywhere in the frequency range covered by modern records. Today that means a frequency range greater than 30 to 15,000cps. Another ideal is that the stylus is itself the armature. In the



ABOVE: Goldring Type 500 variable reluctance pick-up (left) and (right) its working principle, assuming top stylus is used. Flux passes from N of magnet along cantilever to either A or B according to the direction of displacement. This induces +ve in X and -ve in Y for movement towards B and reverse potential for reverse movement

ABOVE LEFT: Figure 3 – curves measured at 33.3rpm and 78rpm for the review sample of the Goldring 500 cartridge

type known as variable reluctance, this precept has been carried to its logical conclusion, in that the total armature system is actually the cantilever carrying the stylus point.

'Variable reluctance' is nothing more than a high-faluting name for a slight modification of our very old friend the balanced armature transducer. We say 'modification' because it is not a true balanced armature in that some steady magnetic flux always flows through the armature. What the armature does is to vary the reluctance of two magnetic circuits placed symmetrically in opposite phase about a mean point. An alternating EMF is induced in pick-up coils wound on these two magnetic circuits and connected in correct phase [see Fig 2 A, top right]. ☞

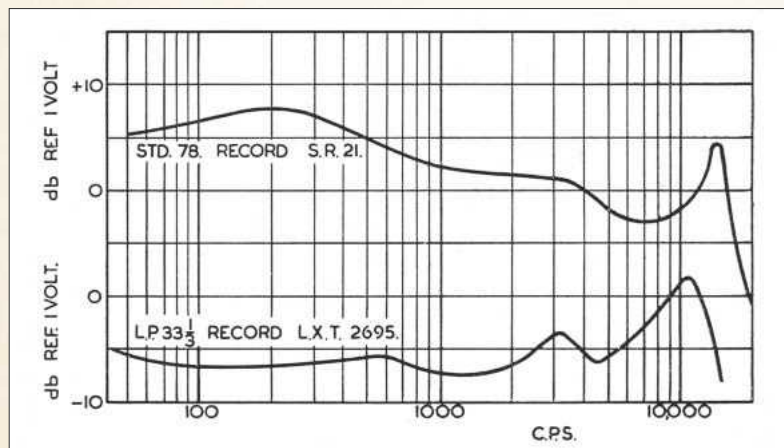
MANUFACTURER'S SPECIFICATIONS

HGP 39 CARTRIDGE

Type: Crystal cartridge. Styli: 0.001in rad. Normal tracking pressure: 8g. Effective mass at stylus tip: 8mg. Output: (approx) 1V from 78rpm and 1/3V from LP. Impedance: capacitive, 1000pF. Recommended load resistance: 1Mohm. Frequency response: Substantially flat after eq. from 40cps to 13kcps

NO 500 CARTRIDGE.

Type: Magnetic variable-reluctance turn-over cartridge. Styli: 0.001in rad. sapphire. Normal tracking pressure: 7g. Effective mass at stylus tip: 3.5mg. Output (average): 3.2mV per cm/sec. DC resistance: 1500ohm. Impedance: 3800ohm. Recommended Load Resistance: 50kohm. Frequency Response: Substantially linear from 20 to 20,000cps



LEFT: Figure 2 – graph showing the uncorrected response curves at 33.3rpm and 78rpm for the Acos HGP 39 (loaded by 1Mohm/100pF), as measured from the sample submitted

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TWEAKS

Room Tuning Resonators

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...the outcome of using the Valhalla 2 is truly prodigious. Everything instantly improved as a result of this dynamically unconstrained cable. It was easy to detect that the Valhalla lowered the noise floor, and that the bass notes became more defined and stygian... In other words, the bennies were evident across the sonic spectrum, in ways both large and small.

Jacob Heilbrunn writes in the July/Aug 2015 'The Absolute Sound'

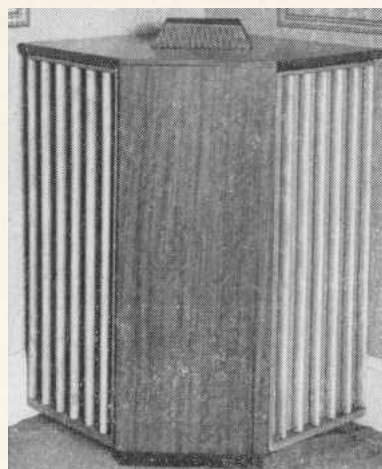


Norse Series 2 represents another evolution in Nordost's cable technology – and a step change in performance in this mid price range. By combining the proven benefits of MMF construction with the latest developments in the mechanical tuning and optimization of conductors, topology and termination, Nordost's designers have achieved a significant breakthrough in cable performance. By adopting the same clear family structure first used with the Leif Series, the new range not only covers all the bases, from AC cables to dedicated designs for source, interconnect and speaker signal transfer, three distinct performance levels make it even easier for dealers and end-users to prioritize system functionality without compromising overall cable coherence.



