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**BRYSTON BP-173  
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» P.81



**TECHNICAL  
FEATURE:  
MQA & POST-  
SHANNON  
DIGITAL**

» JUNE 2018

## REGA'S APOLLO PLAYER

THERE'S  
STILL LIFE  
IN THE CD

### IN REVIEW

**HEADPHONES  
FROM FOCAL  
& KOSS**

**IDIOSYNCRATIC  
DIGITAL  
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# AS WE SEE IT

BY ROBERT SCHRYER

THIS ISSUE: Was the growth of Hi-Fi in the 1960s driven by the emerging counterculture?

## High-Fi?

“No *one* thing turned more people into audiophiles than the '60s counterculture,” said Bruno, arm flung over his cash register. “It opened up the doors of *sonic* perception. Even the great audio designers of the day were countercultural mavericks!”

Bruno is the lanky, braided-beard, thirtysomething owner of a small, well-stocked record shop in Montreal, and we stood facing each other on either side of a glass case filled with vinyl paraphernalia. Bruno has made the most of his limited space. Every foot of each wall supports a shelf crammed with music-related merchandise: rock and jazz memorabilia, album covers, refurbished turntables. There's even a rack in the back for music and audio magazines, including *Stereophile*.

Bruno owns a record shop, but he's also a raging conspiracy theorist who can provide a sordid, controversial backstory for any subject. It's why I didn't take his remark about the “countercultural” aspect of our hobby's history seriously. At first.

But as with all the best conspiracy theorists, many of the seemingly farfetched claims Bruno presents as Truth sound as if they *could* be true . . . sort of.

“Think about it,” he said. “Hi-fi itself is an enhanced version of regular sound reproduction, designed to expand our playback music-listening consciousness.”

“I'll take a bag of those record sleeves,” I said, pointing to a shelf behind him in an attempt to change the subject.

This only motivated him to lean in closer. “Consider the audiophile lingo,” he said. “Sound you *can touch*? With *texture* and *color* and *3D effects*? That talk is rooted in a different era!”

The 1960s were an unprecedentedly prolific time in the history of recorded music—a decade when a generation of young people, high on social upheaval and mind-expanding substances, might, in blissful moments of connection with the *sound* of their recordings, say things like, “Wow. That is beautiful.” Was Bruno right? Did the '60s counterculture help foster the audiophile movement? I asked a few notable audio designers what they thought.

“I think it's pretty clear it did,” said Zu Audio's Sean Casey.

“I suppose so,” said Pass Laboratories' Nelson Pass.

“Hi-fi also became more affordable throughout the '60s,” said Atma-Sphere's Ralph Karsten. ModWright's Dan Wright noted that “Hi-fi was an extension of the music movement at the time. People also didn't have video, computers, iPhones, and other leisure-based technologies vying for their attention.”

What of the pioneering audio designers themselves? Were they countercultural?

“I don't think so,” said Pass: “Locanthi, Carver, Johnson, Bongiorno, Kessler, Levinson, Curl, Walker, Hafler—and

that's just amplifier guys. I seem to have been the only one with long hair.”

“For sure, lots of great gear came out of the '60s,” said Casey. “But this was due mostly to technological advancements and the increased flow and sharing of new ideas.”

**KARSTEN:** “Hi-fi in the '60s really started in the '50s, when both recording and playback equipment first exhibited low distortion and wide bandwidth. The tape recorder was largely responsible for this, and designers in the '60s progressed from there.”

**CASEY:** “A lot of the advancements made in audio in the '60s came from an increased understanding of the electron, quantum electrodynamics, and the commercialization of the wacky but insanely cool world of quantum mechanics.”

I then asked each of them to describe the state of mind in which they were most likely to receive inspiration related to audio design:

**PASS:** “The very best stuff has come from boredom, when there is nothing else to do but think. I thought of dynamic bias in 1974, while sitting in the back of a VW bus on a long trip to visit a cave.”

**KARSTEN:** “My ideas seem to take time to gestate. When they're ready, they'll often bubble up to the surface while I'm doing something rote, like bicycling, or mowing the lawn. I've also had several design ideas that occurred in dreams. One dream resulted in several patents.”

**WRIGHT:** “I'm more likely to *get* the sound or degree of

success of a project when I'm relaxed and enjoying the music, sometimes with a drink in hand. I feel it's a matter of letting go of the analytical side of my brain to take in the music at its

deepest level. But my best design ideas and solutions come to me in the shower, when my brain is most alert.”

**CASEY:** “For me, great ideas come through struggle, and collaboration, and sleepless nights of crazy, intense focus, until a breakthrough is reached on how to make something work.”

Based on the results of my short survey, I infer that Bruno was about half right: The countercultural scene of the 1960s might have opened the minds of many to the immersive potential of recorded and reproduced sound, and, in doing so, helped foster the audiophile movement. But it wasn't a countercultural mentality that drove audio designers to make better-sounding products; it was their compulsion to design something better than whatever was available at the time; something that might, at the end of the day, make people say, “Wow. That is beautiful.” ■

*As much fun as Robert Schryer (Stletters@enthusiastnetwork.com) is having with today's newfangled playback systems, he's confident he'd have even more fun if he could afford to buy whatever he wants.*

**It wasn't a countercultural mentality that drove audio designers to make better-sounding products**



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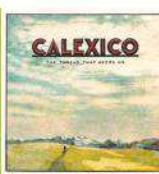
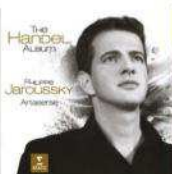
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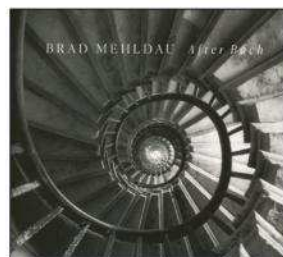
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Darryl Wilkinson, *Sound & Vision*



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# LETTERS FEEDBACK TO THE EDITOR

## Reichert on Villchur

Editor:

Reading the conclusion of Herb Reichert's review of Harbeth's 30.2 speaker (April, p.155) was positively enthralling. But his opening paragraph was wrong, false, and offensive. Edgar Villchur brought a substantial advancement to domestic audio with the dome tweeter and the acoustic-suspension woofer. The AR tweeters never sounded the way Herb said.

Where the Villchur speakers stopped developing was in the "system voicing." The BBC took Villchur's invention to endearing realism by voicing it! The LS3/5a is the prime example of such voicing for decades, until this very day.

Harbeth's Alan Shaw voices Villchur's invention to endearing realism, too, through engineering development, choice of materials, and judicious listening. But it's still Villchur's idea of the dome tweeter.

—Carlos E. Bauza  
bauzace50@yahoo.com

*My glib point about EV was that two-way boxes sound mostly like two-way boxes—not at all like horns, ribbons, planar-magnetic, plasma, or electrostatic speakers. However, during the last couple of decades I have owned both AR3 and AR M1 loudspeakers. The M1s were smooth and natural, despite their metal-dome tweeters. I used them as my workbench speakers—they looked cool, and fit on a shelf. They sounded pretty darn good driven by low-power triode amps.*—Herb Reichert

## De facto irrelevant

Editor:

It's a pleasure to read *Stereophile* and learn from Mr. Atkinson and the rest of his fantastic staff! However, I have some thoughts that I request you consider...

Without being educated in journalism, I assume that the information a journalist provides must be relevant to the audience in order for that audience to desire consumption of said information.

Over the past several months, it has become increasingly evident that *Stereophile* is of no relevance. Although I recognize that *Stereophile* aims to provide insight into the best of the audiophile world, the prices associated with this equipment are so astronomical—come on, \$29,000 for a turntable and \$93,000 for a two-channel

## I'm willing to stick with you a few more months before canceling my subscription.

amplifier?—that they make the equipment irrelevant. Having said that, I'm an educated man with an MBA and an income well in excess of the average American. I have no problem feeding my audio habit with high-performance gear, but the aforementioned prices are so far from tolerable that these products are simply unobtainable. As such, *Stereophile* is de facto irrelevant.

Unless you're targeting magazine sales only to those with a multi-million-dollar net worth, please reassess the guidelines for the products that you report on. For instance, I'd like to see 60% of your product reviews at or below the \$2500 price point, 30% up to the \$5000 price point, and 10% max out at any price that you choose (a little space for dreaming is desirable). Having said that, I would also appreciate one review per issue that is capped out at the \$500 price point—maybe call it "The Practical *Stereophile*." If these changes (or something similar) were to be adopted, then *Stereophile's* relevance would return.

I'm willing to stick with you a few more months before canceling my subscription. I hope that some relevant re-architecting is made. Thank you!

—Jerry Huerta  
*Stereophile Subscriber and Longtime Audiophile, but Getting Over It*  
jerry.huerta@advantaclean.com

## The trickle-down effect

Editor:

I enjoy reading and learning about stereos.

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Yes, it *is* crazy to pay \$100,000 for a turntable. For that price, you can buy a Steinway piano for your home and have talented pianists give you many, many concerts!

But... there *is* a trickle-down effect. The strides that super stereos make *do* make it down to real-priced equipment. I really think my Oppo CD player is fantastic, especially for the price. My reading drove me to buy a Triode Corporation tube integrated amplifier, 50W class-A. Superb! You may notice that many lower-priced cars now have air bags, anti-lock brakes, all-wheel drive, and back-up cameras. This is because the higher-end cars did them first!

It is *great* for *Stereophile* to cover equipment that is beyond the reach of normal people. I would just counsel that you also cover great values for people with limited budgets who *do* love music and *do* love great sound!! We love to read about \$90,000/pair speakers, but we *need* to find ones for \$3000/pair—for us.—Bob Maunus  
[maunus@neb.com](mailto:maunus@neb.com)

## MQA: Not good for audiophiles?

Editor:

After reading many views on MQA, including Jon Iverson's "As We See It" in the April issue (p.3), I believe that one of the big issues with MQA is that if the recording industry is adopting it, it likely is not good for audiophiles. The recording industry is one of the most shortsighted, greedy industries there is, and it is the industry that allows the art of recorded music to be degraded with compression. Audiophiles want *all* of the data, not a trade-off of a lossy format for improved temporal timing.

If we can have 4k and 8k video, we should not settle for MQA. If we accept it, it will take many years to truly advance what can be done with digital recording. MQA has done one thing, though: It has called out the fact that the time domain does need improvement. As Jon Iverson says, let us hear just the deblurring component of MQA!

—John Ellnet1  
[ellnet1@yahoo.com](mailto:ellnet1@yahoo.com)

## That MQA thing!

Editor:

I have been a *Stereophile* reader for several decades, but never moved to write to you until now. It is that MQA thing!!!



From reading your articles, I have found that this is a lossy-compression format that supposedly “de-blurs” the digital content while giving the music industry a means of digital protection. It is also an “end-to-end” system that has to be involved at the source and playback poles. MQA may interfere or stop more innovation at the playback end of digital. And apparently there is no way for you to test the compression and de-blurring separately, to evaluate the merits (or lack thereof) of either by itself.

Therefore, any appraisal you make of MQA-encoded music may leave how good it is a mystery, particularly considering what could happen in the transfer, mastering, and processing of any MQA material that you might compare with a “normal” digital version of the music content. I say this knowing how much difference the transfer, mastering, and processing make in the first place when you’re talking sound quality.

In the end, MQA sounds more like a way to generate licensing fees for both the processes and hardware used or created by the audio industry, and for the music industry to get a digital-protection scheme in place. This is an example of the pursuit of money and control—some of the major music labels own stock in MQA—at the expense of any real progress in digital playback, progress that might be limited or stopped by MQA and its licensing requirements.

Now I know why there are so many people in the high-end industry who are opposed to MQA!!! The audio industry would be better off if it concentrated on real improvements in recording, processing, and playback, rather than being pushed around by MQA.

*Stereophile* has a duty to loudly spell out these issues to its readers, and to continue to make its opinions and evaluations clearly apparent. I will be surprised if you print this letter.

—Dan Stanley  
fastcat95@juno.com

### MQA Insight

Editor:

I found Jim Austin’s recent update on MQA (“MQA Contextualized,” March p.51) insightful, balanced, and a pleasure to read. Please pass along my compliments to Mr. Austin.

—Lon Baugh  
lbaugh@bitmore.com

### MP3 Comparisons

Editor:

I read Jim Austin’s review of the 320kbps MP3 vs 16/44.1 shoot-out in the April issue (p.15). What always bothers me

about these comparisons is that a 320kbps recording has very nearly the same bit rate as a lossless compressed CD when playing these simple singer-and-guitar recordings. For example, I just checked my iTunes library, and David Bowie’s demo of “Space Oddity,” from the *Sound+Vision* CD, is only 568kbps. So the experimenters are asking the subjects to hear the difference between 320kbps and 568kbps, and I am not surprised that it is difficult.

It is also not surprising that the difference is more obvious when moving down to 128kbps or up to hi-rez. I suspect the results would have been different with something more complex (such as “John, I’m Only Dancing,” from Bowie’s *Young Americans*, at 1034kbps).

Do you agree?  
—Eric Schneck  
xyzzy1234@optonline.net

*I mostly agree, Eric, but I look at the comparison somewhat differently. I’ve got two points that push in different directions. First is the fact that lossy compression is lossy no matter what the bit rate. Second, audiophiles often don’t make such fine distinctions: MP3 is almost (not quite) universally vilified. Some exceedingly well-informed audiophiles I talked to dismissed the comparison on the usual audiophile grounds: Never mind the bit rate, they said, blind listening tests simply aren’t valid—they don’t work. I have sympathy for that claim, as blind tests tend to minimize false positives while allowing substantial Type-2 errors; that is, they tend to miss weak effects. (And, of course, no test can conclusively demonstrate the absence of an effect; it can only fail to confirm or corroborate that a perception is real.) And yet, that sort of thinking—the rejection of evidence on philosophical grounds, or because it conflicts with anecdotal observations (ie, their own non-blinded subjective perceptions)—makes self-deception very likely.*

*The notions that hi-rez is audibly better than CD, and yet CD is not audibly better than hi-bit-rate MP3, throws a wrench into a lot of conventional audiophile thinking. I like stuff like that.* —Jim Austin

Jim:

Thanks for your swift and comprehensive reply. Your last paragraph goes exactly to my point: “The notions that hi-rez is audibly better than CD, and yet CD is not audibly better than hi-bit-rate MP3, throws a wrench into a lot of conventional audiophile thinking.” I think that the ratio of the bit rates for hi-rez, lossless-compressed CD and MP3 is mirrored in that outcome.

—Eric Schneck

*Jim Austin’s latest thoughts on MQA can be found on pp.47–51.* —Ed.



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# INDUSTRY UPDATE

## AUDIO NEWS & VIEWS

### UK/US

John Atkinson

On Thursday, March 22, the news broke that AVTech Media Ltd (UK) had purchased the Home Tech Network from TEN: The Enthusiast Network. The Home Tech Network's six brands—*Stereophile*, *Sound & Vision*, *Shutterbug*, *AnalogPlanet*, *AudioStream*, and *InnerFidelity*—will join AVTech Media's *Hi-Fi News*, *Hi-Fi Choice*, *Home Cinema Choice*, and the *Hi-Fi Show Live*. According to the press release, the new company “creates a global powerhouse delivering the largest single specialized A/V group of publications on the planet, reaching more than three million enthusiasts and consumer-electronics consumers through print, digital, social, video, and events.”

“The synergy between these iconic magazines and websites from both the UK and USA is clear, as are the distinctive brand propositions and target markets of each property. With an ambition to leverage these unique qualities, particularly in the digital space, AVTech Media will offer a diversity and scale that could not otherwise be achieved—delivering a reach into passionate, opinion-forming audiences that is unmatched in specialist AV publishing,” writes Paul Miller, director of AVTech Media Ltd and AVTech Media Americas Inc., organizer of *Hi-Fi Show Live*, and president of EISA

(the European Imaging and Sound Association).

The US-based operation will be headed up by Keith Pray, a 20-year veteran of the consumer-electronics industry who is based in New York

### It was 42 years ago that I joined *Hi-Fi News & Record Review* as a lowly editorial assistant.

City. “The sheer power and breadth of this newly formed group make the possibilities endless, and having a truly strong foothold in the UK, US, and international market will help us further grow,” said Pray, who has served as general manager of the Home Tech Network for the past eight years. “My team and I are thrilled to combine forces with the outstanding team at AVTech Media.”

For me, while I continue as *Stereophile*'s editor, this news represents the closing of a circle: It was 42 years ago that I joined *Hi-Fi News & Record Review* as a lowly editorial assistant, eventually becoming that magazine's editor, in October 1982. I have known Paul Miller since the 1980s, and for many years he served as one of *Stereophile*'s technical consultants before becoming the editor of *HFN/RR*.

### UK: BRISTOL

Paul Messenger

As it has every February for three decades, on the weekend of February 23–25 the UK's hi-fi industry headed west, to Bristol, for the year's biggest audio event: *Sound & Vision: The Bristol Show*, now in its 31st year. Although I did my usual trick of starting on the top floor of the Bristol Marriott Centre City Hotel and working my way down, to avoid the crowds, this wasn't as straightforward as usual, as Friday seemed to be the busiest of the three days, which was somewhat surprising.

The show's organizer, retailer Audio T, in association with UK audio

magazine *What Hi-Fi?*<sup>1</sup> agreed that Friday was indeed very busy. They also claimed higher numbers of younger visitors at this year's event over previous years, sometimes accompanied by partners and even entire families. There were also more visitors from overseas, from 21 different nations.

Possibly the biggest story at the show was the first appearance of a new company, **Fyne Audio**, founded by seven former principals of the “old” Tannoy who left when Behringer bought that brand. **Fyne**, located quite

1 It was announced on March 21 that *What Hi-Fi?* was being acquired by Future Publishing, erstwhile publisher of *Hi-Fi Choice*, which is now owned by AVTech Media Ltd, the new owner of *Stereophile*.—Ed.

**SUBMISSIONS:** Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to [JAtkinson@stereophile.com](mailto:JAtkinson@stereophile.com) at least eight weeks before the month of the event. The deadline for the August 2018 issue is May 20, 2018.

## CALENDAR OF INDUSTRY EVENTS

### ATTENTION ALL AUDIO SOCIETIES:

We have a page on the *Stereophile* website dedicated solely to you: [www.stereophile.com/audiophile-societies](http://www.stereophile.com/audiophile-societies). If you'd like to have your audio-society information posted on the site, e-mail Chris Vogel at [info@XLinkAudio.com](mailto:info@XLinkAudio.com).

Please note that it is inappropriate for a retailer to promote a new product line in “Calendar” unless this is associated with a seminar or similar event.

### CALIFORNIA

■ Thursday–Sunday, June 7–10: The **Los Angeles Audio Show (LAAS)**, sponsored by the **Los Angeles & Orange County Audio Society**, takes place at the Hilton Irvine/Orange County Airport (18800 MacArthur Boulevard, Irvine 92612). On-site registration begins at 3pm on Thursday and 9am on Friday, Saturday, and Sunday; Thursday afternoon will be a half-price preview day. The Ribbon Cutting and Opening Ceremony will be at 10am on Friday, June 8, in the hotel lobby, with LAAS president Marine Presson and LAOCAS president Bob Levi; also scheduled to participate are John Atkinson and Michael Fremer, of *Stereophile*; Robert Harley, of *The Absolute Sound*; and David Robinson, of *Positive Feedback Online*. For more information, visit [www.laaudioshow.com](http://www.laaudioshow.com).

### COLORADO

■ Friday–Sunday, October 5–7: The **Rocky Mountain Audio Fest** takes place at the Denver Marriott Tech Center, 4900 S. Syracuse Street, Denver 80237. More info at [www.audiofest.net/faqs](http://www.audiofest.net/faqs).

### ILLINOIS

■ Saturday, May 19: The **Midwest Classical Record Show** takes place at the North Shore Holiday Inn, in

**CONTINUED ON PAGE 16**



close to Tannoy's headquarters in Coatbridge, Scotland, has come up with enough money to begin with three ranges of loudspeakers. Arguably the most important is the high-end F1 line: elliptical floorstanders available with 6", 10", or 12" drivers. Fyne's IsoFlare drivers are coaxial: starting at a low crossover frequency of 750Hz, a tweeter with a 3" diaphragm fires through the middle of the bass/midrange cone to create a point source for most of the speaker's working bandwidth. The only F1 model that has been released at this point is the F1-10, which has a 3" tweeter firing through a 6" mid/woofer.

Of just two brands on the Marriott's top floor, **Leema Acoustics'** new components included the Pulse IV pre-amplifier, with high-quality moving-magnet/moving-coil phono stage and loads of other analog and digital inputs. Leema is now responsible for designing the equipment sold under the **Michell & Johnson** brand, which is



**Clockwise from above:** Cary's SLI 100 amplifier; Dave Roberts with the Orpheus speaker; Ruark's R7 Mk.3 stereogram.

now manufactured in the UK rather than the Far East. The M&J models cost £1299 each.

A relatively new speaker maker, **Ophidian Audio**, was streaming Fleetwood Mac's *Rumours* through its new stand-mounted model, the Prophet P1. More costly than the ongoing M series, the two Prophets, the P1 and the P2 floorstander, are luxury models with plywood enclosures and floating front baffles. **Kudos**



**Audio** was showing a preproduction sample of a smaller version of its floorstanding Titan 505, complete with isobaric bass loading, and ready

*Pleasure in the job  
puts perfection in the work.*

- Aristotle



Find out what passive devices, such as cables, audiophiles with your components have used to take their system to the next level.



**Far left:** Musical Fidelity's Nu-Vista phono stage;  
**Near left:** Wharfedale's Peter Comeau with the DX2 active speaker.

for active drive via a **Naim** SNAXO electronic crossover.

A number of brands decided to hold press conferences on Friday, and while I usually try to avoid such distractions, I accidentally stumbled into the end of one given by cable makers **The Chord Company**, who were introducing the new ChordOhmic silver-plated plugs for speaker cables, pointing out the conductive superiority of silver over gold and copper. Although gold might better resist corrosion, this is arguably irrelevant in most homes, and silver is a significantly better conductor of

electricity.

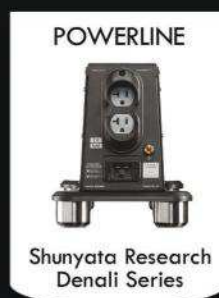
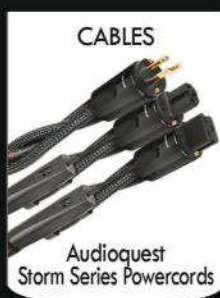
Having forgotten **Arcam's** takeover last year by **Harman International**, I was startled to pop into the Arcam room and see **Mark Levinson** amplification and **Revel** speakers, along with some rather perplexed Arcam staffers. The Revel brand was making its UK debut, but at least there was no sign of a smartphone from Harman's owner, Samsung!