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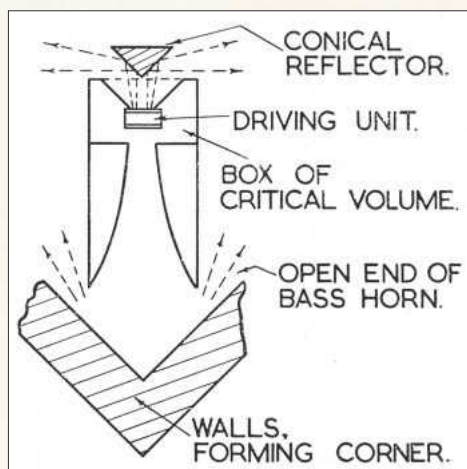
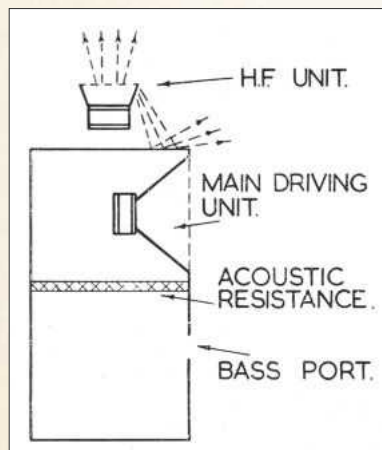


The first practical example of the variable reluctance cartridge was the American GE unit. When it first appeared, almost ten years ago, it represented a radical advance, but because of the dimensions of the cantilever, a number of resonances were apparent which were damped by the judicious application of pieces of Viscaloid.

Unfortunately, Viscaloid is very variable, and depending upon the plasticiser content of a particular specimen, the stylus can be overdamped, correct or underdamped, and in certain conditions can (and did) introduce considerable quantities of distortion.

SPLENDID ISOLATION

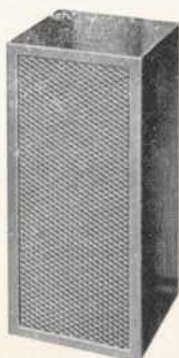
Goldring introduced a basic modification of this concept in its Type 500 variable reluctance cartridge. It used two separate mechanical stylus systems at opposite ends of a common magnetic circuit. This results in the isolation of each vibrating system. The cantilever of the



ABOVE: The Rogers Corner Horn and diagram of box. An 8in unit fires forward into a conical reflector and is loaded behind by a folded horn augmented by the corner of the room itself

ABOVE RIGHT: Ad for Goodmans Axiotee cone, as recommended by Rogers for its corner enclosure

BELOW: The Wharfedale Reflex comprises a 10in unit in a ported cabinet, typically combined with a separate omnidirectional 3in tweeter. Diagram shows internal configuration with bass port



Goldring cartridge is extremely small, resulting in a very low effective mass, and the damping is ingeniously applied through a vane on to the cantilever bearing. It is effective, and does not result in the increase in mechanical impedance had the damping been applied at the stylus point.

The response is shown in Figure 3 [see p139] and the rise in the high frequency is due to the cartridge being played under open circuit conditions. When loaded with 50,000ohm (50kohm), the total excursion in the frequency band is less than 2dB.

The output of approximately 3mV requires an efficient preamplifier, but the results obtained more than justify the few precautions that must be taken to eliminate residual hum.

When the unit was tested on the JH 138 Intermodulation Test Record, the total intermodulation content was 12% at the highest recorded velocity. To summarise, this is a pick-up in the highest class; it can confidently be recommended, especially when fitted with a diamond LP stylus, for use with any of the best high-fidelity systems.

TWO SPEAKER ENCLOSURES

The first unit under consideration is the Rogers Corner Horn [writes Ralph West]. Here, the 8in drive unit points vertically upwards, and the high-note sound is reflected into a narrow 360° beam. Some enters the room thus, and the beam has sufficient vertical width to cover

different seating heights. Some sound strikes the corner and thence back into the room. This indirect sound increases the apparent source area, and effectively increases the listening room size.