The vinyl resurgence was represented by several new turntables and phono stages. **PLANALOGUE** turntables, made in Oxford, England, were found

in three rooms, for example, while the new **Technics** SL-1000R is making a serious play for turntable supremacy. Phono stages come in all shapes and sizes; newcomers at the show ranged from **Creek Audio's** OBH-8MK2, a new version of their entry-level model designed for MM cartridges, up to **Musical Fidelity's** new Nu-Vista Vinyl MM/MC phono stage with nuvistor tubes (£3300).

Thorsten Loesch, who designs both the large, costly **Abbingdon Music Research/AMR** components and the compact, budget **iFi Audio** gear, these

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days spends most of his time in the Far East, but decided to spend a day in Bristol.

California-based **Von Gaylord Audio** has been around for many years, and Sound & Vision 2018 marked the company's UK debut. CEO Ray Leung may have come up with a strange name for his company, but there was no denying the fine sounds his gear was making, using tube amplification to drive a pair of very modest-looking speakers, the Legends. VGA also makes a liquid-cooled amp, the Uni-Sea monoblock, which costs \$100,000/pair in four boxes.

**Ruark Audio** has upgraded their Radiogram, cosmetically but also in performance terms. Now called the R7 Mk.3 High Fidelity Radiogram (£2295), this remote-controlled device at least provides a modern alternative to the usual audio separates. It has loads of features, with plenty of connectivity including aptX Bluetooth, and its sound isn't too dramatically compromised by packing everything into one enclosure.

Remember the rather cute little **Blueroom** Minipod speakers, marketed nearly two decades ago by Blueroom Loudspeakers? Although these reappeared under a Scandinavian brand name some years later, I was surprised to see a new variation on the theme of fiberglass speaker cabinet, albeit one with the tweeter separated from the main body on a long stalk: **Orpheus Loudspeakers' JTR1** (£2000/pair) is being sold by Dave Roberts; a floorstander is promised soon.

I met a Scandinavian, John Larsen, who was showing the Larsen Hifi 8 (\$6995/pair), which was reviewed by Art Dudley in our March 2017 issue.<sup>2</sup> This speaker's tweeters and midrange unit fire up, at an angle, from the top



Left: the Planologue turntable; Above: Technics' SL-1000R.

panel. When I mentioned Stig Carlsson's original omnidirectional designs for Sonab in the 1970s, which also featured upward-firing drive-units, I wasn't surprised to learn that Larsen had worked alongside Carlsson for many years.

Although he's been based in China for more than a decade now, IAG's director of acoustic design Peter Comeau was back in Bristol as usual for Sound & Vision, promoting new models from **Quad** and **Wharfedale**. Quad is expanding its Artera range to include a one-box component, the Solus, which currently combines a CD player and integrated amplifier; an upgradeable streamer is promised for the fall. Wharfedale also showed its Bluetooth-connected DX-2 subminiature speaker.

The deliberate avoidance of any use of internal damping has made **Russell K.** one of the more interesting speaker brands to recently emerge. The Bristol show gave visitors the chance to hear the latest example—the brand's first floorstander, the Red 150.

A year ago, I saw **Pearl Acoustics' Sibelius** floorstanding speakers, each with its solitary **Mark Audio** drive-unit, in three different rooms. Although the Sibelius didn't seem to be around this year, Mark Audio was, with single-driver speakers, two-way stand-mounts, and even floorstanding models. Regrettably, I never managed

to meet up with designer Mark Fenton, who's based in Hong Kong.

Even **Naim Audio** products with 5" TFT displays don't photograph well, but I'm tempted to borrow their new NDX 2 network player for review. It clearly has "ultimate connectivity" for streaming, Internet radio, etc.

I've always thought of **Cary Audio** as specializing in making tubed amplifiers—I hadn't appreciated that they make all sorts of gear, including such devices as the AiOS (for All in One System), which combines a streamer, DAC, and integrated amplifier (\$2995). But I found Cary's new SLI 100 power amplifier with its push-pull KT150 output tubes far more photogenic...

I could rabbit on ad nauseam about umpteen other brands and rooms, pointing out the massive active-drive subwoofer on demonstration at **JL Audio**, discussing the ins and outs of putting decoupling springs under speakers, mentioning the current success that Norwegian brand **Hegel Music Systems** is enjoying in the UK, but I've run out of space. ■

<sup>2</sup> See [www.stereophile.com/content/larsen-hifi-8-loudspeaker](http://www.stereophile.com/content/larsen-hifi-8-loudspeaker).

[Continued from page 13]

the Chicago suburb of Skokie (5300 W. Touhy Avenue). Admission is \$3. For more information, visit [www.midwestclassicalshow.com](http://www.midwestclassicalshow.com).

#### MINNESOTA

■ Tuesday, May 15, 7–9pm: The **Audio Society of Minnesota** will hold its final meeting of the season at the Pavék Museum of Broadcasting (3517 Raleigh Avenue, St. Louis Park 55416).

Refreshments will be served, and guests, visitors, and new members are always welcome to attend. For the most current information, visit our website: <https://sites.google.com/site/audiosocietyofminnesota>.

#### NEW YORK

■ Friday–Sunday, November 9–11: The **New York Audio Show** will be held at the Park Lane Hotel (W. 59th Street, between Fifth and Sixth Avenues,

opposite Central Park, Manhattan). Details at [www.chestergroup.org/newyorkaudioshow/2018](http://www.chestergroup.org/newyorkaudioshow/2018).

#### WASHINGTON, DC/ MARYLAND

■ Friday–Sunday, November 2–4: The **Capital Audiofest** will be back at the Hilton Hotel at Twinbrook Metro (1750 Rockville Pike, Rockville, MD 20852). For more information, visit [www.capitalaudiofest.com](http://www.capitalaudiofest.com).



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# ANALOG CORNER

BY MICHAEL FREMER

THIS ISSUE: SMC Audio's AC Nexus power conditioner and Kuzma's 4Point 9 tonearm.

## What Price Serenity?

**W**hy am I once again falling down the rabbit hole of alternating current? A while back, I committed to listening to SMC Audio's AC Nexus power conditioner, designed by SMC founder Steve McCormack and distributed by dealer Hi Fi One.

If his name sounds familiar, in the early 1980s Steve McCormack, while at the helm of his first audio company, The Mod Squad, invented the Tiptoe. As far as I know, the Tiptoe was the first conical aftermarket footer for audio components. Everyone else since then has copied it. In an interview in this magazine, McCormack admitted, "To this day no one has really demonstrated how they operate or has graphs, charts, measurements, spectral analyses, etc., to show literally what is going on with Tiptoes."<sup>1</sup> Nonetheless, he and most of us hear the sonic improvements they offer. I'm not sure McCormack can explain what's going on in his eight-outlet power conditioner, which costs \$20,000, but I'd love for him to try.

Yes, \$20,000 for a *passive* power conditioner—something that in other worlds is called a power strip. Just as a Bugatti Chiron and a KIA Stinger are both cars.

Precisely what sort of *hardware* do you get for \$20,000 in the AC Nexus? It has four Furutech GTX-D Nano Crystal Formula (NCF) duplex receptacles (they retail for \$260 each), with Furutech carbon-fiber cover and back plates. NCF is claimed to generate negative ions that eliminate static electricity, and to convert thermal energy into infrared light.

You also get a Bocchino Audio Mariner10 15A IEC power inlet. This features "99.996% ultra-pure copper 'tongs' with silver electroplate and gold or platinum 'vener,'" and an insulator of ultra-high-molecular-weight polyethylene (UHMW/PE), which sounds exotic but isn't. Opposite this inlet on the SMC unit are four Cardas ground posts of solid, unplated copper, for connecting various ground leads—from the audio-system components themselves and, where possible, from the shields of the system's various AC cords and other cables—in a star ground arrangement (a circuit-layout convention in which every voltage is referenced to a single ground point).

All of this is enclosed in an attractive, rectangular case with rounded corners, made of Tankwood (Panzerholz). On the bottom are stainless-steel Stillpoints Ultra feet (the interior stand-offs are also from Stillpoints). Inside are silver capacitors from Duelund

IEC power inlet (approximately 3" deep by 3.75" wide by 2.4" high), and takes up a surprising amount of space inside the box. The two Duelund silver caps are fist-sized cylinders. Small pieces of a paper-like material were loosely scattered within the mostly empty case. That was it.

I admit to being a mainstreamer. This stuff is exotic. Check out Duelund at [www.duelundaudio.com](http://www.duelundaudio.com). Some of these Danish capacitors cost upward of \$10,000. They and their designers



### Precisely what sort of hardware do you get for \$20,000?

Coherent Audio and silver wire in addition to ultra-pure copper wire and a copper bus.

The AC Nexus is heavy and I was curious to see what was inside. I opened it and found not much other than what I've just described, but what was there was curious, and perhaps there are other, heavier components still hidden from view. The review sample was supposed to have been sealed. It wasn't, but I wasn't told that until after I'd snooped around inside.

The Mariner10 is enormous for an

have a worldwide (cult?) following. I don't know the cost of the caps used in the AC Nexus, nor could I determine the cost of a raw Mariner10—many of the links on Carmine Bocchino's website go nowhere ([www.bocchtech.com](http://www.bocchtech.com), last updated December 19, 2015).

Carmine Bocchino is based in Australia. Many of the sonic properties he claims for his power inlet will boggle the skeptical mind: "phenomenal improvements in Bass Energy and articulation control . . . improvement in Dynamic Range, very very black background and solid holographic imaging." And, most significant, "Effortless enjoyment of the musical experi-

<sup>1</sup> See Robert Harley's interview with Steve McCormack in the April 1992 issue: [www.stereophile.com/interviews/522/index.html](http://www.stereophile.com/interviews/522/index.html).

ence.” I’m all for that! On Bocchino’s website I also found a long testimonial from Steve McCormack, in which he said, “it is unquestionably the best AC inlet I have heard and easily surpasses the best from other companies.” Listening to AC sockets is not for everyone, but we should all be glad that *someone* is doing it.

When I e-mailed McCormack to ask about the AC Nexus’s current-handling capabilities, he replied: “The Nexus as a whole does not include any current limitation and will simply pass whatever current is demanded by the load, up to the limit imposed by the mains circuit breaker.”

California audio dealer Hi Fi One bundles the AC Nexus with an EnKlein 6’ David power cord for \$28,000. The cord alone sells for \$13,000.

I was told by McCormack that the AC Nexus is sensitive to vibrations, and instructed to place it on a hard surface. I ended up putting it on a



Harmonic Resolution Systems isolation base on the same company’s SXR rack, but there wasn’t enough room for stiff power cords. So I placed the HRS base on the carpet next to the rack, and plugged the Nexus into the wall using the EnKlein cord.

This thing shouldn’t make a difference in the sound, should it? It’s totally passive. I didn’t use SMC’s star ground system, because the shields of all of my TARA Labs cables are already star-grounded, and running wires from the

components to the ground terminals was more effort than I was willing to put into this.

Boy, did it make a difference. Even my personal troll would hear it. The effect was as this column’s headline suggests: Serenity. Along with a butter-textured sweetness of sound. The AudioQuest Niagara 7000 power conditioner already produces back-grounds that are “pitch-black,” so I can’t say the Nexus produced anything “blacker”—but that it was

equally effective *and* 100% passive was something to hear. But overall, it was too smoothed-over for me, too romanticized—almost as if a squarewave would look like a sinewave, though that’s an overstatement.

I’d tried previous models of EnKlein power cords, and they’d always been too “filtery” for me, so I swapped out the David for AudioQuest’s Dragon, which lately has spent lots of time in my system, to listen to the Nexus minus the cable variable. That opened

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things up somewhat for my tastes in my system. But after about a week of this newfound sonic serenity, I happily went back to using the Niagara for my front end and tried the Nexus on the power amps, first with the EnKlein cord, then with the Dragon. Either way, the sound was too sweet and serene for me. Later, SMC Audio sent me a second Nexus—one for the front end, one for the amps. This produced the same result, but more of it.

As I packed up \$40,000 worth of Nexi, I thought of Boulder Amplifiers' 2150 monoblock, which I reviewed in the February 2017 issue.<sup>2</sup> In his Measurements sidebar to that review, John Atkinson wrote that the 2150 "is an extraordinary amplifier. It measured so well that it taxed the capabilities of my Audio Precision SYS2722." The 2150 was voted *Stereophile's* Amplification Product of the Year for 2017, and while its sound was as extraordinary

as its measurements, I couldn't help noting a dryness that can't, as of now, be measured.

What the SMC Nexus AC Nexus did to the sound of my system was something that I easily heard but that probably also can't be measured. But if I owned a pair of 2150s and loved their sound, except for that bit of dryness, there's no Tiptoeing around it: I'd get my hands on an SMC Audio AC Nexus.

### KUZMA 4POINT 9 TONEARM

In September 2011, when I first reviewed Franc Kuzma's 4Point tonearm, it was available only in a length of 11" (\$6500 and up).<sup>3</sup> In the November 2016 "Analog Corner," when I reviewed Kuzma's Stabi M turntable with 14" 4Point arm (\$8995–\$10,270), I said I'd much prefer to see Kuzma release a 9" version. Recently, I was happy to hear that he'd done that. Now that I've spent some time with one, I'm even happier.

The Kuzma 4Point 9 (\$3995) is indeed 9" long, with an effective length of 229mm: 212mm from pivot to spindle, plus 17mm of overhang. The

headshell's offset angle is 23°, while the arm's effective mass is specified as 13gm. Its total mass is 920gm—which, because it doesn't include the "tower" housing the 11" 4Point's mechanism for adjusting a cartridge's vertical tracking angle (VTA), is less than half that arm's mass of 2050gm. This makes the 4Point 9 more compatible with spring-suspended turntables like the Linn Sondek LP12.

Nonetheless, VTA and stylus rake angle (SRA) are easily adjustable on the 4Point 9, thanks to an arrangement similar to those on SME tonearms: a slender, barely visible, threaded shaft that can be screwed down through the

### Shorter arms have the advantage of lower moments of inertia.

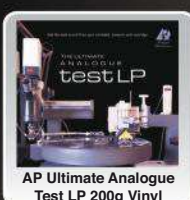
arm's support structure to contact the base plate of the arm mount, below. Once that's done, you loosen the grub screws that lock the arm pillar in place. Then, by screwing the threaded shaft up or down, you can smoothly raise or lower the arm to adjust SRA and VTA.

<sup>2</sup> See [www.stereophile.com/content/boulder-amplifiers-2150-monoblock-power-amplifier](http://www.stereophile.com/content/boulder-amplifiers-2150-monoblock-power-amplifier).

<sup>3</sup> See [www.stereophile.com/content/kuzma-4point-tonearm](http://www.stereophile.com/content/kuzma-4point-tonearm).



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The 4Point's unique bearing system, as used in the 9, is the same as in the longer 4Points (please read my September 2011 review for more details), as is the system for adjusting azimuth. A worm gear, unlocked by loosening a pair of grub screws, is used to smoothly rotate the tapered armtube, which is split about 1" from the horizontal pivot tower. Also as in the other 4Points, the 9's removable headshell features a securely locking hex-head shaft that fits into the armtube, with the four wires and cartridge clips (Crystal Cable silver/gold) emerging from under the arm, so there's no break in the wire from clips to RCA plugs.

There's a single threaded counterweight shaft in place of the dual-shaft system of the longer, more expensive 4Point tonearms, but overall, the 4Point 9 is more similar to than different from the longer arms. One difference is a new, circular arm rest that doesn't hold the arm in place; if you bump the arm, it can more easily fly across the platter or record. No big deal—just be careful! Another difference is the lack of silicone damping, which is more of an issue with the 4Points than with some other arms.

Ideally, a tonearm should be neutrally balanced. That occurs when, because of the distribution of mass, the pivot point and the arm's center of gravity are in the same plane. When they are, raising or lowering the arm doesn't produce an opposing inertial force, which is important as the groove is pulled past the stylus, which must trace its ups and downs. Most gimbaled-bearing arms are neutrally balanced.

Unipivot arms, which achieve stability by putting the mass well below the pivot point, are *stably* balanced. That's good for laboratory scales, but not for tonearms: Vertically displace the stable-balance arm from its preferred resting position on the record surface (or below, if it could get there!) and it immediately produces an opposing force as it attempts to return to that position.

That's why, when setting the vertical tracking force (VTF) on a stable-balance arm, it's important to measure the VTF as close to the record surface



### I could make a case for preferring the 4Point 9 to the 11" 4Point.

as possible. The farther above the record surface it's measured, the greater will be the actual VTF at the record surface, because the arm produces a greater downforce to return to its preferred resting position.

Because the 4Point's two vertical bearing points and the cups they pivot in are well below the arm and thus its mass, the arm's center of gravity is *above* the vertical pivot point—the opposite of stable balance. This produces what's called *negative* balance, in which the VTF decreases as the arm is raised from the record surface. Clearly, tonearms that are stably/negatively balanced will have a harder time tracking warped records than neutrally balanced arms. It can be argued that even the tracking of flat records is negatively affected, but my experience with the original 11" 4Point indicated that is a nonissue. Then again, my platter has vacuum hold-down, and the longer 4Points have both horizontal and vertical damping troughs—the 4Point 9 has none. Of course, shorter arms have the advantage of lower moments of inertia.

For the 4Point 9's price of \$3995, you get a tonearm that includes all of the longer 4Points' adjustability, and a smoother, cosmetically improved finish that will, over time, be used on all 4Points. I'll skip the installation and setup, which are similar but not identical to that of the longer 4Points, and get right to the performance.

Experience has convinced me that whatever advantages longer tonearms offer in terms of lower lateral tracking error (LTE) are more than offset by their disadvantages, which include problems related to arm rigidity, mag-

nified errors in setup, and poorer dynamic performance in the groove, the latter related to moment of inertia where the rubber meets the road. This is especially true if you don't have a vacuum hold-down platter but nonetheless play warped LPs that cause the arm to move in unintended ways. Longer arms have more trouble tracking records with off-center holes. Using their finger lifts, you can raise tonearms of various

lengths and feel the increasing awkwardness of motion the farther your finger is from the pivot. It's especially revealing if the arms are identical in every way but length, as with the 9", 11", and 14" Kuzma 4Points.

The first cartridge I tried with the Kuzma 4Point 9 was Lyra's Atlas SL mono (\$12,995), a special-order "true mono" Atlas with a low output (0.24mV). Its tonal neutrality and, especially, its transparency are truly exceptional. The Atlas SL mono's coil former is a permeable square plate oriented parallel/vertical to the record surface (rather than at 45°/45°), and the coils are wound to generate a signal when the stylus/cantilever moves horizontally. There are two electrically separate monaural coils, one atop the other, which is especially useful in stereo systems to avoid the ground loops and hum that often result when a single-coil design is plugged into a two-channel preamp. In short, the Atlas SL mono sends identical signals to the preamp's two channels. Lyra says you can play stereo records using the Atlas mono, but of course you won't hear stereo.

I listened to a number of recordings, to ascertain the 4Point 9's reproduction of bass and its lower-midrange clarity, and its ability to track the groove—although, of course, a mono groove, which is modulated in only the lateral plane, is far more easy for a stylus to track than a stereo groove, which is modulated in both the lateral and vertical planes. I began with Duke Ellington's *Masterpieces by Ellington* (2 45rpm LPs, Columbia Masterworks ML 4118/Analogue Productions AAPJ 4418-45), then moved on to an original mono pressing of Miles Davis's *Kind of Blue* (Columbia CL 1355). After that came cellist János Starker, with Walter Susskind and the Philharmonia Orchestra, in Dvorák's Cello



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Concerto and Fauré's *Elégie for Cello and Orchestra* (French Columbia FCX 725). I followed those with some 10" reissue gems from the Electric Recording Company: pieces by J.S. Bach performed by pianist Yvonne Lefébure (Pathé Marconi/EMI FBLP 1079/ERC011); and two discs of Chopin recorded by pianist Yura Guller in 1956: *Mazurkas Favorites* (Ducretet/EMI 255 C039/ERC035) and *Nocturnes Favorites* (Ducretet/EMI 255 C040/ERC036) (originals of these rarely go for under \$1000). For a chaser, I played a mono reissue of Bob Dylan's *John Wesley Harding* (2 45rpm LPs, Columbia/Mobile Fidelity Sound Lab MFSL 2-464).

I have an original mono pressing of *JWH*, as well as Columbia/Legacy's superb boxed set of mono reissues of this and other Dylan classics—but when I played the MoFi, my mind boggled as I heard details I'd never heard before. Dylan pops more than few p's on this album, and Charlie McCoy's bass can sound oddly blobby. MoFi's reissue hides nothing, giving you *all* of it. The 4Point didn't manage the weight and power of the Swedish Analog Technologies tonearm—no arm I've heard does—but it reproduced everything

cleanly, with excellent recovery time and, especially, midbass clarity free from any overhang or warmth that's not on the record.

I could make a case for preferring the 4Point 9 to the 11" 4Point. The 4Point 9 is somewhat *faster* and more responsive, and leaner on the bottom, though not by much. It's possible that some of the improved responsiveness is due to its lack of damping—but I'd still want to mate it with a turntable that has a record-clamping system, and it's probably not going to be the best tracker of warped records.

I think Franc Kuzma could improve the adjustability of VTA and SRA by silk-screening or etching numbers and rules on the 4Point 9's arm pillar. Otherwise, for \$3995, the 4Point 9 offers performance very close to that of the basic version of the 11" 4Point, for \$2600 less.

But at any length, the Kuzma 4Point is still one of my favorite tonearms—and now, at \$3995 for the 4Point 9, it's more affordable than ever, and in a lighter weight that makes it more easily adaptable to a wider range of turntables, particularly those with spring suspensions. ■

Michael Fremer (fremer@analogplanet.com) is the editor of *AnalogPlanet.com*, a *Stereophile* website devoted to all things analog.

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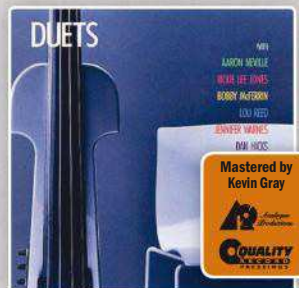
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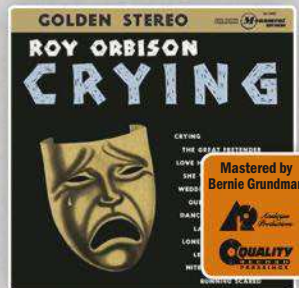
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# LISTENING BY ART DUDLEY

THIS ISSUE: Spherical styli, the Miyajima Saboten L phono cartridge, and IKEA's Kallax LP racks.