The direct sound gives a more precise location to the source that one might expect from solo voice or small solo instrument. The combination forms a very clever and effective compromise between the extreme requirements. Distribution within the room is well high perfect. As the horn loading

raises the efficiency of the speaker in the middle and lower ranges, the unit chosen must have a very good high-note response.

The maker's first choice is the Goodmans Axiotee 102 (now called the Axiotee), but the Wharfedale Super 8/AL, for instance, will probably have more output in the 2000-3000cps (2-3kHz) region, and may suit a room with large amounts of soft furnishings.

LISTENING

The speaker really does perform as its design intends, and the results are therefore very good indeed. With BBC (via FM), and good average LP recordings, the amplifier controls were run flat all the time, showing nothing lacking in the bass and nothing lacking or objectionable in the top response.

Solo items, where close to the microphone, bring the soloist into the corner of the room, and large



'Distribution of sound within the room is well high perfect'

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That's German Engineering!



orchestras spread well beyond the confines of the room. Used at high level or lower than normal level the speaker is still satisfying, again showing the response is well maintained at the extremes. Listening produced no fatigue, suggesting very small coloration and white noise tests confirmed that.

The design is neat, simple, and well proportioned. The cabinet and speaker are normally sold separately, the cabinet £18 17s 6d, and the Axiette £6 18s 6d, including tax.

WHARFEDALE REFLEX

The 10in cabinet-loaded Wharfedale is actually a complete speaker in its own right and can be used as such. The extreme HF response can be improved by the addition of an HF unit and modern LP records, BBC (via FM) and 7½in-per-second tape make the addition worthwhile.

The cabinet is designed to keep a constant load on the driving unit so as to reduce distortion and intermodulation even at a high level and when using bass lift. The volume of the two sections of the cabinet, the size of port, and the magnitude of the acoustic resistance, together with the speaker parameters, constitute the design factors.

The acoustic resistance used by this firm consists of very narrow saw cuts of calculated width and length in a plywood panel. It has the merit of simplicity and permanence.

The HF unit points upwards and radiates most of its energy to the walls and ceiling. As the cone is small, the beam is wide, and the reflection from the walls and ceiling gives very good dispersion.

The back of this speaker is open and also radiates. This sound is reflected from the base of its small cabinet and the top of whatever it stands on. Altogether an omnidirectional source.

LISTENING

First the 10in Bronze CSB unit in its cabinet was tried, and the smoothness of the middle bass registers was immediately evident. The extent of the bass was also surprising considering its size.

'The speaker's small size should resolve domestic opposition'

Slight bass lift was needed when the speaker was some way out of the corner. The 10in unit, as expected, does beam the high notes somewhat but by turning the speaker round, at an angle to the wall, and using a little top lift (on really clean signals) a most satisfying result was obtained. For 78rpm records and BBC broadcasts via AM, this was considered adequate without top lift.

With the addition of the Super 3 unit and adjustment of its volume control, the finishing touch was added; and, of course, no top lift was needed. The speaker as a

whole has been designed so that it may be moved about in the room to suit users' requirements and this portability was

found to be useful. To get the best from a solo item, or from a small ensemble, the speaker was pulled well into the room, literally putting the item in the listening room.

For large orchestral work, it proved better nearer reflecting wall surfaces, giving a large sound effect. White noise tests confirmed the overall smoothness of the response. The small size should resolve domestic opposition, as also will the excellent and pleasing finish.

The two units and two cabinets are sold separately, the Super 3 cabinet being complete with its condenser and volume control. The reflex cabinet costs £14, the Super 3 cabinet £4. The 10in bronze speaker £4 17s 3d, and the Super 3 speaker £6 19s 11d., both including tax. ☺



ABOVE: Original pages from the July 1956 issue of *Hi-Fi News*, only the second to be published and the first to carry equipment reviews. The cover picture shows a Quad 2 amplifier and Quad FM tuner with a Garrard 301 turntable fitted with a Ferranti ribbon cartridge



Also in *HFN* this month in 1956

LONG PLAYING RECORDS
By Cecil Watts.

READERS' ENQUIRIES
Your questions answered.

FM TUNERS
Second of a two-part feature by R S Roberts.