## Low-Compliance Cactus

In the early 1960s, young people who were anxious see the Beatles on *The Ed Sullivan Show* had to first sit through a seeming eternity of bad comedians, bad puppet shows, and acrobats spinning dinner plates to the tune of Khachaturian's *Sabre Dance*. So it is here: Before I can get to the Miyajima Saboten L phono cartridge, I have to report on something I left out of my April 2018 column, which was devoted to Zu Audio's modification of the classic Denon DL-103 cartridge. And since this is information I've been holding on to for almost a year, I suppose I also left it out of my August 2017 column, which was devoted to the MusiKraft Audio's own modification of the Denon DL-103.

Famously, or perhaps infamously, the DL-103 is fitted with a *spherical* stylus, so named for its round tip and circular footprint in the groove. (Some refer to this stylus profile as *conical*.) In fact, *all* styli were spherical until the early 1960s, at which time the phono-cartridge industry introduced a more expensive and ostensibly higher-performance alternative, the *elliptical* stylus, whose footprint approximates an ellipse, oriented with its smallest-radius points facing the sides of the groove.

The elliptical and other, more radical styli shapes that followed—including the Line Contact, Super Fine Line, Vital, Replicant, Shibata, van den Hul, and Gyger—are all claimed to approximate, more closely than the spherical, the shape of the cutting stylus of a record-mastering lathe. Many phonophiles accept the reasoning that the ideal stylus shape must be closest to that of the mastering deck's cutting stylus—*ie*, the stylus used to slice away the excess lacquer when making the groove—and, as such, must be considered superior to styli that are less so. That sort of makes sense, and sort of doesn't. On the one hand, a chisel-like cutting stylus can carve a groove with modulations as tiny as its own smallest radius points—presumed to be very small indeed—and a playback stylus that is not similarly tiny will find it difficult if not impossible to faithfully follow those minute bumps and wiggles. Thus, the listener will not hear all of the overtones, ambience, and whatever other high-frequency, low-amplitude information has been cut into the groove. On the other hand, one must consider that a cutting stylus is like a meat cleaver: a fine tool for turning sides of beef into steaks, but not entirely suited to the dinner table.

In any event, disdain for the spherical stylus—often allied with if not fueled by a fear that it wears out grooves faster than do other stylus types—is not uncommon in high-end audio: another

**For a critic, being human and being fair don't always mix.**

life-or-death debate. But for the late John Walton, a longtime employee of the Decca Record Company, Ltd., and a member in good standing of the Audio Engineering Society, the matter was all but settled in 1965, when he presented to the AES a paper titled "Stylus Mass and Elliptical Points."<sup>1</sup> In it, he concluded: "The fitting of an elliptical stylus to most pick-ups at present will result in more distortion—not less." He added that this is also observable "even where the [groove] modulation is lateral . . . and the pinch distortion is then reproduced by the stereo pick-up." As Yosemite Sam once sagely observed, *Them's fightin' words!*

Walton's observations were backed by copious data—as the British say, he could do the maths—and had been preceded by his observation, in a 1963 article,<sup>2</sup> that a stylus-tip radius of 0.0005" was "best suited to the majority of average good pick-ups," and by his suggestion that, in the same way that distortion rises when radius size shrinks to 0.0003" and less, so does it begin to rise when the radius size is increased to 0.0006" and more. (Note that the latter dimension equates to about 15 microns (15µm, or 0.000015m)—the literally nominal stylus-tip spec for the EMT

TSD 15, which is one of my reference cartridges.)

In fairness, lest one conclude that Walton regarded the elliptical tip—and, by definition, its descendants—as completely lacking in merit, he wrote in his 1965 paper that he believed "there is an optimum relation between stylus radius and stylus mass." He suggested that a smaller-radius stylus could offer low-distortion performance, but only if its tip mass could be reduced below a certain point; data in both papers suggest 1mg as that threshold, but Walton gave no clue as to whether that was an *effective* (or *inertial*) tip mass modeled with the addition of other data—including the stiffness coefficient of the sprung cantilever, and perhaps even the mass of the cantilever and/or the metal rondel to which, in those days, a non-nude stylus would have been bonded—or the *actual* mass of the stylus tip, observed in isolation. (For context: In a recent e-mail exchange, Ortofon CEO Leif Johannsen told me that the actual mass of the stylus tips of current-production SPU cartridges with a nude spherical stylus is a low 0.1mg, and that the stylus-tip mass for some of his high-end cartridge models is a very low 0.04mg!)

Make of this what you will. I came away feeling, if not thoroughly vindicated in my preference for the characteristic sound of the spherical stylus, then at least more comfortable with that preference. My spirits were further bolstered when I read this in Walton's 1963 paper: "Our pickup production test records are within 1dB after 20,000 playings." Judging from Walton's comments, it seems that most, if not all, of the cartridges used in those tests had spherical styli.

Record lovers who enjoy the

<sup>1</sup> *Journal of the Audio Engineering Society*, Vol.14 No.3 (July 1966), p.266. The original paper was brought to my attention by John Atkinson, who saw John Walton on the BBC-TV *Tomorrow's World* program in the 1970s—although, by that time, John Walton had undergone gender reassignment and was living as Jean Walton.

<sup>2</sup> "Stylus Mass and Reproduction Distortion," *Journal of the Audio Engineering Society*, Vol.11 No.2 (April 1963), p.104.

extra shimmer, sparkle, detail, and *air* brought to the listening experience by elliptical or more radical stylus profiles have nothing to be ashamed of: those choices are sonically and musically valid. But I continue to prefer the spherical experience—to me, it emphasizes musical content over air, allowing instruments and voices to sound more substantial, and music to sound, overall, less *fussy* than with other tip types. And I'll continue to point to the superb sound of the thousands of records in my collection that I bought used, and that were made before the invention of the elliptical tip, as ample evidence that spherical styli are not ravaging my records.

Food for thought, no matter what side of the fence you're on.

### FROM THE PRAIRIE-TO YOUR STEREO

There are some manufacturers whose gear almost always makes me smile, mostly because their products excel in the performance areas that are most important to me, but also because their stuff looks right, feels right, and is fairly priced. Sometimes I just plain like the people who make it, too.



Having favorites is very human, the only problem being that, for a critic, being human and being fair don't always mix. To put it another way: All too often, having favorites turns into *playing* favorites—and even when it doesn't, readers perceive it as such. So I try to restrain myself from writing too often about those manufacturers whose products almost always push my buttons in a good way.

Fortunately, when distributor Robin Wyatt, of Robyatt Audio, offered to loan me a sample of Miyajima Laboratory's new Saboten L phono cartridge

(\$4875), it came at a time when I hadn't spilled ink on the company in over two years. So I have no hesitation in telling you that this is something you ought to hear before spending one thin dime on another cartridge of similar or higher price.

The Saboten L is a low-compliance version of the Saboten cartridge that Herb Reichert wrote about in the April 2018 *Stereophile*. It's a low-output moving-coil (MC) design that uses Miyajima Lab's unique Cross Ring motor, whose fulcrum of movement is at the precise center of its coil former—an arrangement said to do a better job of preserving dynamic contrasts, compared to traditional motor designs in which the fulcrum point is both vague and comparatively distant from the coils. The Cross Ring motor also lacks the taut suspension wire found in almost all MC designs, and that some think resonates in ways unkind to the output signal.

The Saboten L is built into a prettily rounded body machined from a thick chunk of Cameroonian ebony. (On the company's website, designer Noriyuki Miyajima suggests that this wood sometimes includes white spots,

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though my sample did not.) As with most other Miyajima cartridges, longer-than-average mounting bolts are required and included. More exotic still is the cartridge's calling card: its cactus-spine cantilever. (*Saboten* is the Japanese word for cactus.) A line-contact stylus is fixed to a short, tubular endpiece of aluminum, itself cemented to the end of the cactus spine. As Noriyuki Miyajima explained with diagrams forwarded to me via e-mail, this endpiece is angled to perfectly align the contact point of stylus tip and record groove with the axial center of the cantilever and coil former: mechanical linearity taken to a laudable extreme.

Essential specs: The Saboten L weighs 9.5gm, has a compliance of  $8 \times 10^{-6}$ cm/dyne, and is recommended to be run at a vertical tracking force (VTF) of 3gm. Its internal impedance is 16 ohms, which seems a bit high in the context of its 0.23mV output. Also of note is what Miyajima Laboratory describes as the cartridge's "appropriate" temperature range of operation: 68–86°F, with a balmy 77°F given as "most suitable." Must be that Cameronian wood.

After installing it in my review



### More exotic still is the cartridge's calling card: its cactus-spine cantilever.

sample of the Acoustic Systems Arché headshell and fastening it to my EMT 997 tonearm, I began listening to the Saboten L fresh out of the box. Every transducer under the sun needs some run-in time, and I always allow cartridges at least a week of regular use before expecting miracles. But while

it's one thing to break in an amp or a pair of speakers by popping a CD into a CD player and putting it on continuous repeat, it's quite another to put any number of miles on a brand-new, hand-made, four-figure cartridge and *not* listen. That just seems . . . wrong. So I listened.

Right from the start, I was impressed. The severest teething pains of newborn cartridges—graininess, an edgy top end—were nowhere to be heard. Instead, in direct comparison to the well-worn Shindo SPU that preceded it in my system, the Saboten L sounded no less smooth and no less impactful. John Coltrane's tenor sax in "Summertime," from his *My Favorite Things* (Atlantic SD-1361), had very good color and tone, and pianist McCoy Tyner's big McCoy Tyner chords were everything they should be: like fantastic architecture that somehow manages to move in time. At first I had the impression that the piano sounded clearer under the Saboten L's stylus, but a later round of back-and-forth proved to my satisfaction that I was hearing a difference in channel balance between the two cartridges: the left channel, where Tyner pitches

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camp, was comparatively louder through the Miyajima than through the Shindo.

How could I write about a cactus-spine-cantilevered cartridge without playing Sonny Rollins's *Way Out West* (Contemporary S7530/Original Jazz Classics OJC-337)? Clearly I could not. I gave it a spin and was reminded that, although this stereo record lacks the scale and impact of the mono version (which I've heard but do not own), it's a sonic and musical delight when reproduced well. The Saboten L reproduced Ray Brown's double bass with superb pitch accuracy and tautness of tone. And even though it lacks a spherical stylus tip (see above), the Miyajima reproduced Shelly Manne's ride cymbal with the right shimmer, yet also with a sense of body: this wasn't the zizzy sound associated with less musical cartridges.

I listened to Norman Blake's *Old and New* (Flying Fish 010) and was moved to write the following in my listening notes: "Holy shit—Norman Blake's voice in 'The Railroad Days' was so startlingly present and real. Dead center, a little upfront. It sounded like it was recorded in a drier acoustic than the instrumental backing (fiddle, guitar, clawhammer banjo), but the performance sounded live, not overdubbed, so it was probably just a better, more directional mike on Norman." I also noted that in the next track, "Valley Head," Blake's mandolin was "uncolored (but not colorless) and tactile—a little engine of realistic tone and musical dynamism."

That the songs on *The Beatles* (UK Apple PCS 7068) vary in recording quality is no secret and no surprise—"Revolution 1" is pretty dreadful, while "Cry Baby Cry" is pretty good, despite the studio trickery (return echo on the piano, a bizarre EQ on Ringo's crash cymbal, etc.). The Saboten L made the most of it all—yet, if anything, it heightened those distinctions, while consistently staying focused on musical fundamentals. The rhythmic

momentum in "Cry Baby Cry" was appropriately relentless, and Lennon's voice, especially in the portions of the song where his voice is mixed at dead center, was hauntingly real and without coloration. The electric bass in "Honey Pie" was thick, dark, weighty, and rhythmically perfect. "Savoy Truffle," perhaps my least favorite song on the album, sounded fine, with choogling electric piano and stinging electric-guitar punctuations. And with the reliably but never harshly detailed Miyajima cartridge, I could hear George Martin and Alistair Taylor's quiet conversation at the beginning of "Revolution 9"

**McCoy Tyner's big  
McCoy Tyner chords  
were everything they  
should be.**

without having to raise the volume.

A confession: Sometimes, when I have a stereo cartridge installed and feel like playing a mono record, I don't always take the time to change over to a mono cartridge. Unfortunately, many stereo cartridges sound hopelessly out of their league when playing mono LPs: too musically fussy, and too spatially *unsure*—they don't know when to sound big or when to sound small, or how to gracefully, realistically make the transition. The Saboten L was the rare stereo pickup that sounded good, if not quite mono-pickup good, on mono LPs, such as the recording of Berg's Violin Concerto by soloist André Gertler, with the Philharmonia Orchestra conducted by Paul Kletzki (UK Columbia 33C 1030). On that one, the sense of scale was well managed if not as big, overall, as with my true-mono EMT OFD 25, while the Miyajima sweetened the deal by reproducing the solo violin with a gorgeously silky tone.

Piano recordings sounded fine with the Saboten L, which also did a very good job of tracking without distortion the many loud, complex

bits: It sailed through pianist Martha Argerich's muscular performance of Prokofiev's Toccata, Op.11, as well as the *very* forceful notes in the Chopin Scherzo in c-sharp on the same album (Deutsche Grammophon 138672). I heard no frequency-response irregularities that I would attribute to the cartridge, and the sound had good substance: the opening measures of Chopin's Barcarolle in F-sharp was appropriately meaty, even if the sound of this recording is, on balance and in the manner of so many DG piano recordings, rather too glossy.

Perhaps my overall favorite listening experience with the Saboten L was to a recording of Schönberg's *Verklärte Nacht* by the Ramor Quartet, with violist Edith Lörincz and cellist Zsolt Deaky (Turnabout TV 34032S). I've heard this record sound flat and uninteresting with lesser gear and transcendent with better gear—the Saboten L experience was at the top of the latter category. The Miyajima followed the opening lines without missing an iota of tension, and allowed the piece's first violent pizzicato eruption, about 4:00 in, its full measure of dread. Throughout, string texture and color were nothing short of perfect, and each resolution—musical and emotional alike—had full effect. It was achingly, breathtakingly effective and beautiful: home listening at its best.

In a nutshell, this beautiful-sounding product embodies everything that's special about this brand. When it comes to the performance characteristics that matter most to me, I don't believe I've heard another standard-mount cartridge as effective as Miyajima Laboratory's Saboten L.

## CONTACTS

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## IKEA KALLAX SHELVES: DO THEY STACK UP?

On the five-month anniversary of my move to a new home, I took my wife on a romantic weekend getaway to Paramus, New Jersey. She wanted to visit the IKEA store there—she was already acquainted with IKEA stores in two other cities in the northeast—and

I'd finally had enough of tripping over the cartons of LPs scattered throughout nearly every downstairs room in my modestly sized house. It was time to buy some IKEA shelving units, to supplement the converted linen closet I wrote about in the March 2018 issue.<sup>3</sup>

Hoping to avoid the crowds, Janet and I got an early start on a sunny

Saturday morning, arriving at the Paramus store at about 10am. Already, it was bustling. Before our Jersey jaunt, I'd heard a number of things, good and bad, about the IKEA experience, and though it wasn't *all* to my liking, I came away impressed by the courtesy

<sup>3</sup> See [www.stereophile.com/content/listening-183-stenheim-alumine-five-page-2](http://www.stereophile.com/content/listening-183-stenheim-alumine-five-page-2).



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and knowledge of their in-store employees, and by the fact that their displays—some resembling dioramas through which shoppers can move freely, handling whatever they like—showed their humbler products in no less positive a light than the more expensive lines and items; that alone impressed me to no end. And the cafeteria, and the company's famous Swedish meatballs, were actually pretty good, though I wasn't wild about the cauliflower.

The biggest challenge: When it comes to finding and gathering up your desired products in the store's warehouse area, then getting them through the check-out area and into your car, you're pretty much on your own. Thus was I stymied: I'd come to buy a Kallax shelving unit<sup>4</sup> five cubbies wide by five cubbies high, yet even with Janet's help I couldn't lift it onto our cart. So we limited ourselves to the Kallax model that measures four cubbies by two, and to buying just three of them for the time being. Packed and unassembled, each of these Kallaxes weighed just under 50 lbs and measured 58.75" long by 16" wide by 6.25" thick.

But consider: When assembled, the four-by-two-cubby Kallax measures 30" high by 58" wide by 15.5" deep, is available in seven different finishes, and costs only \$64.94. Almost regardless of your budget, that leaves a lot of money for chiropractic sessions, or bribes to coax your friends/neighbors/children/etc. to come along for the ride and lend a hand. They might even have a good time, especially if they like cauliflower.

The four-by-two-cubby Kallax can also be set up vertically, in which instance IKEA recommends anchoring it to the wall behind it. Although it may be moot, the Kallax is theoretic-



cally stronger when set on end: In that orientation, the horizontal shelves are single, solid pieces, and the vertical dividers are individual squares held in place with pegs—and not the other way around. Collectors of 12" shellac 78s, which are considerably heavier than vinyl LPs, take note.

When it comes to assembling an IKEA Kallax, audiophiles have a built-in advantage: perhaps 75% of adjacent surfaces are joined not with screws but with wooden pegs, all of which must be hammered into place *just so*. One could, I suppose, begin the project

by measuring and marking each peg, individually, to provide a visible clue as to how far in each must go—God help me, I considered doing just that—but it's quicker to just pound away at each until the sound of the hammering changes: specifically, when each peg has reached the limit of its travel, just before the point at which additional pounding might break something, the frequency of the banging noise will rise. That is where the trained listener will stop.

Really, though, assembly was a breeze, the hardest part being to clear a space on the floor large enough for both the open carton and the unit being assembled. The first Kallax took me 75 minutes; by the time I'd finished the third, I had it down to about 50 minutes.

In one of those moments of questionable judgment to which we're all prey (or so I'd like to think), I considered that devoting 5.5 square feet of floor space to a piece of furniture that holds only audio equipment was a luxury I could no longer afford in so small a house. So I horizontally oriented one

of the three finished Kallaxes and tried it in place of my Box Furniture D3S equipment rack, with LPs within and turntable, step-up transformer, pre-amp, and power amp on top. My system sounded like shit—and my gift with purchase was that the stylus jumped the groove if I so much as *thought* about walking through the room while playing a record. Lesson learned.

As I write this, two upended Kallaxes now flank the entrance to my dining room, where

they are an uncannily perfect fit. I've anchored them to the wall—I took the extra step of cutting away the 82-year-old baseboard millwork, nailed neatly to the lath-and-plaster walls, to allow a flush fit. They're secure, they look good, and they've allowed me to unbox another 1200 or so LPs. Just another 1000 to go . . . ■

*Art Dudley (ADudley@Enthusiast-network.com) listens to 78s and LPs in real-world rooms, not dedicated studios.*

<sup>4</sup> I first wrote about the IKEA Kallax in the October 2017 issue: [www.stereophile.com/content/listening-178-burwell-mother-burl-loudspeaker-page-2](http://www.stereophile.com/content/listening-178-burwell-mother-burl-loudspeaker-page-2).

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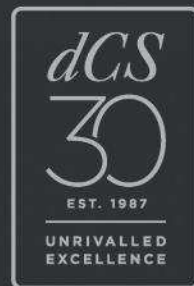
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# GRAMOPHONE DREAMS

BY HERB REICHERT

THIS ISSUE: Focal's Clear headphones and iFi Pro's iCAN headphone amplifier.

## Going Clear

**B**rooklyn, 1979: Fridays were fierce. After a week of doing construction, I would gobble Wild Turkey at the Spring Lounge, then fall asleep on the F train with a fold of cash and a Sony Walkman stuffed in a chest pocket of my paint-spattered Belstaff Trialmaster jacket. Usually I missed my York Street stop by only a few stations, but occasionally I'd wake up at sunrise on Saturday at the last stop: Coney Island. I didn't mind. It was restorative to shuffle the deserted boardwalk, listening to the Ramones' *Road to Ruin* or Television's *Marquee Moon*.

### KOSS PORTA PRO HEADPHONES

During the money-flush, go-go 1980s, I upgraded my F-train act to a Walkman Professional WM-D6C player-recorder and a cool-ass pair of Koss Porta Pro on-ear headphones. The Porta Pros suited me well. They fold up small, clip together, and easily fit in a Trialmaster pocket. And they have a lifetime warranty. When I lost the foam earpads, or one channel went out, I just threw 'em in an envelope, and Koss fixed or replaced them for free. Now I have a new pair, through which I'm reliving those *Marquee Moon* memories as I type these words, admiring how sharp, lean, and pure Richard Lloyd's guitar sounds.

These new Porta Pros cost only \$49.99. They have a cord-mounted microphone so I can take phone calls on the fly; otherwise, they're unchanged from the pair I had years ago. But *Marquee Moon* sounds better than I remember. The Porta Pros are pulling out all that '70s studio reverb and slam-

ming that drum sound. I remember walking the boardwalk, singing along with Tom Verlaine: "Oooh how the darkness doubled / I recall / Lightning struck itself."

I still like how the dainty, open-back Porta Pros rest so gently on my pinnae. The foam earcups, each the size of an old-style silver dollar, are joined by a thin steel headband that can be adjusted to three different tensions with side-mounted sliders: Light for talking on the phone while I do dishes, and Firm for flying down hills on my bicycle.

Brooklyn, 2004: When I bought my first iPod, I once again appreciated how ridiculously and pleasurably natural sounding the flyweight Porta Pros are. They weigh 2.5oz (70gm), have an impedance of 60 ohms, sensitivity of 101dB/mW, neodymium magnets, and oxygen-free copper voice coils. Their bass is clean and understated, but doesn't go low. As I type this, I'm listening to "No Hay Después," from

Puente Celeste's *Nama* (5.6MHz native DSD download, M•A Recordings M084A), and I am beyond impressed. They sound startlingly good. The midrange is articulate and satisfying. But the treble gets vague sometimes. At \$40, this state-of-the-recording-art DSD download cost me \$1 more than Walmart charges for the Porta Pros. Unbelievably, few \$200 headphones I've heard can match the succulent midrange or user-friendliness of these Koss classics.

One night, an old pal, a freelance sound recordist who was upgrading to Sennheiser HD650s, gave me his well-used closed-back headphones: Sony MDR-7520s. The strong bass and voice-articulating midrange of those sturdy, studio-grade Sonys opened my mind to the higher sound potential of headphones and took my listening to the next level. And they looked hip on the F train.