PICK-UP MEASUREMENT
Examined by Stanley Kelly.

6V TRANSISTORISED AMPLIFIER
A technical look.

THE SPEAKER IN YOUR HOME
By Ralph West.

TAPE RECORDERS
First in a series of features with the newcomer in mind.

EQUIPMENT REVIEWED
The mechanical workings of the Collaro tape deck.

EMI STEREOPHONIC TAPES
A complete list compiled by new contributor, James Moir.

STEREOPHONIC SOUND
James Moir on the general principles of twin-channel recording and reproduction.

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Pre & Power	£34,990
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MIT Matrix HD23	£690
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Mitsubishi DA-F10, excellent used
Musical Fidelity A5DAB, sealed box used
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NAIM NAT05 excellent (no remote) used
Nakamichi LX5, excellent 3 head unit used
Nakamichi BX125e, good condition used
Nakamichi ST7e, rare tuner used
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Amplifiers

Arcam Alpha 8P, vgc+ boxed REDUCED used 179
ArtAudio Jota 520b, excellent used
Audio Flight Pre and Flight 50 Class A power dem
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Audio Research VS115, excellent boxed used
Audio Research Ref 610 Monos, vgc boxed REDUCED used 12999
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BAT VK55 Power Amplifier, excellent boxed used
Beard P101, excellent boxed, just serviced, REDUCED used 699
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Consonance Cyber 211 (Pavane), Monos, REDUCED dem 2749
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Graaf GM50B Mk2 Integrated, ex dealer demo dem
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Linn Klimax Kontrol, Dynamik PSU, boxed used
Luxman C383/M363 PrePower combo, fab! used
Luxman CL-32 & MQ3600 PrePower combo, due in used
Luxman L550 monster retro integrated, rose cheeks etc dem
Marantz SM7, great retro power, REDUCED dem
McIntosh C22/MC275 Commemorative, REDUCED used
Meridian 501 preamplifier, excellent dem
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Musical Fidelity M6i, near mint boxed, REDUCED used 1099
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NAIM NAP150x, excellent boxed dem
NAIM NAP180, excellent boxed, serviced 2010 dem
NAIM NAC202, excellent boxed and rare pre/power new
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NAIM NAC92r, boxed remote excellent used
NAIM NAP135 pair, excellent boxed, 1999 used
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NAIM NAP250/2, excellent boxed 2006 used
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Pathos Logos Integrated, excellent, REDUCED used
Pioneer A50s, boxed near mint used
Quad 33/303, vgc, serviced used
Ridel Michi PrePower, good condition used
Sugden A21a line Integrated dem
Sugden Masterclass Pre/Monos in Graphite REDUCED used 5749
Sugden Masterclass Integrated in Titanium dem
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Tandberg TPA3003 Power amplifier, excellent! used
Tannoy TA1400, excellent boxed REDUCED dem 499
TEAC Distinction A1000 Integrated, mint, REDUCED dem 449
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Esoteric X03Se, near mint boxed, REDUCED used 1299
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Moon Eclipse CD/DAC/PSU, near mint, REDUCED used 299
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NAIM DACV1, excellent boxed used
NAIM CD5, recent new laser, upgradeable dem
NAIM CD5X, recent new laser, upgradeable used
NAIM CDS/CDPS, excellent example used
NAIM NDS, current top model ex demo used
NAIM NDH, near mint ex demo used
NAIM HDX, upgradeable, as new used
NAIM CDS3, excellent boxed used 2599
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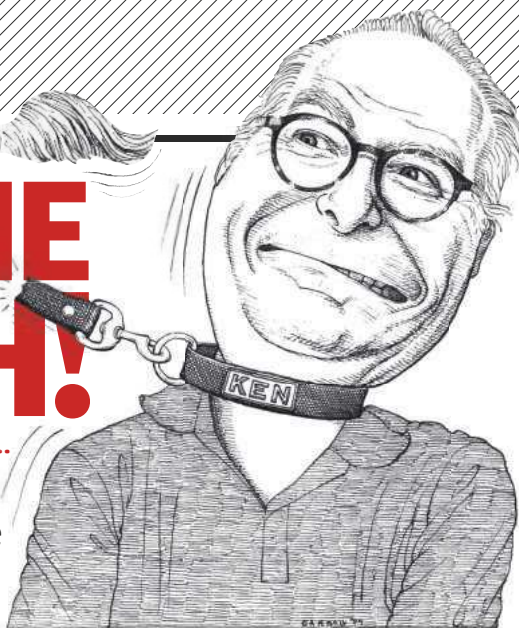
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LAST WORD

OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Teen cravings for the hi-fi high life and a look at the audio press. **Ken Kessler** on life hooked on sound



Hi-Fi News was founded when I was four years old. It's now 60, I have found new relevance in a song on *Sgt Pepper's Lonely Hearts Club Band* and have just realised that I've spent more than half my life writing for this magazine. It has outlasted every other hi-fi title that was around in the '50s, and which were my sources of self-education: *Audio*, *Stereo Review*, *High Fidelity* – all gone to the great publisher's clearinghouse in the sky.

Had I reached the age of 'hi-fi awareness' in this country, I would have coveted a completely different line-up of products to that which defined my earliest choices. A study of the 1968 *Hi-Fi Yearbook* shows mainly British products utterly alien to me at the time, while the US brands I grew up coveting at friends' houses were either not imported, or simply too ill-represented to have much impact here.

WANTING THE BEST

There was only one item the 16-year-old KK lusted after, and that was a Dual 1019 turntable. I don't know who planted it in my head that it was 'the best', but the father of my closest friend, Steve Young, had a Dual turntable with an all-Fisher system. Another friend's dad used a Rek-o-Kut with AR 3As, but all this was so far beyond my meagre income that it was academic.

At the time, I was working a paper round and as a cook in a fast-food chain, so the system I chose – at \$700 – was going to be a pay-by-the-month affair, a lot for a high-school student to take on back then. But I was so desperate to have good sounds that I took the plunge; by then, I had already amassed over 100 LPs. To put that \$700 into context, it was the equivalent, in today's money, of a scary £3500.

I ended up with an HH Scott 344C receiver, the 1019 with a Pickering cartridge and Scott two-way bookshelf speakers. The speakers were nothing to write home about, though hardly junk, but the tuner-amp would later serve as a point of contact in my career, after nearly 40 years: it was designed by Larry Fish, whom I met in 2005, after he had retired from McIntosh, having worked on tuners for Scott.

It took me two years to pay it off, at \$7 a week. What might I have had, were I living in the UK? Probably bugger-all, as British 16-year-olds circa-1968 – unless they were in a pop group – probably didn't earn that kind of money from part-time jobs, while attending school. But an industrious teen might have had something entry-level from Teleton, maybe a Connoisseur turntable from a kit and some small Celestions.

By the time I arrived in the UK in '72, I was a hardcore audiophile, and had

moved up to ESS Tempest speakers and a Marantz Model 1060 integrated amp before emigrating. Two things struck me once, as I segued into the UK scene: the first was how little the two markets shared in terms of brands, possibly due to swingeing import duties. Thus the local goods had an incredible advantage. They were also worth owning on sonic merit, not just price.

As for the second, it was how the UK magazines had so little in common with the US. The latter were fundamentally advertorial-based. The result was that one writer, when asked to select the system for the White House, chose Japanese imports, at a time when Threshold, Phase Linear, Klipsch, JBL, Harman-Kardon, McIntosh and a few dozen other US-made high-end brands were readily available.

If you want to know why the underground press appeared, those magazines were a reaction against the newsstand titles which so often appeared to offer zero criticism.

GONE NATIVE

Not so the UK press, which ranged from the academic (*HFN/RR*, *Gramophone*) to the lunatic and every point in between. At the very least, though, one could argue that they kept editorial and advertising apart. I thus grew to trust the UK reviewers.

My arrival with the UK press occurred in the middle of the Linn/Naim dictatorship. I may have 'gone native', but I knew that products from Audio Research, Magnepan, Mark Levinson and the like were so far beyond the local UK produce that it was like reading about Morris Minors while utterly denying the existence of Porsches and Corvettes. Alas, some of those scribes are still with us, still chanting the Flat Earth psalm, but the rest of you know better.

In part, that was due to *HFN/RR*, although it was not shy of its own Flat Earthers, all of whom have now fled these pages. I like to think that, as conservative as this yellow-bordered organ is, it yanked open the eyes of British audiophiles to a world denied them by other audio titles.

And unlike those repellent, incompetent comic books, the audiophile's reference is still here. Happy birthday, *Hi-Fi News*. ☺

'It took me two years to pay off my first hi-fi system, at \$7 a week'

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