One day, my buddy Sphere said, "Herb, if you like the MDR-7520s so much, you're gonna love the AKG K812 Pros." Whereupon he loaned me a pair. To my ears, the AKG K812 Pros (\$1499) sounded unbelievably open, high-resolution, and uncolored. At recording sessions for Chesky Records I've attended, they consistently beat other headphones for sounding most like live.

### FOCAL CLEAR HEADPHONES

When I began reviewing headphones, nothing sounded as neutral or as transparent as AKG's K812 Pros—until the arrival of Focal-JMLab's Utopia headphones (\$3999).<sup>1</sup> The Utopias did all the neutral, open, dynamic things my K812s did, but were so ravishingly transparent that I thought they must be perfect. They delivered music and spoken word with extraordinary body and Leica-like focus. At the time, I had yet to experience Sony's MDR-R10 or JPS Labs' Abyss AB1266 or HiFiMan's Susvara headphones, so the Utopias received my outspoken vote for "best headphones ever."

Nowadays, I'm enjoying Tidal and my collection of high-resolution files via a Mytek HiFi Manhattan II DAC-headphone amp, and reauditioning Focal's Elear (\$1000) and Utopia models, as I compare both to Focal's newest, handsomest, most comfortable and, perhaps, most musically satisfying headphones: the Clears (\$1500).

In my original review of Focal's Elear headphones,<sup>2</sup> I described them as "fast, descriptive," and as possessing "most of the Utopias' speed and transparency." I also thought they were "a bit too even-tempered": a touch thicker and less transparent than the AKG812s or Audeze LCD-Xes. That

was December 2016—long ago, in headphone years. Today, I'm listening to David Chesky's *New York Rags* (24-bit/192kHz AIFF, Chesky JD359/HDtracks) via a different pair of Elears, and while they still sound mild-mannered, with Chesky's striding, frolicking composition they actually soar and boogie—and more than I thought they could. I can only speculate, but something about the Elears'

<sup>1</sup> See the review of the Focal Utopia in my October 2016 column: [www.stereophile.com/content/gramophone-dreams-12-page-2](http://www.stereophile.com/content/gramophone-dreams-12-page-2).

<sup>2</sup> See the review of the Focal Elear in my December 2016 column: [www.stereophile.com/content/gramophone-dreams-13-audeze-king-focal-clear-page-2](http://www.stereophile.com/content/gramophone-dreams-13-audeze-king-focal-clear-page-2).

40mm, aluminum-magnesium domes still seems a bit overdamped on some microlevel. They never light up and throw *vivo*, as my Audeze LCD-Xes do. Compared to the Utopias and the LCD-Xes, the Elears' microdullness sounds like an almost imperceptible thickening of detail and slowing of rhythmic undercurrents.

Meanwhile, Focal's Utopias have nothing dull or slow going on. Their beryllium domes and ultralight, formerless voice-coils light up music and let it move like time-lapse motion pictures. The intelligibility of voices is unmatched by any other headphones I know. With the Utopias, recordings seem *clearly* exposed and fully resolved. The Utopias are superbly crafted, almost comfortable, and deliver high-fidelity sound that ranks among the best of our time. If I were a recording engineer, the easy-to-drive Utopias would be my over-ear open-back headphones of choice.

But when I'm not working on a review or trying to decipher song lyrics, the Focal Utopias are rarely the headphones I reach for. These days, when I want headphones to watch a movie, or to listen to music for myself, I reach

for Focal's new, warm-gray, absolutely comfortable, museum-quality-beautiful Clears.

**DESCRIPTION:** The Focal Clears are dynamic, circumaural, open-backed headphones built on a solid aluminum yoke with a soft leather headband. They look the same as the Elears and Utopias, except that they're soft gray, not hard black, and their cords and earpads feel more luxurious. The Clears use the same configuration of 1.6" (40mm) M-shape aluminum-magnesium dome and formerless voice-coil as the Elears, except that the Clears' voice-coils are wound with pure copper wire instead of the Elears' copper-clad aluminum. With an impedance of 55 ohms and sensitivity of 104dB SPL/mW/m, the Clears should be easily driven by an iPhone. They weigh one pound (450gm), which is 6.35oz (180gm) less than the Audeze LCD-Xes, and 4.25oz (120gm) more than Sennheiser's HD 800 S (\$1699). Three attractive, cotton-covered cords are provided: one 3m long, with a four-pin balanced XLR; another 3m long, with a 6.35mm stereo plug; and a third 1.2m long, with a 3.5mm plug. The cords feel sexy to the touch, and match the

exquisite styling of the earpads of perforated microfiber. They attach to the earcups with locking 3.5mm plugs.

**LISTENING:** Before the Clears arrived, my headphones for daily use were usually one of four pleasure-inducing models: HiFiMan's Susvara (\$6000), Abyss's AB-1266 Phi (\$4495), Sony's super-comfortable MDR-Z1R (\$2299.99), and my beloved everyday reference, Audeze's LCD-X (\$1699). Now it's the Focal Clears that are constantly plugged into the Mytek Manhattan II DAC-headphone amp that anchors my desktop system.

The HiFiMan Susvaras are my reference for suave, sophisticated, easy-flowing musical sound. They present details and dynamics quietly, in a refined and unobtrusive way. The Susvaras reproduce all of music's power and subtle glories in proper proportion. The Abyss AB-1266 Phi's are my primary reference for perfectly natural and neutral headphone sound. They always provide the clearest window onto any recording.

The serene naturalness of those two planar-magnetic headphones make the metal-dome Focal Utopias sound slightly aggressive, most noticeably



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with penetrating hi-rez recordings such as the recital *Come Away, Death* (MQA streamed, 2L/Tidal Master). The Abysses let Sergei Osadchuk's solidly expressive piano and Marianne Beate Kielland's affecting mezzo-soprano pass through my skull in a divinely relaxed manner. They directed my attention toward the contrasting densities of wood, metal, and flesh. Pauses between piano notes, and sustained decays, were densely packed with harmonics. The Phi's and Susvaras delivered these songs of death as sensuous sonic feasts. That is why I love them.

In contrast, the Utopias' slight dynamic metallicness created unpredictable moments of glare that often caused me to turn the volume down.

Then I tried the Clears. Like a shark in deep water, the Clears glided effortlessly and powerfully through every composition on *Come Away, Death*. The sound was shark-denticle, racing-car smooth. With the Clears, large-scale dynamics operated in marvelous ways. Best of all was how effectively the Clears rendered the high frequencies



on this recording: sweetly, supplely, and with enjoyable precision. Osadchuk's piano appeared wide, long, and harmonically expansive. Compared to the Abyss AB-1266 Phi's and HiFiMan Susvaras, the Focal Clears seemed a little weak and hazy, but so what? The Clears cost thousands less than either.

All of this made me wonder: How

has Focal accomplished all this for \$1499?

**FOCAL CLEAR VS AUDEZE LCD-X:** Audeze's easy-to-drive, 20-ohm, 103dB/mW LCD-X headphones are my real-world reference cans. They and Sennheiser's HD 800 S headphones—both models cost \$1699—are the ones that Focal's Clear, at \$1500, needs to beat.

My experiences with the venerable HD 800 Ses are limited to trying them at Canjams, but the not-always-comfortable LCD-Xes have spent more time on my head than have any headphones other than the Koss Porta Pros. I cherish the Audezes' lively, blues-with-a-feeling dynamics and the burnished-toned way they reproduce the sounds of violins, guitar amps, and sopranos.

But while the LCD-Xes have long satisfied my tastes, Focal's new Clears sound, to me, more correct in tone and spectral balance. And their metal domes sound *less* metallic than do the Audezes' Mylar-film, planar-magnetic drivers. How can that be?

With the Clear, Padmavibhushan Dr. Ali Akbar Khan, playing the

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sarod (an ancient, Hindustani stringed instrument) on his *Indian Architecture* (SACD, Water Lily Acoustics WLA-ES-20-SACD), sounded noticeably more pure of tone and transparent than with the LCD-Xes. Spatial perspectives were more precisely described. The Clears' greater transparency wiped away the LCD-Xes' slight veiling, revealing more of Akbar Khan's mastery of the sarod.

**CONCLUSIONS:** I have logged months of daily use of the Focal Clears, and compared them at length with Audeze's LCD-X and with Focal's own Elear and Utopia headphones. To my ears, the Elears seem subliminally dull on some microdynamic level that makes them less engaging than the more extroverted Clears. The Utopias are the least dull, most highly resolving headphones I know, but, like the

Audezes, they deliver music with a kind of metal-tempered resilience that I find distracting. Nowadays, I use the Utopias and LCD-Xes as tools for studying recordings rather than for listening pleasure. Fortunately, listening pleasure is exactly what the Focal Clears gave me. They had that super-satisfying, just-right Goldilocks magic. They are my new real-world reference.

## iFi AUDIO PRO iCAN HEADPHONE AMPLIFIER

Opening the shrink-wrapped box containing iFi Audio's Pro iCAN headphone amplifier (\$1699) felt exactly like unpacking an expensive new Apple product. As I removed the polished outer sleeve, the silver iFi logo on the box within had me thinking, *Classy logo, classy company—hope the sound is classy. Will it make a good preamp? Will it drive the HiFiMan Susvaras?*

In life, having choices makes me feel safe and empowered. But in audio, choices are mostly annoying and unsettling. They mean features, and I am no fan of features. I prefer to pay for *performance*. I prefer my DACs and amps to come in solid, pedestrian cases with sturdy isolating feet, but no display, buttons, or remote control. Products with long menus of features make me think their manufacturers are pandering to the marketplace, wasting customers' money, and lack authentic audio aesthetics of their own.

For these reasons, my extremely positive CanJam auditions of iFi's first product in its new Pro series, the iCAN headphone amplifier—preamplifier, were marred by what I perceived as a plethora of pandering features. The front panel is jam-packed with switchy doodads, including a three-position switch that lets the user choose among Solid-State (pure class-A J-FET), Tube (all-tube class-A with two 5670 tubes), and Tube+ (which reduces negative feedback).

Besides the big Input and Volume dials, there are two smaller knobs: one controls iFi's XBass "analogue signal processing (ASP)" bass-correction system, which offers up to 12dB of boost at three low-frequency turn-over points: 10, 20, and 40Hz. The other small knob selects among three "3D Holographic Matrix" circuits labeled 30-60-90-degrees, for either headphones or loudspeakers. According to the owner's manual, "The 3D



Holographic for Headphones is [an analogue matrix circuit] not based on a standard [DSP] cross-feed system," but "renders the whole 3D soundfield in a manner that strongly parallels listening to loudspeakers in a normal room." Personally, I prefer my ASP straight—no ice, no glass.

That said, the Pro iCAN provides choices I do like, including: variable gain (0, 9, or 18dB), which I regard as a necessary feature on any headphone amp, if it can be achieved without sonic compromise; three unbalanced (RCA) and one balanced (XLR) line-level inputs; and single-ended and balanced outputs. You can also choose among five headphone output jacks: one four-pin and two three-pin balanced (all XLRs); two balanced/single-ended (6.3mm TRS); one single-ended (3.5mm); and one balanced (3.5mm, TRRS standard). The case and volume control feel of professional quality: solid and smooth. And happily, the Pro iCAN is the exact size—7.6" wide by 2.5" high by 8.4" deep—to stack atop my Mytek HiFi Brooklyn DAC (they worked well together). The Pro iCAN's two high-frequency, twin-triode, NOS GE 5670 tubes glowed lurid orange through their magnifier on the top panel, surrounded by ventilation slots cut in a pattern of concentric circles.

iFi calls the Pro iCAN's audio circuit TubeState. It's fully discrete and fully balanced, with a switchable choice of tube or J-FET input: a bipolar second stage and a MOSFET-buffered bipolar, class-A power-output stage that shifts

to class-AB at high output levels with low-impedance headphones. According to the manual, the Pro iCAN can deliver 14,000mW (balanced) or 4800mW (single-ended) into 16 ohms, or 23V (balanced) or 11.5V (single-ended) into 600 ohms.

All of these features make me ask:

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MEET PROGRESSION, a new series of audio components from Dan D'Agostino Master Audio Systems designed to bring the transformative sound quality of Dan's Momentum Series even closer within reach. Their elegant design and impeccable craftsmanship make them as beautiful to see and use as they are to hear, and in a world of transient things, Progression is made to last. The Progression Preamplifier is available with an optional DAC module, and the Progression Amplifier is available in 500-watt mono and 300-watt stereo versions. Together, they are the centerpieces of a state-of-the-art music system. Paired with your preferred loudspeakers, Dan D'Agostino Master Audio Systems' Progression Series opens the window to the very best sound in the world.

What exactly is the iFi Pro iCAN? Is it a “studio-grade” product, as claimed on its webpage? Or a feature-fueled lifestyle product? It appears to be both. Either way, the Pro iCAN played recordings in an unusually appealing manner—which is why I’m writing about it.

During the iFi Pro iCAN’s tenure in the bunker, I used it mostly to play music files via Mytek HiFi’s Brooklyn and Manhattan II DACs. I used the iCAN, along with the Manhattan II, Rogue Audio RH-5, and Pass Laboratories HPA-1 headphone amps, to compare the Focal Clear, Elear, and Utopia headphones. During all this, driving any of these headphones, the Pro iCAN was never sonically out-classed, and never the weak link.

Listening to Puente Celeste’s *Nama* (DSD128, M•A Recordings M084A) with the 83dB-sensitive HiFiMan Susvaras caused me to wonder: Why should the Tube+ (reduced feedback) setting sound the most transparent, unrestrained, and naturally flowing? Tube+ was a gentler, more elastic version of the plain Tube setting, which in turn was a more vivid and elastic version of the pure JFET option,

which seemed too tight and spatially restricted. Tube+ was the setting at which the music felt most free, and singers and instruments felt the most *there* and real. The second surprise of this connection was how the 9dB gain setting was fine for the low-sensitivity Susvaras, the 18dB setting too hard and flat. At 18dB, instruments gained in impact and body but lost an important measure of organic flow. With more sensitive headphones, I preferred the openness of the 0dB gain setting.

At 9dB gain, the Susvaras reproduced *Nama* with a level of visceral excitement that occurs only with a great recording, world-class headphones, and an amp able to bring out the best of both. In Solid-State mode, “Chiquita” was fast, punchy, tautly defined, and spatially precise, but voices seemed harmonically restrained. In Tube mode, *some* of the harmonics returned—but the real glories of this spectacular M•A download were still hidden and restrained. In Tube+ mode, its full harmonic splendor and illusions of space returned. Tube+ made me forget about hi-fi reviewing for a while.

When I used the Pro iCAN as

a line-level preamp (0dB gain), it seemed higher-resolving, tighter, and more transparent in Solid-State mode. Still, I preferred the bigger soundstage, natural presence, and fully developed harmonics of Tube+.

The problem is the iFi Pro iCAN’s price. There are more than a few distinguished headphone amplifiers available for \$1699 or thereabouts—Schiit Audio’s impressive Ragnarok integrated amplifier (\$1699) comes to mind.<sup>3</sup> Besides driving loudspeakers with 100W into 4 ohms, the Ragnarok can output 15W (!) into 32-ohm headphones—and sound *très bien, très bon* while doing so. Nevertheless, I believe that the iFi Pro iCAN’s most distinguishing and valuable feature was its unique and appealing reproduction of music in its Tube+ mode, with 0dB gain, and reduced feedback. A must-audition at your next CanJam. ■

When Herb Reichert (STLetters@enthusiastnetwork.com) isn’t outside writing in his *bothy*, he’s indoors playing records in his bunker in Brooklyn’s hip Bedford-Stuyvesant ’hood.

3 See my review of Schiit Audio’s Ragnarok in the May 2016 issue: [www.stereophile.com/content/schiit-audio-ragnarok-integrated-amplifier](http://www.stereophile.com/content/schiit-audio-ragnarok-integrated-amplifier).

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# ALIASING, B-SPLINES, CENTERS OF GRAVITY

JIM AUSTIN ASKS MQA'S BOB STUART ABOUT POST-SHANNON SAMPLING

*The right thing at the wrong time is the wrong thing.*—Joshua Harris

The sampling theory formulated by Claude Shannon in the late 1940s had a key requirement: The signal to be sampled must be band-limited—that is, it must have an absolute upper-frequency limit. With that single constraint, Shannon's work yields a remarkable result: If you sample at twice that rate—two samples per period for the highest frequency the signal contains—you can reproduce that signal perfectly. *Perfectly.* That result set the foundation for digital audio, right up to the present. Cue the music.

However, in the 69 years since Shannon published "Communication in the Presence of Noise" in the *Proceedings of the Institute of Radio Engineers*,<sup>1</sup> sampling theory has moved on. The new work began almost immediately, carried out by mathematicians and math-fluent engineers; indeed, some of it had already been done when that paper was first published, in January 1949. But

even as Shannon's work was embraced by the digital audio community—in audio, Shannon sampling theory is the foundation for almost everything digital—that post-Shannon work remained hidden. As recently as the 1990s, when post-Shannon sampling was applied to digital signal processing, the focus was almost entirely on visual information—imaging. With just a handful of exceptions, the audio world was oblivious.

Post-Shannon sampling theory relaxes Shannon's requirement that a signal to be sampled—*eg*, a recording of music—be band-limited to half the sample rate. Relaxing that constraint restores the symmetry between the time and frequency domains that was missing from Shannon's theory. In the newer theory, it's fine to use an antialiasing filter, but it's not required. Post-Shannon sampling accepts aliasing as a matter of course while allowing its impact to be minimized in both the time and frequency domains.

Some years ago, Bob Stuart and Peter Craven—the creators of Master

Quality Authenticated, or MQA—began exploring some similar ideas in an audio context. Their first article hinting at the technology that eventually became MQA<sup>2</sup> referred to some post-Shannon work, and in some later writings—including "MQA: Questions and Answers," published on the *Stereophile* website in August 2016<sup>3</sup>—the references are fairly explicit. I began to wonder: Is MQA a rigorous application of post-Shannon sampling theory?

Considering the newer theory's relaxation of Shannon's absolute prohibition against aliasing, this seemed a reasonable entry point for a somewhat technical interview with MQA's Bob Stuart on aliasing and its effects in MQA. The interview, carried out mainly by e-mail, is presented here in slightly compressed, lightly edited,

1 *Proceedings of the IRE*, January 1949, Vol.37 No.1, pp.10–21. Reprinted in *Proceedings of the IEEE*, February 1998, Vol.86 No.2, pp.447–45. See <https://web.archive.org/web/20100208112344/http://www.stanford.edu/class/ee104/shannonpaper.pdf>.

2 J. Robert Stuart and Peter Craven, "A Hierarchical Approach to Archiving and Distribution," AES Paper 9178 (8 October 2014): [www.aes.org/e-lib/browse.cfm?elib=17501](http://www.aes.org/e-lib/browse.cfm?elib=17501).

3 See [www.stereophile.com/content/mqa-questions-and-answers](http://www.stereophile.com/content/mqa-questions-and-answers).

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occasionally annotated form.

**JIM AUSTIN:** Is MQA an application of post-Shannon sampling theory to audio coding?

**BOB STUART:** Yes, very definitely, it is!

**AUSTIN:** Is it the first such application?

**STUART:** Yes. So far as we know, this is the first.

**AUSTIN:** Is it a *rigorous* application of post-Shannon sampling theory?

**STUART:** Yes, we believe so. MQA stands on a firm basis which synthesized intuition of desirable characteristics, the mathematics of sampling and reconstruction based on B-splines, losslessly reversible processing (used in flattening)—and was informed by empirical observations, auditory modeling, and hundreds of experiments.

**AUSTIN:** MQA's critics have often focused on aliasing. In a patent application covering MQA technology, you claimed the invention of "a system... wherein... the asymmetric component of response of the decimation filter is characterized by an attenuation of at least 32dB at frequencies that would alias to the range 0–7kHz on decimation."<sup>4</sup> Is that specification—attenuated by at least 32dB at frequencies that would alias to the range 0–7kHz on decimation—realized in MQA's implementation?

**STUART:** In all cases the aliasing heard by a listener with an MQA decoder will be well below that implied in the quoted patent claim<sup>5</sup> and will be, we claim, either inaudible or nonexistent.

[To test this claim, beginning with a FLAC file containing white noise at –10dBFS (peak), I pasted in 20 seconds from Talking Heads' "Girlfriend Is Better" at the 20s mark, 50dB below the noise, repeating the music and

increasing the level by 10dB every 20 seconds. I can detect very faint drums at the one-minute mark, 30dB below the noise level and at least 30dB louder than the aliased-content level allowed by the MQA specification. By 20dB below the noise—40dB above the spec—I could hear the music clearly. My conclusion: The specified level of aliasing is not audible, with a safe safety margin. The use of white noise instead of a 1/f, music-like signal makes this a very conservative test. Your mileage may vary, so do the test yourself. When this article is reprinted on the *Stereophile* website, the necessary file will be embedded.]

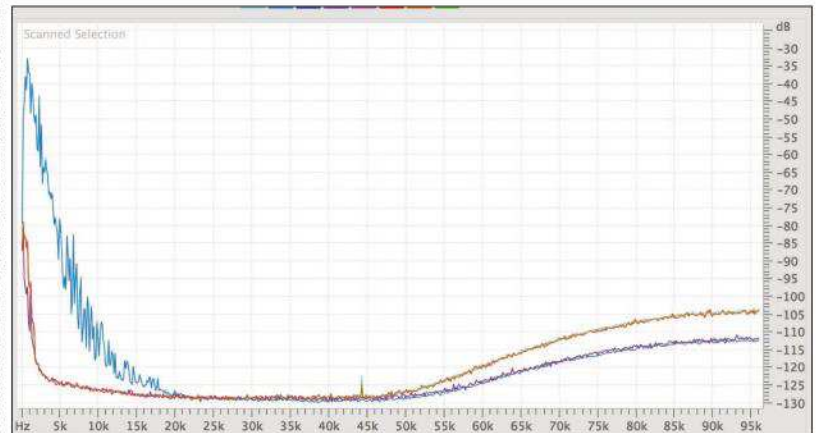
**AUSTIN:** What about upward imaging during reconstruction?

**STUART:** If properly managed, upward imaging need have no negative impact on the sound, especially if the

images are beyond the frequency range of associated electronics or transducers. Nevertheless, MQA applies quite specific constraints, not just to replicate what was heard in the studio but to maintain envelope and slew rate.

**AUSTIN:** MQA's main claim is that it improves temporal response—hence, sound quality—by removing digital-conversion-induced "timing artifacts." There's less "ringing," and no "pre-echo." Impulse response is shorter. Critics, though, have pointed out that aliasing, which MQA seems to accept by design (while attempting to minimize), manifests itself not just in the frequency domain but also in the time domain—as acknowledged in an MQA-related article written by you and Peter Craven.<sup>6</sup> Is this a real issue? Is it significant?

**STUART:** In MQA, the first moment



## IMPROVED MQA ENCODING

In "Into the Fold," my article on MQA in the February 2018 *Stereophile*,<sup>1</sup> I presented measurements of a particular MQA file (2L 2L-078) showing that MQA encoding caused the MQA file to differ radically from the unencoded DXD (24/352.8) version, adding significant noise even within the audioband—although, as I noted, I found that difference inaudible. In his "Manufacturer's Comment" in that issue, Bob Stuart said that the file in question "was one of the first to be encoded to MQA (in December 2015)," and "one of a dozen albums that used the early Sphynx2 converters; many of these were scheduled to be remastered this winter, and should be available from 2L by the time this issue is available."

After confirming with 2L's Morten

**Fig.1** Spectral analysis, 0Hz–96kHz, *Prolog* for soprano and piano, orange and cyan traces are MQA (music data and noise data, respectively); red and blue are DXD (music and noise, respectively).

Lindberg that the re-encoding had been done and that the new files had been uploaded to 2L's online store,<sup>2</sup> I downloaded the new MQA version. I made the same measurements I made before—and confirmed that the added noise that had been present in the original MQA version was absent from the new MQA version. Above is the new MQA version, compared with the DXD version from which it was encoded. —Jim Austin

<sup>1</sup> See [www.stereophile.com/content/mqa-tested-part-2-fold](http://www.stereophile.com/content/mqa-tested-part-2-fold).

<sup>2</sup> See <https://shop.clicktrack.com/2l/400418>.

<sup>4</sup> See <https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2014125285&recNum=14&office=&qqueryString=FP%3A%28Stuart+Craven%29&prevFilter=&sortOption=Pub+Date+Desc&maxRec=52>.

<sup>5</sup> Note that the claim is that aliased content will be attenuated by 32dB, not that it will be 32dB below the regular audio in the specified range. At CD sampling rates, at which aliasing would typically be strongest, aliasing at the top of this range will be reflected down from about 36kHz. In that frequency range, the music in an audio file is already very low in level. I estimate that if this specification is met, the aliased content will be at least 60dB below the musical information at 7kHz. —Jim Austin

<sup>6</sup> This is the paper referenced in footnote 2. The relevant text: "Aliasing in the frequency domain is equivalent to the time-domain phenomenon of an impulse response that depends on where, relative to the sampling instants, the original stimulus was presented: see footnote 8." Footnote 8 reads: "The complication is that because of the sampling, the total system is not time-translation invariant and so does not have a unique 'impulse response'—the response is slightly different according to the position of an original impulse relative to the sampling points."



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(center of gravity) of the reproduced impulse is always at exactly the right place.

For a number of reasons based on the auditory science of object detection, it seems very plausible that the first moment is of prime importance to the ear and that higher moments are less important and (importantly) can be shown not to contribute errors such as jitter. The possible timing error caused by the variation of the leading-edge shape of MQA impulse response pales into insignificance compared with the error that results from triggering on the wrong peak; we are considering differences of more than an order of magnitude.

**AUSTIN:** How can a system with finite aliasing have the center of gravity always in exactly the right place? How is this possible if, as suggested in the previous question, aliasing can induce timing errors?

**STUART:** We need to answer your question in three ways: in general theory, theoretically relating to MQA, and in actual practice.

In fact, generalizations of sampling theory help us solve the practical situation we face.

A minimum-phase filter's impulse response has certain attributes: it has a risetime from zero to the first peak (which is not necessarily coincident with the center of gravity); it has a decaying portion; it has a total "area" (the 0th moment) that expresses the "energy" in the response; it has a total response duration from start to finish (infinite in an analog or IIR filter but finite in some digital systems; this duration we call the "support" of the filter); it has a 1st-moment (and a center of gravity = 1st/0th moments) that occurs after an impulsive input by an amount equal to the group delay at 0Hz; etc.

How is it possible that the center of gravity is always in exactly the right place? The simple answer is that this is a property of B-splines. The more complete answer is that the B-spline (and sinc) sampling kernels satisfy the so-called "Strang-Fix conditions."<sup>7</sup> MQA is designed to ensure that the center of gravity of a reproduced pulse is at exactly the correct place. Although the kernels in MQA are not simple B-splines—they comprise the convolution of a B-spline with another filter—this property of the B-spline remains after the convolution.

You may have realized by now that the comparatively recent theoretical advances in sampling theory attempt to

## ON KARLHEINZ BRANDENBURG AND MP3

In the March 2018 issue of *Stereophile*, in my account of the involvement of Karlheinz Brandenburg and the Fraunhofer Institute's facilitation of MP3 and file sharing,<sup>1</sup> I inadvertently aped Brandenburg's own sanitized account. In interviews, Brandenburg has claimed that, in 1997, an Austrian graduate student bought a copy of the MP3 encoder and shared it online via an FTP site; that's the account I repeated last month. But in his excellent book *How Music Got Free: A Story of Obsession and Invention* (Viking Penguin, 2015), Stephen Witt makes a strong case

that Brandenburg and his team of engineers had begun giving away encoders at audio shows several years before that, in an ultimately successful effort to win the race against MP2 and other competing technologies. Brandenburg has often stated his opposition to file sharing. But if Witt's account is correct, Brandenburg's business decisions—intentional and shrewd—contributed directly to the creation of the file-sharing ecosystem that decimated the record industry ca 2000. —Jim Austin

<sup>1</sup> See [www.stereophile.com/content/mqa-contextualized](http://www.stereophile.com/content/mqa-contextualized).

deal with non-band-limited signals, or more exactly, to reconcile the fact that bandwidth and information content are not synonymous.

It is important to re-emphasize that whereas we commonly use the terms *system end-to-end impulse response*, *characteristic response*, and *average kernel response*, these provide convenient ways to express important ideas. However, in the real world we do not have impulses in air. We do not listen to impulses. In fact, the power spectrum of all the signals to which we listen are radically different from these test signals. In music, speech, and environmental sounds, the spectral energy decays as frequency rises, and normally that energy spectrum has decayed below the system noise floor before the "Nyquist frequency" of our "Encapsulation" (which includes a resampler when the signal sample rate is higher than the kernel rate). *Aliasing cannot be a problem if there are no signals to alias.* [Stuart's emphasis]

So, MQA is designed to ensure that the center of gravity of a reproduced pulse is at exactly the correct place. Hence, to the extent that the ear determines the "timing" of a pulse by estimating the center of gravity, MQA has no timing error at all. It would be strange if the ear used a measure radically different from the center of gravity, but an alternative measure such as the start of the leading edge leads to a result that differs only slightly—for example, by 2.6μs—compared with an error of about 13μs if a 192kHz stream has been sinc-filtered to a Nyquist of 96kHz and the ear mistakenly latches on to the first positive pre-pulse 13μs

away. Or with an error of approximately 26μs if the stream is sinc-filtered to 48kHz in preparation for transmission at 96kHz.

Even this small error is with a highly unrealistic test signal. With actual music, in the application for which MQA was designed, this effect is either simply not present, or exists at such a low level that it is considered, by us, to be immaterial to the human listener.

**AUSTIN:** Above, you said, "*Aliasing cannot be a problem if there are no signals to alias.*" Is it not similarly true that time smear itself does not occur if there are no signals to alias?

**STUART:** Any deviations that aliasing brings to the "impulse response" (when analog is being uniformly sampled) are quite different from the impact of the filters controlling (and contributing to) end-to-end system response. The latter is there whether or not filtering is adequate to control or eliminate aliasing. Time smear relates to the fact that the "filter" spreads every sample out in time, irrespective of frequency—particularly in the "real world," where we take into account quantization (and sometimes aliasing) effects in A/D, workstations, and DACs.

This smear, we believe, can be material for the human listener who is extracting multiple cross correlations, as well as envelope and nonlinear measures of the audio. ■

<sup>7</sup> Note that parenthetical "(and sinc)," which implies that this property of MQA is shared by the usual Shannon approach to sampling—that is, by old-fashioned PCM. For more on the Strang-Fix conditions and their implications, see *Stereophile's* "MQA: Questions and Answers," cited in footnote 3.—Jim Austin



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# SERVE THE SERVANTS

STEVE ALBINI ON ANALOG TAPE, LOUDNESS, AND *IN UTERO* BY ROBERT BAIRD

**N**

otoriously opinionated and obstinate Steve Albini, a guy ever vigilant and vocal about the wicked ways of the music business, showing up in Austin, Texas, at the annual South by Southwest festival? This I had to see. After a near-miss at his Austin hotel, we spoke the next morning on the phone.

"It was unspeakable on all levels, as bad as I imagined, and in some ways worse."

Any notion that he'd somehow softened, somehow accepted the music biz as it—

Wait. What the hell am I thinking?

"Bear in mind that I come from a punk-rock background where capitalism is sort of an awkward associate, and South by Southwest was always about naked exploitation. People who desperately want to make it, and then people who want to sell the fantasy of making it—those are the two classes of people that were there when it was more music centered. Now it's virtual reality, podcasting, interconnectivity, film, comedy, linoleum tile, so there's even less of a reason to tolerate it."

A virtuoso of curmudgeonly invective, the Chicago-based Albini is one of the leading audio engineers of his generation to support capturing natural sound, no matter how dense or delicate the music he's recording. He's also a resolute fan of analog recording and playback.

Once the proverbial guy in the band who "could explain to the sound man how loud we want the bass drum," Al-

bini is a punk-rock guitarist who's plied his craft with Big Black, Rapeman and Shellac. After graduating high school in Missoula, Montana, Albini moved to Chicago to attend Northwestern University, and became the engineer of choice for the crop of noise-rock bands (such as Big Black) and alt-rock acts (Veruca Salt, Urge Overkill) that sprang from the Chicago scene in the 1990s.

Albini began acquiring gear and

learning sound engineering in the mid-1980s, gaining his first widespread notoriety when he recorded the Pixies' *Surfer Rosa* (1988). Another early highlight was The Wedding Present's *Seamonsters* (1991). In 1993, he engineered *Rid of Me* for PJ Harvey and *In Utero* for Nirvana. He opened his Chicago recording-studio complex, Electrical Audio, in 1997. Since the late-'90s Albini has recorded at a

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blistering pace.

"I've never stopped to count, but just doing guerilla math: 50 to 100 sessions a year, and one session correlates to one album, and it's been a long time. So yeah, it's gotta be a couple thousand records. I flatter myself that I've done a good job, and that's why I get the repeat business that I do, but I also know that, given the current economy, it helps that I'm a bargain. For the degree of experience that I've got and the sort of curriculum vitae, it's not that expensive to have me work on your records."

Asked about how many albums or singles that he's recorded that have become best-sellers or at least sold respectably, Albini, who I found to be extraordinarily articulate, resorted to that charming and uniquely American habit of reducing everything to a handy baseball metaphor.

"I may not have Barry Bonds's batting average, but I have a chance of having the most at-bats. I feel like I'm probably one of the more durable lineup spots. I don't hit a lot of home runs, and my batting average may not be above par, but just the fact that I've done it so many fucking times, I've probably solved all of the problems someone can have in a studio, and I probably know how to solve the problem you're having right now."

Widely renowned as an apostle of analog recording, Albini refuses to record digitally under any circumstances. "Every record I've ever made, 30-plus years, has been recorded on multi-track tape and mixed to stereo master tapes. There have been a few hybrid sessions where I've done the analog portion of the sessions, and then someone else has taken over and done the digital portion of the record."

What does he say to young musicians who want the Albini imprimatur on their records yet want to record in the digital domain?

"No one would ask me to do that. That's like going to a baker and saying, 'I want you to barbecue me a steak.' It's a different discipline. Electrical Audio is a full-function studio. We have two studios here and a half-dozen house engineers, and we also host freelance engineers on a regular basis. So there are digital sessions done here constantly, continuously. They're just not my sessions."

Largely a spectator to the genuinely disturbing but ubiquitous trend toward squashing the dynamics out of record-

ings in the service of almighty loudness—in a word, compression—Albini casually dismissed a question about pumping up the volume.

"I have friends who run mastering studios, and they say a lot of the loudness business has subsided. The main concern now is compatibility with all the different formats. There are many flavors of downloads, streaming, and file-delivery formats, so from a digital standpoint, people are much more concerned about sound quality across all of those different formats than they are about loudness.

"Audiophiles—and when I say *audiophiles*, I mean people who listen to music as sort of a recreation rather than as background, people who are active listeners of music—most of them want to build a collection of music, and most of them will have vinyl as a primary medium. For convenience listeners, people who just want to pop some music on the phone while they're doing yard work or whatever, the access to the music is the most important thing.

"I think both ends of that spectrum—the purely inattentive, casual listeners, and then the purely intentional, active music listener—can be catered to without it being a compromise in the studio. I can make a nice-sounding master, and then that can be cut into nice-sounding vinyl record for the audiophile portion of the market. For the casual listener, it can be dumped into whatever is the listening format of the day.

"If questions arise . . . so nobody is listening to 16-bit audio anymore, everybody wants 24-bit, and so I guess all those masters that you did at 16-bit are useless? With an analog master, it's not useless—you can make a new, higher-resolution master. Or say nobody's using that format anymore, they are using this other format. Well, no big deal. You just play the master through whatever the converter of the day is, and you create the new format for them. Analog masters are exceedingly flexible in that regard. You don't have to do any number crunching. As long as that master tape survives, you can do that many, many times."

As for the impressive résumé he spoke of earlier, I was curious how several of Albini's most famous projects felt to him with the benefit of perspective, starting with Nirvana's *In Utero*. Like nearly everything else in the Nirvana universe, Albini's work on that album has been parsed, praised,

and vilified in the 25 years since its release. Although the Nirvana classics "Breed" and "Smells Like Teen Spirit" appeared on their major-label debut, *Nevermind* (1991), *In Utero* was arguably the trio's best album. The saga of its creation, and especially its sound, has filled innumerable web and print pieces, as well as Gillian G. Gaar's *In Utero*, a volume in Continuum Books' 33 1/3 series of books about classic rock albums (New York: 2006), and a good chunk of Michael Azerrad's still-definitive history of the band, *Come As You Are: The Story of Nirvana* (New York: Three Rivers Press, 1993).

To briefly summarize the controversy: Nirvana's management, Gold Mountain, and their record label, Geffen Records, were not happy with the band's choice of Albini as engineer. Although Albini had only spoken with Kurt Cobain, Dave Grohl, and Krist Novoselic on the phone, all went well when at last they met, at Pachyderm Recording Studio in Cannon Falls, Minnesota, and recording proceeded with ease.

"The studio portion of making that record was effortless," Albini said. "We were done and dusted in 12 days. Everybody was happy as clams. The process of making that record was absolutely normal. I'm working with a band that have their material well arranged, well rehearsed, they were playing at their peak power because they'd been touring, they were very confident. Kurt was clear-eyed and level-headed."

According to Albini, the basic tracks for *In Utero* were recorded as whole takes, the band all playing together in the studio. Cobain's vocals for the entire album were reportedly done in six hours.

"I'm not a proponent of breaking an organic unit down into its constituent parts and recording them independently. I've never had good results doing that. And I feel like you lose a lot of the personality of the band when you don't hear the interplay between the different members—like when everybody raises an eyebrow, so they hit the accent at the same time.

"You can make things more metronomically perfect by doing them independently, but I'm convinced that people don't listen to music that way. I've never listened to a record and thought to myself, 'Well, I would have liked it, but they sped up a little bit there.' I don't think little techni-

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cal or academic flaws like that are significant. But I'm also definitely not a proponent of the Anti School, when there are noises, out-of-tune notes, tape hiss, and obvious edits—when it has obvious flaws and that somehow makes it better.”

*In Utero* was mixed in less than a week. The resulting master tape was criticized by Geffen, by the band's management, and perhaps eventually by even the band members themselves, for being too raw and abrasive for release. Although Albini received a producer's credit on the album, he steadfastly maintains that he was only the engineer for the sessions, and that he kept his views to himself. Still, comments he made to several news outlets at the time, and since then, show that he deeply believed in the way *In Utero* was first conceived and recorded.

“I liken it to something like a barber, where somebody comes in with a full head of hair and they tell the barber how they want their hair cut. The barber should not try and talk them out of their haircut—the barber should give them what they want. Ultimately, if the band wants to make a heavily abstracted, Spielbergian fantasy record, then that's the record that they should get. It's a service industry.”

Albini refused to tweak *In Utero*'s mix and sound, and Scott Litt, R.E.M.'s producer, was brought in to remix several tracks, including “Heart-Shaped Box,” and generally smooth out some of the rougher edges. The debate over whether the record was better as originally recorded and mixed did not end with Cobain's suicide, in 1994.

“It was evident from the music what the sound was supposed to be,” Albini told me. “The instrument sounds play the biggest part in establishing the sort of tone and feel of the music. And there was a contrast between the sort of modesty and sweetness of the spoken and sung elements, and then the strained

## THE INSTRUMENT SOUNDS PLAY THE BIGGEST PART IN ESTABLISHING THE SORT OF TONE AND FEEL OF THE MUSIC

and burned quality of the screamed, screeched, and shouted parts in the lyrics. And there was an absolute parallel to that in the dynamics in the music.

“If you listen to Dave Grohl's playing, he's known as a very powerful drummer—and he is a powerful drummer—but for a solid 30 or 40% of that record he is really doing some very modest timekeeping, and that creates a dynamic movement where it goes from a downbeat verse to an extremely aggressive or explosive chorus or bridge.

“The same is true of Kurt's guitar playing. In a lot of the songs, in the verses he's singing almost unaccompanied, or accompanied by this very meek-sounding acoustic guitar. Then there will be a dynamic change, and the whole band will come crashing in at full volume, and the personality of the music will change. That kind of dynamic is intentional. That was baked into the music when they walked in the door. I'm not responsible for that. The band did that. The arrangement did that. And the overall aesthetic of the record did that.”

In striking contrast to the controversy about *In Utero*, and even to the music on that album, is Albini's most populist recording experience: the five months in 1997-98 he spent at Abbey Road Studios making *Walking into Clarksdale*, the second and, likely, final recording by the duo of Jimmy Page and Robert Plant.

Certainly influenced by the record-label meddling that had occurred with *In Utero*, Albini says he signed on with Plant and Page because he would be dealing directly with them, and not

with their label, Atlantic Records. He suggested that they convene for a short recording session to see if everyone's ideas and working methods meshed. When that worked, they decamped for Abbey Road.

“I love working at Abbey Road,” Albini said. “I've done maybe a dozen records there, and it is truly a fantastic place to work. The professionalism of the staff, the acoustics, the degree of attention paid to the installation and maintenance of the equipment, the history—everything about it is first-rate, a really great experience.”

In contrast to *In Utero*—where, despite his protestations to the contrary, Albini was certainly involved in some creative discussions—old pros Plant and Page knew exactly what they wanted to hear on the tape; they just needed Albini to use his ears and capture it the best he knew how.

“When someone can tell you what they want in terms of sound quality or production, and they can hear the results and tell you whether you've done it or not, that's really a terrific arrangement. Jimmy Page is one of the most attentive listeners I've ever worked with. He can literally hear every note in a very dense orchestral arrangement. The way I have described it before is, he can see every bird in the flock. No matter how dense or how chaotic the moment is, he knows what the desired effect is, and he knows when it's acceptable and when it isn't. He's very easy to work with. He's a demanding guy, because he has worked in the very highest echelons of the studio world since he was a teenager. There are no surprises in the studio with Jimmy Page. When he hears something, he knows what he needs to do to execute it, and he knows what you need to do, as an engineer, to satisfy him as a listener.

“If they were still working together and asked me to do another record, I would drop everything.” ■



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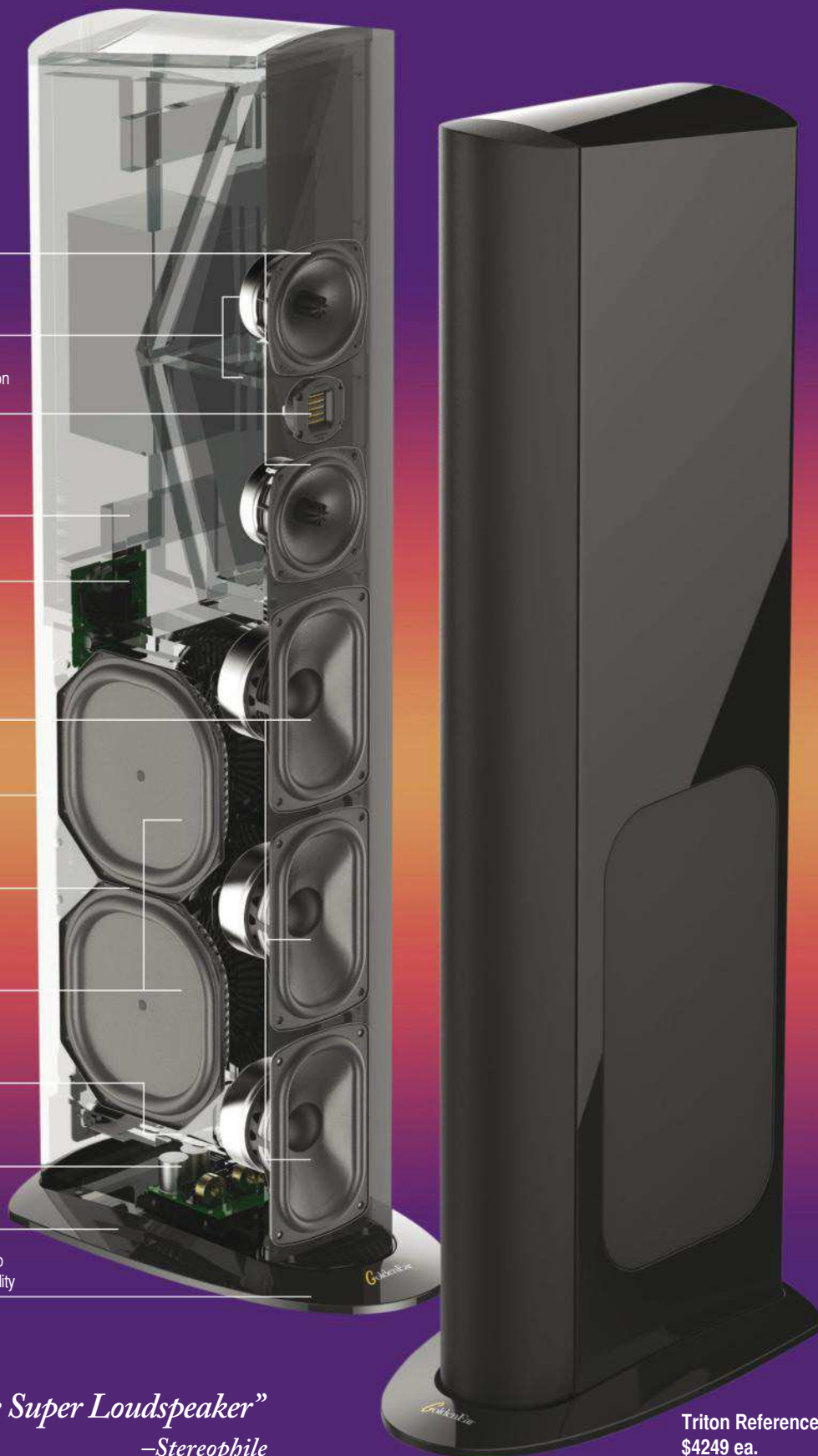
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ART DUDLEY

# Rega Research Apollo

## CD PLAYER

I've been looking at this all wrong. My recent informal survey of *ca* \$10,000 CD players has been based on two assumptions: that the people reading those reviews would be looking for their last-ever CD player, and that such a purchase would require Serious Money.

In addition to such things as the best available design and parts, the most luxurious enclosure, and the utmost in reliability, Serious Money is presumed to buy durability of value: Any appliance that costs \$10,000 today had damn well better be worth more than nothing in five or ten years.

Beyond that—say, 20 or 30 years from now—durability of value is what determines the difference between *vintage* and merely *used*. *Vintage* means good then, good now, good tomorrow. If for no reason other than most manufacturers' failure to invest in inventories of parts sufficient to keep their machines running longer than a hamster's lifespan, there is no such thing as a vintage CD player. There are just new ones and old ones, and a lot of the old ones no longer work and are not repairable.

On one hand, that's a reality we have no choice but to accept. On the other hand, that's a reality that may dampen most people's enthusiasm for spending, in 2018, a five-figure sum on a CD player.

As I said: I've been looking at this all wrong.

### Description

Into this breach steps Rega Research's newly revised Apollo (\$1095), the UK company's entry-level CD player. Priced at just \$100 more than the original Apollo,<sup>1</sup> the new player employs a similar means of loading CDs—you raise a hinged lid to expose a top-mounted, manual-load disc bay—but, at 8.7" wide by 3.5" high by 13.5" deep, it's only about half the width of its predecessor.

For the original Apollo, Rega used a Wolfson WM8740 sigma-delta DAC chip and a Sanyo transport; in the new version, the DAC has been upgraded to Wolfson's WM8742, and the Sanyo transport remains. I asked Steve Daniels, president of Rega's US distributor, The Sound

Organisation, if Rega had sufficient stocks of the Sanyo transport to guarantee service well into the future. After checking with Rega, he replied by e-mail that they have "a shed load" of them, and that the very popular mechanism "is still supported by both the manufacturer and third-party suppliers for the foreseeable future."

According to Daniels, other improvements over the first Apollo include additional and/or improved power supplies for the player's digital electronics, and an improved printed circuit board layout, the latter a byproduct of redesigning the player to fit inside a half-width case, apparently to make the Apollo a visually better mate for Rega's similarly sized Brio integrated amplifier.<sup>2</sup>

If you're still wondering how Rega has managed to make the Apollo as small as it is, consider: In recent years, I've looked inside the enclosures of a goodly number of full-width CD players, and what filled many of them were generous amounts of nothing. On some occasions I was left shaking my head in wonder at the reasons for wrapping a two-quart enclosure around two pints of parts, then jumping through hoops to apply damping materials to all that empty space.

Having said that, I can't comment on the Apollo's interior build quality because it proved impenetrable by any reasonable means: The bulk of its case comprises a single aluminum extrusion, finished in black textured paint and featureless save for a cutaway on top that gives access to the transport. The front endcap, which includes the front panel, is made of plastic and is attached by means unseen; on the rear endcap, also plastic, are two cap nuts that may or may not hold it in place, thus binding together the entire Apollo—but in past reviewing experiences I've made bad guesses about similar such fasteners, once with embarrassing results. (No one wants to say, or to hear, "There will be a delay in the return of your product while I figure out how

<sup>1</sup> I reviewed the previous version of the Apollo in the June 2006 *Stereophile*: [www.stereophile.com/cdplayers/606rega/index.html](http://www.stereophile.com/cdplayers/606rega/index.html).

<sup>2</sup> Ken Micallef reviewed the Rega Brio in the October 2017 *Stereophile*: [www.stereophile.com/content/rega-research-brio-integrated-amplifier](http://www.stereophile.com/content/rega-research-brio-integrated-amplifier).

## SPECIFICATIONS

**Description** Single-box CD player. Compatible formats: CD (WAV "Red Book"), MP3, WMA. CD-R. Analog output level: 2.15V maximum (minimum load impedance, 10k ohms). Digital output level: 0.5V. Power consump-

tion (115V): 13.5W.

**Dimensions** 8.7" (220mm) W by 3.5" (90mm) H by 13.5" (342mm) D. Weight: 7 lb (3.2kg).

**Finish** Black.

**Serial number of unit reviewed** 29040.

**Price** \$1095. Approximate number of dealers: 120.

**Manufacturer** Rega Research Limited, 6 Coopers Way, Temple Farm Industrial Estate, Southend on Sea, Essex SS2 5TE, England, UK. Tel: (44) 1702-333071.

Fax: (44) 1702-432427.

Web: [www.rega.co.uk](http://www.rega.co.uk).

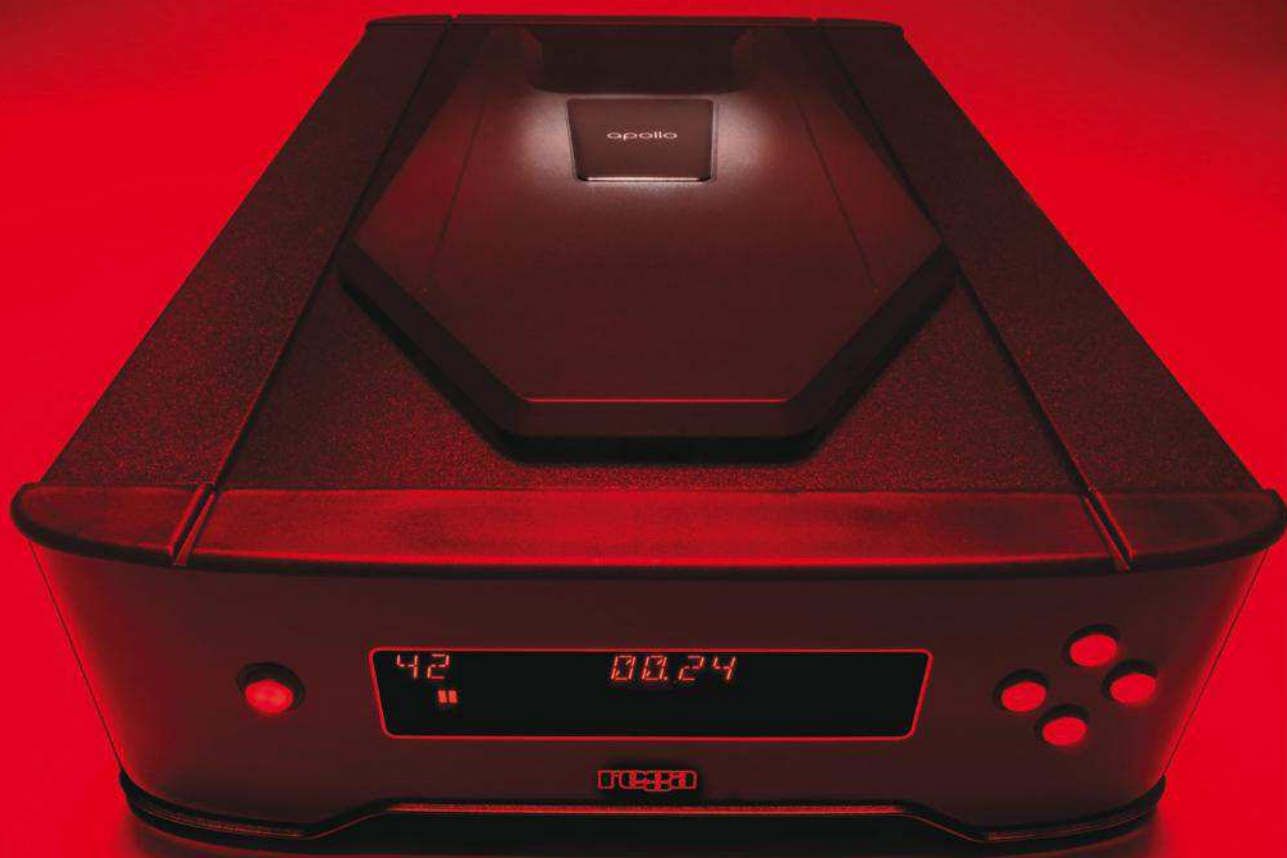
US distributor: The Sound Organisation, 159 Leslie Street, Dallas, TX 75207.

Tel: (972) 234-0182.

Fax: (972) 234-0249.

Web: [www.soundorg.com](http://www.soundorg.com).







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to put it back together.”)

I thought the Apollo was handsome in a compact, tidy sort of way. Ironically or not, its fanciest part is the one that is, arguably, the most functional: its transport cover, which lifts away from the top panel on four damped struts, and is shaped vaguely like the Starship *Enterprise*, seen from above. The serenely pretty front panel is a smooth expanse of glossy black interrupted by only a digital display, an illuminated Rega logo, and five small pushbuttons: Power on the left and, on the right, four more in a diamond formation, for Play/Pause, Next Track, Previous Track, and Stop. Perhaps thankfully, money was not wasted on a stylist for the rear panel, which contains left and right analog output jacks (RCA), an optical digital output, an S/PDIF coaxial digital output (RCA), an IEC power-cord socket, and a fuse.

#### Installation and setup

As with so many other CD players, there really isn't a great deal to say here about the Apollo: I removed it from its



**I thought the Apollo was handsome in a compact, tidy sort of way.**

clamp in favor of a hub in which three tiny, spring-loaded metal balls hold the disc in place. Pressing a disc into place is slightly easier than prying it back off, though the latter procedure was never too great a challenge, and grew easier with practice. The player takes seven or eight seconds to read the contents of a newly loaded CD, before which pressing Play has no effect, and after which the controls work as advertised: My time with the Apollo was entirely glitch-free.

I relied almost entirely on the Apollo's front-mounted control buttons, avoiding for the most part Rega's included remote-control handset, which is a compact 5.75" long by 2" wide, and so flimsy that, when I pressed the latch to open the battery compartment—no easy feat, incidentally—it felt as if the whole thing was about to cave in on itself. Anyway,

spartan but smartly designed packaging, connected it to the AC with its included power cord, and to my Shindo Laboratory Monbrison preamp with a 1m pair of Luna interconnects, and placed it on the middle shelf of my Box Furniture D3S equipment rack. According to Rega, lifting the Apollo's transport cover to its full height requires 6.7" (170mm) of headroom; in my system, it had a more-than-generous 8.1" (205mm).

The Apollo ran warm to the touch but never hot, and was a breeze to use. Its Sanyo transport eschews a magnetic

## MEASUREMENTS

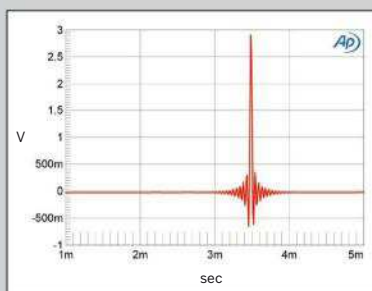
**L**ike the Naim CD5 XS, which Art Dudley reviewed in the November 2017 issue, the Rega Apollo has no digital inputs of any kind. That limited my measurement of its technical behavior to using 16-bit test files burned to a CD-R. I tested the Rega with my Audio Precision SYS2722 system (see the January 2008 “As We See It,” <https://tinyurl.com/4ffpve4>).

The Rega's error correction was good—no interruptions were apparent in the player's output until the single gaps in the data spiral on the Pierre Verany Digital Test CD reached 1.5mm in length, when there were occasional glitches. (The Compact Disc standard, the so-called “Red Book,” requires that a player cope with gaps of up to 0.2mm.) The maximum output level from the Apollo's unbalanced output was 2.18V, which is 0.8dB higher than the CD standard's 2V, and the output preserved absolute polarity (ie, was

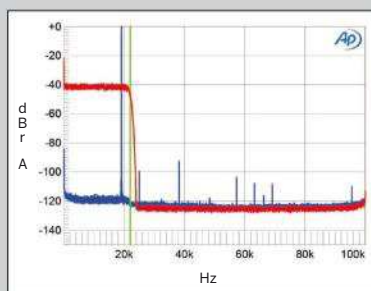
non-inverting). The output impedance was 600 ohms at 20 and 1kHz, rising slightly to 660 ohms at 20Hz, presumably due to the presence of a series capacitor in the signal path.

Fig.1 shows the Apollo's impulse response: It's typical of a linear-phase reconstruction filter, with symmetrical ringing either side of the single sample at 0dBFS. Tested with white noise

sampled at 44.1kHz, the Rega's output rolled off quickly above 20kHz (fig.2, red and magenta traces), but hadn't reached full attenuation by the Nyquist frequency, 22.05kHz (fig.2, vertical green line). However, the aliased image at 25kHz of a full-scale 19.1kHz tone (blue and cyan traces) is suppressed by 100dB. The distortion harmonics of that tone are visible at 38.2 and



**Fig.1** Rega Apollo, impulse response (one sample at 0dBFS, 4ms time window).



**Fig.2** Rega Apollo, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with CD data (20dB/vertical div.).

# HYPERION

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I hate remotes.

I gave the Apollo a mute run-in<sup>3</sup> for a few days. I'm not convinced that its sound changed all that much from the beginning of the review period to the end, but I'm certain it sounded fuller and more colorful when warmed up for an hour, as opposed to playing CDs immediately after being powered up.

### Listening

I began my listening with Liszt's arrangement for piano of Wagner's *Tannhäuser* overture, performed by Jorge Bolet, from *Rediscovered: Liszt Recital* (RCA Victor Red Seal 63748-2). The sound wasn't as extended in the bass as I'd expected—eg, a phrase in the left hand at about 4:30 was clearly drawn but lacking in heft. The overall result was a lighter balance than with my Sony SCD-777 SACD/CD player and other good-quality players of my recent experience: light, but not *too* light. The musical effect was to highlight aspects of Bolet's technique, especially his very *deliberate* phrasing and often forceful note attacks. While listening to the descending lines that begin about 12:00 into the Wagner, I even had a pretty good idea



**Where spatial performance is the intoxicant du jour, I'm a cheap date.**

The Apollo uses three tiny, spring-loaded balls to hold the disc in place.

of his pedal technique. As the liner notes say, this is a hair-raising performance, and the Rega did it justice.

I then switched gears by trying some of my favorite bluegrass discs in the Apollo, beginning with the mid-1990s reissue of the 1965 instrumental collection *Appalachian Swing!*, by the Kentucky Colonels (Rounder CD SS 31). Again, the balance was a bit light—just enough to render the sound a little more explicit and forward than usual.

In "Clinch Mountain Backstep," the entrance of fiddler Bobby Slone was more thrilling than usual, and the offbeat timing of guitarist Clarence White was made brilliantly clear. I'm an amateur guitarist—I wish I'd had so explicit a CD player 22 years ago, when I first began trying to learn some of White's signature phrases. Indeed, about 1:36 into "I Am a Pilgrim," as he handed off a solo to brother Roland, I heard from Clarence a brief phrase that until now had escaped my attention. In "Ookpik Waltz," from David Grier's *I've Got the House to Myself* (Dreadnought 0201), the tone and touch of

<sup>3</sup> That only sounds like a savage beating from Harpo Marx. It was not.

### measurements, continued

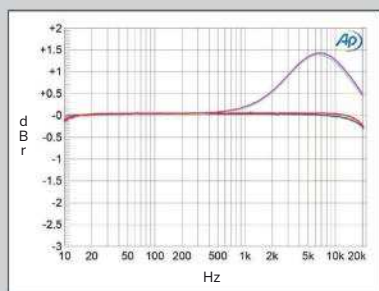
57.3kHz, at a respective -92dBFS (0.0025%) and -104dBFS (0.0006%). The blue and red traces in fig.3 show the Apollo's audioband response taken with spot tones; it is flat to 15kHz, and reveals excellent channel matching. The cyan and magenta traces in fig.3 show the response with preemphasized data: the output peaks by almost 1.5dB between 5 and 15kHz, which will make the sound a touch bright. For-

tunately, pre-emphasized CDs are very rare these days.

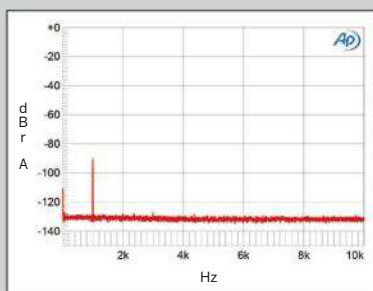
Channel separation (not shown) was superb, at >100dB in both directions below 1kHz, but decreasing to 72dB at 20kHz. The analog noise floor was low in level, with no power-supply-related artifacts present. With dithered data representing a 1kHz tone at -90dBFS (fig.4), the graph actually shows the spectrum of the dither noise

used to encode the 16-bit test signal. With undithered data representing a 1kHz tone at exactly -90.31dBFS, the three DC voltage levels described by the data are well defined, but with a very slight DC offset present in the right channel (fig.5).

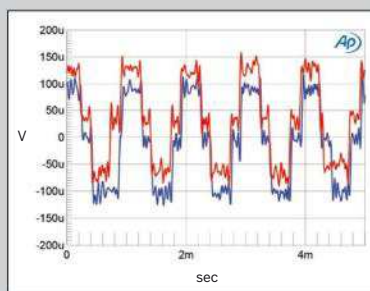
The spectrum of a full-scale 50Hz tone into 600 ohms (fig.6) indicates that, even into this demanding impedance, the Apollo's distortion harmonics



**Fig.3** Rega Apollo, frequency response at -12dBFS into 100k ohms: without deemphasis (left channel blue, right red), with deemphasis (left cyan, right magenta) (0.5dB/vertical div.).



**Fig.4** Rega Apollo, spectrum with noise and spurs of dithered 16-bit, 1kHz tone at -90dBFS (left channel blue, right red) (20dB/vertical div.).



**Fig.5** Rega Apollo, waveform of undithered 16-bit, 1kHz sine wave at -90.31dBFS (left channel blue, right red).

his guitar playing were reproduced as realistically as I've ever experienced—and Grier's is a sound I know well, having more than once heard him perform in my living room. Here, too, I heard from the Apollo something I'd never before noticed in the literally hundreds of times I've listened to this disc: the sound of Grier tapping his foot, beginning at about 0:42.

When the recording contained it, there was no shortage of low-bass information from the Apollo. In "Almost Like the Blues," from Leonard Cohen's *Popular Problems* (Columbia 88875014292), the (presumably synthesized) bass line was entertainingly deep and full, as could also be said of Joe Ayoub's electric bass in "Samson in New Orleans." No stranger to the obvious, I also reached for Fritz Reiner and the Chicago Symphony Orchestra's 1962 recording of Strauss's *Also sprach Zarathustra* (RCA Living Stereo/JVC JMCXR-0011). The introduction's famous low C, played by the double basses and organ, was adequately strong—rightly or wrongly, other CD players, such as the above-mentioned Sony, give it a little more weight—but where the Rega really shone was the same note at the work's end, now plucked by the double basses and set against a B triad from the woodwinds. That low C had what I thought was the precisely correct weight and a beautiful sense of touch, not



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bring solo voices forward of the rest of the mix, add a suggestion of stage depth, and show me approximately where on that stage the instruments and voices are coming from. If it can, I'm perfectly content. The Rega Apollo was, in that curious borderline-flat-earth way, minimally good at soundstaging and stereo imaging and all that, but no more—and that was fine with me. With the classic recording of Wagner's *Lohengrin* with Jess Thomas, Elisabeth Grümmer, Dietrich Fischer-Dieskau, and the Vienna Philharmonic, conducted by Rudolf Kempe (3 CDs, EMI CDS 7 49017 8), as *Lohengrin* first approaches under swan power (Act I, end of scene ii through beginning of scene iii), the sort-of

to mention superb pitch certainty.

Where spatial performance is the intoxicant du jour, I'm a cheap date: I'm interested mostly in *scale*, my primary concern being that the sound be really big when it's supposed to be. (Yes, it's also nice when things that aren't supposed to be big *don't* sound big, but let's be honest: Any crap system can sound *little*.) Apart from that, all I ask is that the gear can

#### measurements, continued

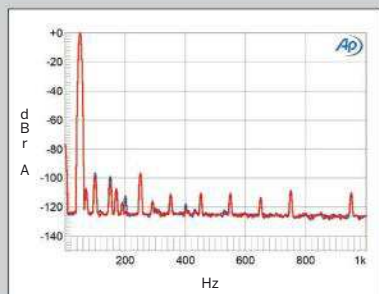
all lie at or below -99dB (0.001%). I then tested the Rega for intermodulation distortion with an equal mix of 19 and 20kHz tones. The resultant spectrum (fig.7) looks a little hashy in the audioband, but this is an artifact of the 16-bit encoding. Actual intermodulation products are very low in level even into 600 ohms, the second-order difference product at 1kHz lying close

to -110dB (0.0003%). However, fig.7 shows an odd rise in the noise floor at the top of the audioband; this can also be just made out in fig.2.

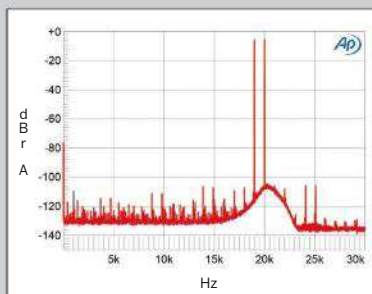
Finally, when I tested the Rega Apollo with 16-bit J-Test data (fig.8), the spectral spike that represents the high-level tone at exactly one-quarter the sample rate is well defined, and most of the odd-order harmonics of the

LSB-level, low-frequency squarewave are close to the correct levels (sloping green line). However, the harmonics closest to the 11.025kHz are too high in level, suggesting that the Apollo's rejection of word-clock jitter is not quite to the otherwise excellent standard of digital engineering revealed by the rest of its measured performance.

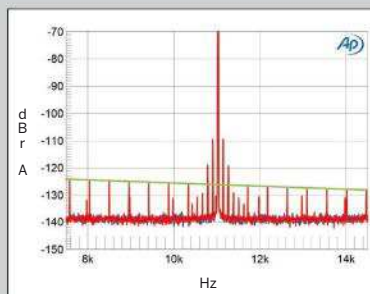
—John Atkinson



**Fig.6** Rega Apollo, spectrum of 50Hz sine wave, DC-1kHz, at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).



**Fig.7** Rega Apollo, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).



**Fig.8** Rega Apollo, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: CD data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.



counterpoint between the male and female choristers was enhanced by the distinctions between the groups' positions onstage—and Lohengrin himself sounded, at first, appropriately distant.

The poorest performance I heard from the Apollo was probably when I asked it to play the original CD edition of Bob Dylan's *New Morning* (Columbia CK 30290). The songs on that 1970 collection—probably the last ones from my favorite Dylan period, which began with the oft-bootlegged songs that were informally recorded in 1967, in West Saugerties, New York—are brilliant, but while the production is musically astute, the recording is thin, distant, and altogether pallid: shortcomings on which the Rega tattled without mercy.

The Apollo's best performance? Although there were almost too many to choose from, I point to trumpeter Blue Mitchell's *Blue's Moods* (Riverside/JVC VICJ-60173), on which the backing band—drummer Roy Brooks, bassist Sam Jones, and, especially, pianist Wynton Kelly—sounded colorful, clear, impactful, and downright live, and came through the Rega with what seemed to me a perfect balance of bass and treble.

### Conclusions

Forced to sum up the Rega Apollo's sound in a sentence or two, I would write: This player has a sonic brilliance—a clarity of detail and of musical line, allied with a spatially up-front presentation—that enhances musical engagement. The Apollo doesn't gladly suffer bright or timbrally threadbare CDs—something I dimly recall being even truer of the original Apollo—but with most discs I tried, it provided

## ASSOCIATED EQUIPMENT

**Analog Sources** Garrard 301, Thorens TD 124 turntables; Audio-Creative GrooveMaster II, EMT 997 tonearms; EMT TSD 15, Shindo Laboratory SPU pickup heads; Miyajima Laboratory Saboten L, MusiKraft/Denon DL-103 cartridges.

**Digital Source** Sony SCD-777 SACD/CD player.

**Preamplification** Auditorium 23 Hommage T1 & T2 step-up transformers; Shindo Laboratory Monbrison (2017) preamplifier.

**Power Amplifier** Shindo Laboratory Haut-Brion.

**Loudspeakers** DeVore Fidelity Orangutan O/93.

**Cables** Interconnects: Audio Note AN-Vx, Luna Red, Shindo Laboratory. Speaker: Auditorium 23, Luna Red. AC: manufacturers' stock cords.

**Accessories** Box Furniture Company D3S rack (source & amplification components), Audiodesksysteme Gläss Vinyl Cleaner Pro.—**Art Dudley**

enjoyable, involving, nonfatiguing sound.

My thoughts on value are even more concise. As with other Rega products—their entry-level tonearms come to mind—few other audio components of my experience, and no other contemporary CD players, offer so much music for so little money. Unless your system has an egregiously bright sound, you can't go wrong with the Rega Apollo. And if your heart is set on spending \$10,000, go ahead and buy nine of these and spread the love. Robustly recommended. ■

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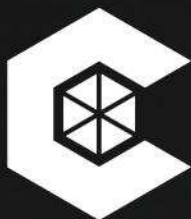


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MICHAEL FREMER

# EgglestonWorks Viginti

LOUDSPEAKER



**V**iginti is Latin for *twenty*. It's also the name of a new loudspeaker from EgglestonWorks, to be produced in a limited edition of 250 pairs in celebration of the launch, 20 years ago, of the company's original Andra, on which the Viginti is based. The Viginti is a shapely and eye-pleasing 4' 2" tall, and weighs 255 lb—kind of heavy for its size.

A great thing about the Internet is that, in a print publica-

tion with limited space, there's no need to spend precious column inches recounting an otherwise necessary history of EgglestonWorks, which is based in Memphis, Tennessee. You can read all about it in the late Wes Phillips's review of the original Andra, in the October 1997 *Stereophile*—that issue's cover story.<sup>1</sup> Three months later, in the December

<sup>1</sup> See [www.stereophile.com/floorloudspeakers/237/index.html](http://www.stereophile.com/floorloudspeakers/237/index.html).

## SPECIFICATIONS

**Description** Dynamic, floorstanding loudspeaker with rear slot-port loading. Drive-units: 1" beryllium-dome tweeter, two 6" carbon-dome midrange drivers, two 10" carbon-cone subwoofers. Crossover

frequencies 120Hz (low pass) and 110Hz (high pass), 2kHz. Frequency range: 20Hz–40kHz. Impedance: 6 ohms nominal, 3.5 ohms minimum at 29Hz. Sensitivity: 87dB. Recommended amplification power: N/A.

**Dimensions** 50" (1270mm) H by 14" (355mm) W by 23" (585mm) D. Weight: 255 lb (116kg).

**Finish** Piano Black, anodized aluminum side panels, carbon-fiber accents.

**Serial numbers of units**

**reviewed** V8837LE, V8838LE. **Price** \$38,995/pair. Approximate number of dealers: 10. **Manufacturer** EgglestonWorks, 540 Cumberland Street, Memphis, TN 38112. Tel: (901) 525-1100. Web: [www.egglestonworks.com](http://www.egglestonworks.com).

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1997 issue, the Andra was voted *Stereophile's* Loudspeaker of the Year—and made that issue's cover as well. Paul Bolin reviewed the Andra II in November 2002.<sup>2</sup> Later came the Andra III and the Andra III SE, which we didn't review.

If you're a fan of photographer and composer William Eggleston (one of his photographs graces the cover of Big Star's *Radio City*), EgglestonWorks was founded by his son, Bill Eggleston, who is no longer involved.

### Description

All of the EgglestonWorks Andras were variations on the same basic theme. The Viginti, which costs \$38,995/pair, strays farther from the original tune, beginning with its two 10" carbon-fiber woofers, made by Morel—previous variations had only a single, larger woofer. The magnet structure of the new woofer is said to be “enormous,” though I didn't find my way inside to have a look.

Wayne E. Prather, PhD, of the National Center for Physical Acoustics, University of Mississippi, is a technical consultant for EgglestonWorks. According to a design study paper he sent me, Chief Designer Jim Thompson says that the 10" drivers “function more as subwoofer drivers than as traditional woofers.” The goal was to keep the midrange and lower-midrange frequencies away from the heavy-dia-phragmed, long-excursion cones that, Thompson says, are “essential for superior low end bass but are less well-suited” for reproducing the middle frequencies. Makes sense to me.

The subwoofers are crossed over to the midrange drivers at 120Hz (low pass) and 110Hz (high pass). This produces a slight overlap between the two, which is said to provide a smoother overall response.

The Viginti is the first EgglestonWorks speaker to use a slot or shelf port. Thompson says that the port enables the design team to fix the bass tuning frequency with “pinpoint accuracy.” It also improves the lower notes’ “pitch-correctness” and “tightness.” The enclosure behaves, he claims, as



**Clockwise from left:** The Viginti's back-panel plaque; among the elements that comprise the Viginti's internal labyrinth is the bass-clef-like shape in the foreground; one of the Viginti's carbon-dome midrange drivers.



a sealed box down to the very low port tuning frequency of 30Hz, and that low tuning frequency puts the resulting group-delay phase shift in a region where our ears are mini-

<sup>2</sup> See [www.stereophile.com/floorloudspeakers/719/index.html](http://www.stereophile.com/floorloudspeakers/719/index.html).

## MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the EgglestonWorks Viginti's frequency response in the farfield, and an Earthworks QTC-40 for the nearfield and in-room responses. Because of the Viginti's bulk and weight, I took my measurement gear to Michael Fremer's place in New Jersey, where I performed the quasi-anechoic measurements on the speaker in his driveway. (It was one of the few days in March that was not cold, the sun was shining, and there was no wind!) Mikey and I lacked the strength to lift the 255-lb speaker off the ground, so the reflections of the drive-units' outputs from the ground between the speaker and the microphone occurred earlier than is usually the case with my measurements. The frequency resolution of the response graphs in

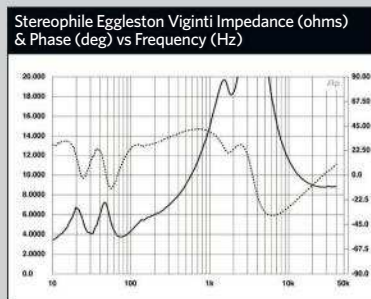
the midrange is therefore reduced.

My estimate of the Viginti's sensitivity was a high 89dB(B)/2.83V/m, 2dB higher than the specified 87dB. The impedance is specified as 6 ohms, with a minimum value of 3.5 ohms at 29Hz. My measurement of the impedance magnitude (fig.1, solid trace) reveals that while the impedance lies above 8 ohms from the upper mid-range up, there are minimum values of 4 ohms at 32Hz and 3.75 ohms at 76Hz. However, the electrical phase angle remains usefully low.

A discontinuity is visible at 142Hz in the impedance traces; when I listened to the enclosure with a stethoscope, I did hear some resonant modes in the rear panel, and in the carbon-fiber inserts in the side panels.

The saddle at 30Hz in the impedance-magnitude trace implies that the large, rectangular port at the

base of the rear panel is tuned to this frequency. The two woofers behave identically, and their combined output (fig.2, blue trace) has the expected minimum-motion notch at 30Hz. The woofers are crossed over to the midrange unit (green trace) at the specified 110Hz with low-order slopes, and their upper-frequency output rolls



**Fig.1** EgglestonWorks Viginti, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).



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mally sensitive to phase errors.

The Viginti marks the first time that EgglestonWorks has used a midrange-tweeter-midrange (MTM) driver array. Correctly implemented, such an arrangement can act as a virtual point-source driver that, at the crossover frequency—2kHz in the Viginti's case—produces among the three drivers a uniform horizontal dispersion characteristic. The Viginti's crossover includes Mundorf's best silver/gold foil capacitors, and inductors some of which are hand-wound in-house.

The 6" carbon-dome midrange drivers are also made by Morel, while, for the first time, EgglestonWorks uses a beryllium-dome tweeter, this one made by Scan-Speak. Of greater interest is the Viginti's transmission-line midrange loading. The design team paid particular attention to how to dissipate the energy the drivers radiate behind them. As you probably know, the back

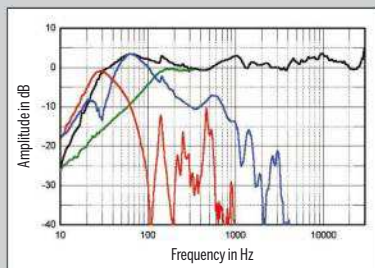


**Left:** A completed Viginti poses with a Viginti-in-progress. **Above:** The beryllium tweeter—a first for Eggleston Works.

wave is equal to the front wave radiating into the room, with which it is 180° out of phase. In a rigid enclosure, the back-wave energy ricochets around inside the enclosure. EgglestonWorks says that this imposes on the speaker diaphragm distortions of both phase and level that are superimposed on the front wave—that reach your ears.

## measurements, continued

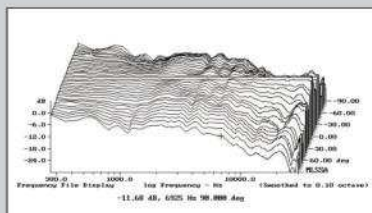
off relatively gently, with peaks visible between 500 and 600Hz, and others at 1.5 and 3kHz. When I was measuring the woofers' farfield output, I could hear these peaks as formants superimposed on the sound of the pseudo-random noise signal. I would have thought that this behavior would be masked by the output of the midrange units. However, it is possible that it correlates with MF occasionally hearing some upper-midrange coloration. The output from the vents on the rear of the midrange enclosure was clean and



**Fig.2** EgglestonWorks Viginti, anechoic response on tweeter axis at 50° (black) averaged across 30° horizontal window and corrected for microphone response, with farfield response of woofers (blue above 355Hz) and nearfield responses of midrange unit (green), woofers (blue), port (red), and their complex sum (black), respectively plotted below 300Hz, 355Hz, 1kHz, and 300Hz.

typical of a transmission line, mirroring the frontal radiation at a reduced level but out of phase with it. (Note that the nearfield output of the midrange units in fig.2 doesn't have the minimum-motion notch that would indicate reflex loading.)

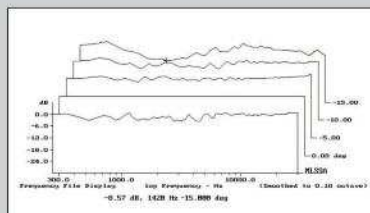
The port's output, again measured in the nearfield (red trace), peaks between 20 and 50Hz, but its upper-frequency rolloff is marred by several peaks, the second strongest of which coincides with the discontinuity in the impedance traces. This behavior might correlate with Mikey finding there to be some midbass emphasis in the Viginti's balance. The sum of the nearfield outputs of the midrange, woofers, and



**Fig.3** EgglestonWorks Viginti, lateral response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 90°–5° off axis, reference response, differences in response 5°–90° off axis.

port is shown as the black trace below 300Hz in fig.2; the apparent peak in the midbass is entirely an artifact of the nearfield measurement technique, which assumes that the radiators are mounted in a true infinite baffle—*ie*, one that extends to infinity in both planes.

The farfield response in fig.2 (black trace above 300Hz) was taken on the tweeter axis, averaged across a 30° horizontal window. Other than slight excesses of energy between 700Hz and 1.4kHz and in the upper treble, the speaker offers a respectably uniform output. Fig.3 shows the Viginti's lateral radiation pattern normalized to the tweeter-axis response, which there-



**Fig.4** EgglestonWorks Viginti, vertical response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 15°–5° above tweeter axis, reference response, difference in response 5° below tweeter axis.

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While treating a speaker cabinet's insides with absorptive material can suppress and absorb high-frequency backwave energy, EgglestonWorks argues that, in the midrange and lower midrange, where our ears are most sensitive to distortion, the efficacy of these absorptive materials is much less. Therefore, the Viginti's two 6" midrange drivers are individually loaded into quasi-transmission-line chambers—tapered, heavily damped tubes that terminate in openings at the cabinet's rear. Absorptive material attenuates the backwave energy as it travels through the tube on its way out the back of the enclosure. What little energy is reflected back into the highly damped tube is further attenuated.

Thompson also claims that the residual back wave output produces a desirable “ambience,” in the manner of a dipole speaker, though in the strictest use of the word the Viginti is

**Right:** Here's a look at those heavily damped transmission-line chambers.



#### measurements, continued

fore appears as a straight line. The speaker's horizontal dispersion is commendably even and well controlled, though the 1" dome does become relatively directional above 7kHz. In the vertical plane (fig.4), the response on the tweeter axis, which is 36" above the floor, again appears as a straight line, and changes little over a window of  $-5^\circ/+10^\circ$ .

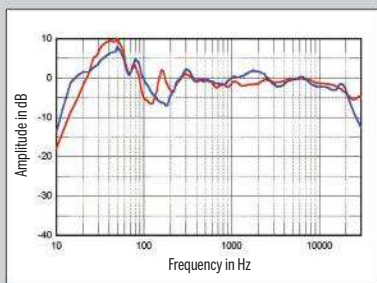
The red trace in fig.5 shows the spatially averaged response in Mikey's listening room, while the blue trace shows the in-room response of the Wilson Alexx speakers he reviewed in May 2017,<sup>1</sup> measured under identical conditions. (Using SMUGSoftware's FuzzMeasure 3.0 program and a 96kHz

sample rate, I average 20  $\frac{1}{6}$ -octave-smoothed spectra, individually taken for the left and right speakers, in a rectangular grid 36" wide by 18" high and centered on the positions of Mikey's ears.) The EgglestonWorks speaker's in-room response is remarkably smooth and even from the middle of the midrange through to the 30kHz upper limit of this graph. The Wilson speaker's response is not quite as smooth, and has more presence-region energy. The traces in this graph below 350Hz are disturbed by room modes that have not been evened out by the spatial averaging. However, while the room-corner placement of both speakers results in elevated low

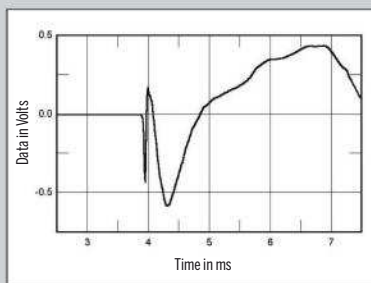
frequencies, the Vigintis produce more energy just below 200Hz and between 30 and 70Hz; the Wilsons offer slightly greater low-bass extension.

In the time domain, the step response on the tweeter axis (fig.6) indicates that the tweeter and mid-range units are connected in inverted acoustic polarity, the woofers in positive polarity. The integration of the drive-unit outputs is well arranged, however. The cumulative spectral-decay plot on the tweeter axis (fig.7) is superbly clean in the treble.

Other than those peaks in the woofer and port outputs, EgglestonWorks' Viginti offers respectable measured performance.—John Atkinson

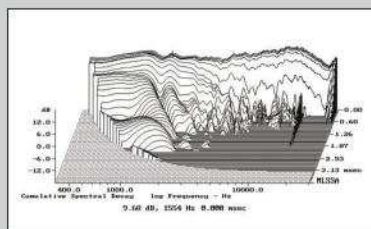


**Fig.5** EgglestonWorks Viginti, spatially averaged,  $\frac{1}{6}$ -octave response in MF's listening room (red); and of Wilson Alexx (blue).



**Fig.6** EgglestonWorks Viginti, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

<sup>1</sup> See [www.stereophile.com/content/wilson-audio-specialties-alex-loudspeaker](http://www.stereophile.com/content/wilson-audio-specialties-alex-loudspeaker).



**Fig.7** EgglestonWorks Viginti, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

not a dipole speaker. Because each midrange driver operates within its own isolated, tubular enclosure, the designers elected not to isolate the interior chamber behind the MTM array from the rest of the cabinet's interior, thus producing a woofer enclosure of considerably larger volume than would usually be possible in a cabinet measuring 50" high by 14" wide by 23" deep. Thompson doffs his mortarboard and dons his salesman's cap when he says "Although extremely expensive to implement, the 'Transmission Line' midrange porting design delivers midrange detail and purity, which to our knowledge, cannot be achieved in any other way."

The panels of the Viginti's well-braced enclosure each comprise two slabs of  $\frac{5}{8}$ "-thick MDF glued together, for a total thickness of 1.25"; the platform to which all this is anchored is four such layers thick: 2.5". The internal braces are of HDF, as are the two midrange quasi-transmission lines.

The side panels of the upper section are fully braced, with panels of black-anodized aluminum, accented with carbon-fiber inserts. The piano-black lacquer applied to the MDF surfaces is finished to a very high standard. Two pairs of terminals are provided, for biwiring and biamping (I used jumpers). The Viginti is well constructed and looks mighty attractive.

### Listening

The first few minutes with any new speaker are fairly scary: I've committed to the review. I've used floor jacks to raise my huge reference speakers, the Wilson Audio Alexxes, then replaced their spikes with casters and rolled them out of the way. Now, for the next few months—*months*—I'm going to have to live with these new speakers.

The relationship doesn't always work out. Sometimes there's a personality conflict—I don't like the sound. Sometimes, the speakers just don't work in my room.

The EgglestonWorks Viginti's webpage says: "no lack of authoritative, effortless and pitch-perfect bass." They're not kidding. The first record I played made it clear that the bass went very deep *and* was tight—but not *too* tight, because then it wouldn't match what's above. Still, it took a while to get used to the differences between the Alexx's and Viginti's reproductions of the bottom end.

While I always have to let my ears and brain adjust to the new, after a few days it was clear that moving the Vigintis a bit farther from the front wall might be worth trying. A friend and I moved them *slightly* forward. That did the trick.

With the speakers driven by my reference darTZeel NHB-458 monoblocks, the Viginti's bottom-end sound was sprung somewhat looser than the Alexx's, which gave it a richer, more visceral, more tactile bottom—an area in which the Alexx itself is not exactly shy. But it was way looser in the lower midbass, where it still sounded somewhat bloomy, even after we'd inched it forward.

One evening, I played my original UK pressing of the Who's *Tommy*. In this case, "original" means Track Records 613 013 with a flat label (later Track pressings had a raised rim under the label), with a bright blue, laminated album jacket. I bought this copy 49 years ago, in spring 1969, and have been playing it ever since—you can be sure that for those first few years I played it incessantly. I saw the Who perform *Tommy* twice in concert: at the Boston Tea Party in fall 1969, in front of a few hundred people (the band wasn't all that popular at that point), and again in winter 1970, at Boston's Commonwealth Armory, from a seat in the front row. But this night I wanted to hear *Tommy*, and how the

## ASSOCIATED EQUIPMENT

**Analog Sources** Continuum Audio Labs Caliburn turntable & Castellon stand; Kuzma 4Point 9", Swedish Analog Technologies tonearms; Lyra Atlas, Atlas SL, Atlas SL mono, Etna, Etna SL cartridges; Miyajima Laboratory Zero (mono) & Madake, Ortofon Anna & A95 cartridges.

**Digital Sources** dCS Rossini CD player; Lynx Hilo A/D-D/A converter; Meridian Sooloos Digital Media System; Pure Vinyl, Vinyl Studio software.

**Preamplification** Ypsilon MC-10L & MC-16L step-up transformers; CH Precision P1 (with X1 power supply), Ypsilon VPS-100 phono preamplifiers.

**Power Amplifiers** darTZeel NHB-458, Simaudio Moon 888 (both monoblocks).

**Cables** Interconnect: Chord Company Sarum T (S/PDIF), Stealth Indra & Sakra, TARA Labs Air Evolution & Zero & Zero Evolution, Teresonic Clarison Gold, Wireworld Platinum Eclipse. Speaker: TARA Labs Omega EvolutionSP, Wireworld Platinum Eclipse 7. AC: AudioQuest Dragon, Dynamic Design Heritage AE15 Digital.

**Accessories** AudioQuest Niagara 7000 power conditioners; Oyaide AC wall box & receptacles; ASC Tube Traps; RPG BAD, Skyline, Abffusor panels; Stillpoints Aperture Room panels; Synergistic Research UEF products (various); Symposium Ultra platform; HRS Signature SXR, Stillpoints ESS stands; Finite Elemente Pagode amp stands; Audiodharma Cable Cooker; Furutech record demagnetizer & deStat; Audiodesksysteme Gläss Pro, Loricraft PRC4 Deluxe record-cleaning machines. —Michael Fremer

Vigintis might deliver whatever of Keith Moon's drums and John Entwistle's bass were left on my well-worn, half-century-old LPs.

I cranked up *Tommy*, expecting to like the IBC studio drum sound as I always have. But, texturally and *physically*, this was probably the best I'd ever heard Moon's drums—elastic, well textured, gut-punching. His tom fills were so slammin'ly perfect and believable that the only thing to do was to turn up the volume until it was at the level of *live* drums. Moon's cymbal splashes shimmered and rang convincingly—they don't on any of the many digital versions of *Tommy* I own—and the attacks of Townshend's strummed acoustic guitar and the following sustains were as perfectly natural, satisfying, and physically impactful as I've ever heard them.

I knew it was coming, as it has a hundred or more times, but this time when Townshend let loose with "Captain Walker didn't come home, his unborn child will never know him," it startled me enough to make me jump and start my adrenalin flowing. Yet his voice wasn't harsh or bright. It was just sounded more spectacularly transparent and real than I'd ever heard it. Which was why I jumped. That 49-year-old LP's top end was entirely intact. It had never sounded as round and three-dimensional as it did that night through the Vigintis. I played all four sides of *Tommy* and went to bed with a smile on my face, 100% satisfied and transported.

That experience made me a believer in two things: 1) Records properly cared for and properly played do not wear out, even after a hundred or more plays; and 2) The EgglestonWorks Viginti may be *the* most enjoyable, most-fun-to-listen-to full-range speaker I have ever reviewed.

I ended up *loving* the Viginti's unabashed bottom-end





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swagger and out-of-the-box slam and drive, even as I conceded that part of what I liked may have been some lower-midbass bloom that probably wasn't strictly "accurate." But you know what? If you sit down, listen, and the best you can do is scratch your chin and say, "Hmmm. This is damn . . . accurate," then you're not having too good a time. But when you say, "Wow! Crank it up and *take me somewhere!*," you're having fun. This hobby is about fun.

Yes—in my room, at least, there's still a bit of a lower-midbass bump, but even after switching to the Simaudio Moon 888 monoblocks (review in the works), I heard it only with some recordings that probably have an excess in that region to begin with—and it may still have been room-related anyway.

If the Viginti could effectively deliver singer Johnny Hartman's baritone from his *Once in Every Life* without sounding congested (LP, Bee Hive/Analogue Productions AAPJ-105)—



The earlier Andra models didn't have an MTM upper-frequency array and used a single large woofer.

an album I've been playing since 1981, when the original edition was released—

it would pass the test. It did. What's more, Joe Wilder's horn in "Easy Living" has never sounded less like a trumpet and more like the flugelhorn it actually is.

The Viginti's response from above that lower-midbass bump to the very top of the audioband was liquid-smooth. The midrange was precisely as Wayne Prather advertised: "the 'Transmission Line' midrange porting design

delivers midrange detail and purity."

Out of the blue, someone sent me two new XRCD24 releases, one of which was cellist Jacqueline Du Pré performing Dvorák's Cello Concerto with her husband, Daniel Barenboim, conducting the Chicago Symphony Orchestra (Associated Recordings Company AR-CXRCD806). I have the same performance on a 1989 reissue (3 CDs, EMI) and wanted to hear any differences.

I began with the XRCD. The sound of Du Pré's cello was so texturally and tonally enticing, the orchestra so lush and compelling, that I lost interest in comparisons and played the disc all the way through.

But when I did compare the new XRCD with the 1989 EMI, the Viginti did not disappoint! The strings on the EMI set were as thin, metallic, and wiry as I'd remembered, and when things got loud, I wanted to leave the room. It was good to hear that the Eggleston Works didn't "lush over" or homogenize the differences in the midrange.

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Jonathan Valin, *The Absolute Sound*, 12/2015.



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I then spent another evening in the digital domain, this time with both 16-bit/44.1kHz and high-resolution files playing both fine and awful recordings of music I like. Again, though with great recordings the Vigintis delivered pleasing smoothness and artifact-free liquidity, when the recordings got rough, so did the speakers.

Those who think that all metal-dome tweeters sound bright and/or hard should spend some time listening to the Viginti's smooth, sweet, yet airy sound. They'll eat their words.

### Nothing's Perfect

For all the EgglestonWorks Viginti's supple, full-range strengths, unquestionable long-term listenability, musical generosity, and ability to produce slam-bang dynamic swings, it won't satisfy everyone.

The speaker's overall tonal balance was on the warm side. Its bass tuning produced a skosh more boom that might be too much for those who prefer lean, tight bass. Nor was the Viginti the last word in top-end air or retrieval of detail. Its reproduction of transients was ever so slightly smoothed over—if you like really sharp, fast transients and are willing to put up with really bad recordings to get everything out of the few great ones, you might not be satisfied.

If you like pinpoint, finely rendered images on vast, three-dimensional stages, the Vigintis give you some but not all of that. I'm spoiled by what the Wilson Alexxes do in those regards—in my experience, no flat-baffled speaker has ever managed it.

Early on, I occasionally heard an upper-midrange coloration that may or may not have been related to the quasi-transmission-line output that emanates from the back of the Viginti. It's also possible that this will be a nonissue in

rooms in which the Vigintis aren't placed so close to the side and front walls. But those are my only criticisms of the Viginti, and I had to go looking for them.

### Conclusions

I didn't ask, nor was I told, the price of the EgglestonWorks Viginti, and I deliberately kept

myself ignorant of it for almost all of my listening—but I figured it was high. After all, the Viginti is almost a true full-range loudspeaker—I'd be surprised if its response in my room was anything less than 25Hz–20kHz. (EgglestonWorks claims "usable output" of 20Hz–40kHz.) Finally, just before I asked, I guessed: \$60,000/pair?

Nope. A pair of Vigintis costs \$38,995. In the world of high-performance audio, that price is ridiculously low for what you get. The Viginti has been thoughtfully and methodically designed, and is beautifully built of high-quality components. It produced a hypnotically lush yet honest mid-range, and despite its generally warm overall balance, it was equally satisfying playing the Ramones from CD, The Clash from original vinyl, a new vinyl reissue of Cocteau Twins' *Head Over Heels* (4AD/Beggars Banquet CAD 3709, after which I played the original all the way through to compare), a mono edition of Bob Dylan's lumpiest record, *John Wesley Harding*, male and female jazz singers, and, of course orchestral music.

Every time I thought of a recording or musical genre that might not work well with the Viginti, it surprised me. I thought its slightly soft transients would make Julian Bream's lute recordings sound too soft, but damned if I didn't sit through every note of the Julian Bream Consort's *An Evening of Elizabethan Music* (RCA Victor Soria LDS-2655) and enjoy every pluck.

Of all the speakers I've reviewed, few, if any, have come close to matching the Viginti's long-term listenability. It is both a relaxing speaker and an exciting one—it lets me lie back and just enjoy the music, and engages me fully when that's appropriate. I guess you could say I like the EgglestonWorks Viginti. ■

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LARRY GREENHILL

# Bryston BP-17<sup>3</sup>

## LINE PREAMPLIFIER

**E**ach equipment report in *Stereophile* focuses on a single audio component. When listening to a component for review, I leave unchanged all other components in my audio system. Other *Stereophile* reviewers experiment with different interconnects, speaker cables, power cords, or stands. As I found while reviewing Bryston's BP-17<sup>3</sup> (Cubed) preamplifier, being flexible has its rewards.

### Description

My first lesson in flexibility was learning what Bryston means by "Cubed."<sup>1</sup> Jim Tanner, Bryston's VP of sales and marketing, explained that all their Cubed models employ an array of 12 active devices for the first 6dB of gain. Developed by the late Dr. Ioan Alexandru Salomie, this array acts as "a super-linear" input buffer to filter out audio- and radio-frequency noise, particularly anomalies that originate in the power line, reducing the overall noise and distortion to less than 0.001%.

The BP-17<sup>3</sup>'s base price of \$3995 positions it between two other line-level preamps from Bryston: the entry-level BP-6 (\$3295) and the flagship BP-26 with MPS-2 power supply (\$5390). The BP-17<sup>3</sup> is 2.30" taller and 2" deeper than the two-chassis BP-26, and improves on the original BP-17 with an extra pair each of XLR and RCA outputs.

The BP-17<sup>3</sup> is entirely solid-state. It has seven inputs—five



single-ended (RCA), two balanced (XLR)—as well as balanced and single-ended outputs. There are pushbuttons on its front panel for selecting inputs, Power, Mute, Bypass, Record, and Balance. Also on the front panel are an IR receiver, a headphone output jack, and a large volume knob.

<sup>1</sup> In Bryston's model nomenclature, the product's model number (eg, 4B) remains the same over the product's lifespan (the original 4B came out in 1978), but each new version gets a new modifier (eg, 4BST, 4B<sup>2</sup>, 4B<sup>3</sup>). Bryston's vice-president of marketing, James Tanner, explained: "Things began with 'NRB,' which we started using when we introduced a new series of amplifiers. The shipper wanted to make sure he did not mix up the older stock with the newer, so he wrote 'NRB' on the new retail boxes and 'NPB' on the new pro boxes. The next batch of amplifiers was named for designer Stuart Taylor ('ST'). This later became 'SST' (Super Stuart Taylor). SST was shortened to 'squared,' so the 4B amplifier was renamed the '4B<sup>2</sup>.' The naming of our latest group of products, with the Salomie input circuit, used 'Cubed' as a natural progression. What's next? 'Quattro!'"

## SPECIFICATIONS

**Description** Solid-state stereo preamplifier with remote control & headphone amplifier. Inputs: 4 single-ended (RCA), 1 single-ended Record (RCA), 2 balanced (XLR). Input impedance: 6.5k ohms (RCA), 4.5k ohms (XLR, inverting and non-inverting). Outputs: 1 single-ended variable (RCA), 1 single-ended fixed (RCA), 2 pairs balanced (XLR), 1 headphone (1/4", 6.35mm TRS). Control

connectors: female DB9 for full two-way RS-232 (RJ12) suite; two 3.5mm mono (TS) miniplug DC triggers (12V); one auxiliary IR input with external IR receiver terminated with 3.5mm plug. Output impedance: not specified. Maximum output level: not specified. Line-stage gain: variable, RCA/XLR, 12/18dB; fixed, RCA in/out, 0dB; fixed, XLR in/out, 6dB. Frequency response: 20Hz–20kHz,  $\pm 0.05$ dB.

THD+N (20Hz–20kHz, 1V RMS for XLR): <0.0025%. IMD (60Hz, 7kHz in 4:1 ratio): <0.0003%. Signal/noise: >102dB (RCA), >108dB (XLR). Power consumption: 2W standby, 32W idle, 32W full power. **Dimensions** 17" (430mm) or 19" (483mm) W by 4.55" (116mm) H by 13" (330mm) D. Weight: 11 lbs (5kg). **Finishes** Black, Silver. **Serial number of unit reviewed** 000042.

**Prices** \$3995; BR2 remote control, \$375; MM and DAC modules, \$750 each; TF-2 step-up transformer, \$1500. Approximate number of dealers: 295. Warranty: 20 years, analog circuits & components; 5 years, digital components. **Manufacturer** Bryston Limited, 677 Neal Drive, Peterborough, Ontario K9J 6X7, Canada. Tel: (705) 742-5325. Web: [www.bryston.com](http://www.bryston.com).

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design tenets. While other expensive speakers are seemingly "redesigned" every couple of years to turn new sales, the Seven has been in production continually since 2009 and updated just once. Model Seven owners can upgrade to Mk II status so **our best customers aren't left behind**. The Seven's legacy of Best of Show awards over the years is legend, and the Mk II earned four such designations in its first year. Yes, a super speaker in every sense of the word, designed and built to last.

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that leads to the inevitable feeling audiophiles experience called "upgrade-itis." Yes, moving up the Vandersteen line always offers more performance and ever greater musical pleasure, as will any other true upgrade to your system. But owning Vandersteens and upgrading **because you love the way your music sounds** is so much better than swapping out your gear because you *can't stand* the way your music sounds.

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The rear panel is divided into four sections: Outputs, containing two balanced XLRs—optionally, one of these can be configured as fixed-output, for use with Bryston's BHA-1 or any other balanced-input headphone amplifier—a fixed-level RCA, and variable preamplifier; Inputs, comprising two pairs of balanced XLRs, five pairs of single-ended RCAs that, with the optional modules, can be used as analog or digital inputs, Control, which includes two trigger outputs, an auxiliary IR input jack, and an RS-232 jack; and an IEC inlet for the detachable power cord. Centered at the top of the rear panel is a knurled grounding post for a turntable.

The BP-17<sup>3</sup>'s motherboard takes up the entire width and half the depth of the interior, though its front half is unoccupied save for a beefy toroidal power transformer and the power-supply components, to isolate them from the audio circuits on the rear panel. Along the inside of the rear panel, several vertical daughterboards are plugged into the motherboard to handle input and output functions. The components of these wave-soldered printed-circuit boards are surface-mounted and labeled.

The BP-17<sup>3</sup> can be operated using Bryston's BR2 universal remote-control handset, which costs an additional \$375. It has 34 pushbuttons in eight rows and worked beautifully, controlling all functions available from the front panel and more, including phase and unity bypass for home-theater mode.

Like the remote, many of the BP-17<sup>3</sup>'s desirable features are available only à la carte. The bad news is that this makes the base price deceptively low; the good news is that you can custom-design a BP-17<sup>3</sup> to have only the features you actually want, without paying for those you don't. Modules for an internal D/A converter or moving-magnet phono stage cost \$750 each. The digital D/A module adds four digital inputs; the phono module works *only* for MM cartridges.<sup>2</sup>

## Setup

Installation was simple. I placed the BP-17<sup>3</sup> atop my Salamander Designs Synergy S-40 Open Rack system, used its XLR jacks to make balanced connections from my Bryston BDA-3 DAC and to the Constellation Stereo 1.0 power amplifier, and its RCA jacks for connections from my Day-Sequerra 25th Anniversary FM Reference tuner and Sutherland Engineering Vibe phono preamplifier. I kept track of the numbers of the input jacks on the rear panel, as these match the labels under the corresponding buttons on the front panel. I plugged one end of the BP-17<sup>3</sup>'s power cord into its rear-panel inlet, and the other into my Torus Power RM40 line conditioner. I initially connected the ground lead of my Linn LP12 turntable to the ground post on the Bryston, but detached it when it produced lots of hum. I used no decoupling feet, isolation platforms, or other accessories.

My digital sources were Bryston's BDP-3 media player and BCD-1 CD player; all digital-to-analog conversions were done by the above-mentioned Bryston BDA-3. Bryston's detailed, well-written manual doesn't state that the BP-17<sup>3</sup> needs any warm-up or burn-in; sure enough, I heard no change in its sound quality during the time it spent in my system.

My Revel Ultima Salon2 loudspeakers were placed to each side of my equipment rack, 2.3' from the front wall, 6' apart (measured from the speakers' tweeters), and 6' from my listening chair. This produced optimal imaging and soundstaging—in short, most of my listening to the BP-17<sup>3</sup> was done in the nearfield.

<sup>2</sup> Following this review, I sent the review sample of the BP-17<sup>3</sup> back to Bryston to have the optional DAC and phono modules installed. Watch for a Follow-Up.

## MEASUREMENTS

I measured the Bryston BP-17<sup>3</sup>'s performance with my Audio Precision SYS2722 system (see the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>). The maximum gain for both the balanced and unbalanced inputs to the balanced outputs, and from the headphone output, was 17.5dB. The maximum gain from unbalanced input to unbalanced output was 11.6dB; ie, an input of 1V results in an output of 3.785V.

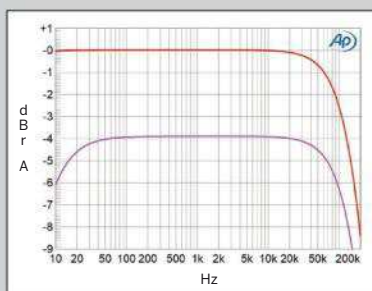
The BP-17<sup>3</sup>'s input impedance from 20Hz to 20kHz was 6800 ohms unbalanced and 10k ohms balanced, both impedances very slightly higher than specified. The preamplifier preserved absolute polarity (ie, was non-inverting) with both balanced and unbalanced inputs and from all outputs. Its XLR jacks are wired with pin 2 hot, the AES convention. The preamplifier's unbalanced output impedance was a relatively low 690 ohms from 20Hz to 20kHz; unusually, the balanced impedance was lower, at 340 ohms at

1kHz and 20kHz, and slightly higher at 20Hz, at 420 ohms. The headphone output impedance was a little on the high side for use with lower-impedance headphones, at 72 ohms.

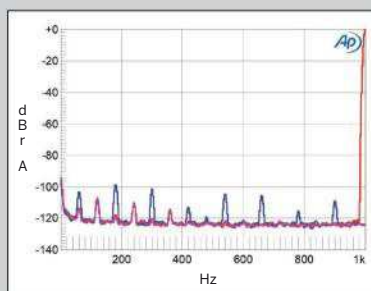
My measurements confirmed the BP-17<sup>3</sup>'s frequency-response specification of 20Hz–20kHz,  $\pm 0.05$ dB. In both balanced (fig.1, blue and red traces) and unbalanced modes with its volume control set to its maximum, the output

was down by just 0.05dB at 20kHz, and was –3dB at just over 100kHz. The BP-17<sup>3</sup>'s superb channel matching was preserved into lower impedances (fig.1, cyan and magenta traces) and at lower settings of the volume control. This control had a rather aggressive action, its 12:00 position reducing the gain by 32dB from its maximum!

The channel separation was superb below 2kHz, at >108dB in both direc-



**Fig.1** Bryston BP-17<sup>3</sup>, balanced frequency response with volume control set to maximum at 1V, into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta) (1dB/vertical div.).



**Fig.2** Bryston BP-17<sup>3</sup>, balanced spectrum of 1kHz sinewave, DC-1kHz, at: 2V (left channel blue, right red), 0V into 100k ohms (left cyan, right magenta) (linear frequency scale).

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## Listening

As always, the first thing I listened to was Stevie Nicks's smoky rendition of "Silver Springs," from Fleetwood Mac's *The Dance* (CD, Reprise 46702-2). Immediately, I knew something was wrong. Nicks's voice sounded etched and edgy, with more midrange presence than I know it should have. Cymbals and guitar overpowered John McVie's bass line and Mick Fleetwood's kick drum. Gone was the addictive tonal balance I'd heard through the pairing of Constellation Inspiration amp and Bryston BP-26/MPS-2 preamp. Instead, the upper midrange and lower treble dominated the rest of the audioband.

So I switched from the Constellation Stereo 1.0 to a Mark Levinson No.534 (\$20,000), which had just arrived for review. To my delight, the new amp produced a more neutral tonal balance, along with transparency, clear highs, and bold dynamic contrasts. The midbass and midrange were smooth and grainless and, most important, didn't overpower the bass.

The bass response of the BP-173–No.534 pairing was unusually strong and extended. The full weight of pedal chords captured on good recordings of pipe organ pressurized my listening room. John Rutter's *A Gaelic Blessing*, with Timothy Seelig conducting the Turtle Creek Chorale and the



Dallas Women's Chorus (CD, Reference RR-57CD), delivered the leaden density of the organ's lowest notes while separating the various ranks of choristers. The deep synthesizer notes in "Silk Road," from I Ching's *Of the Marsh and the Moon* (CD, Chesky WO144), had impressive weight and solidity. Daniel Rossi's sustained organ-pedal chords in the second movement (*Poco adagio*) of Saint-Saëns's Symphony 3, "Organ," with Antonio Pappano

conducting the Orchestra of the National Academy of St. Cecilia (CD, Warner Classics 0190295755553), were appropriately powerful.

The Bryston preamp also favored percussion recordings, such as Mark Walker's drum solo in "Nardis," from Patricia Barber's *Café Blue* (SACD/CD, Premonition/Blue Note/Mobile Fidelity Sound Lab UDSACD 2002): It teased Michael Arnpol's double-bass notes apart from the drum kit's cymbals, kick drum, tom-tom heads, and rims. It also fully reproduced the impact of the frenzied bass-drum strokes that conclude Shostakovich's Symphony 5, in the recording by the Pittsburgh Symphony Orchestra led by Manfred Honeck (24-bit/96kHz WAV, Reference Fresh! FR-724).<sup>3</sup>

<sup>3</sup> I'm not alone in loving this live recording, which in 2018 won Grammys for Best Orchestral Performance, Classical, and Best Engineered Album, Classical.

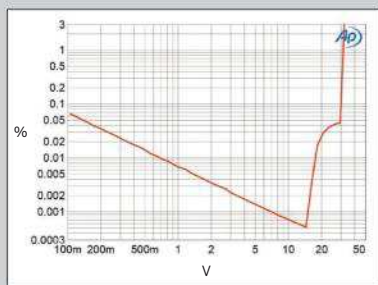
## measurements, continued

tions, decreasing to a still very good 80dB at 20kHz. The BP-173 is a very quiet preamplifier: the audioband signal/noise ratio ref. 1V output, measured with the input shorted to ground but the volume control set to its maximum, was 89.7dB (average of both channels). Switching an A-weighting filter into circuit slightly improved this ratio, to 92dB. Spectral analysis of the Bryston's low-frequency noise floor indicated some spurious at 60Hz and its odd-order harmonics in the left channel (fig.2, blue trace), though these are all at or below -99dB (0.001%) and won't be audible.

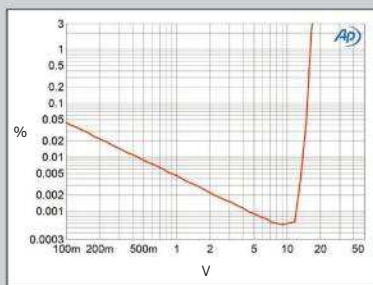
Fig.3 plots the percentage of THD+noise in the Bryston's balanced output into 100k ohms. The THD+N rises below 15V output due to the fixed level of noise becoming an increasing percentage of the signal level. The actual distortion doesn't rise above the noise floor until the output reaches 15V, when it is just 0.0005%, but rises rapidly above that level. This is of no relevance in actual use, as 15V is way more than needed to drive any power amplifier completely into clipping. When I reduced the load impedance to the current-hungry 600 ohms (fig.4), the BP-173 still delivered >15V at clip-

ping (ie, when the THD+N reaches 1%). The distortion was a little higher for unbalanced input to unbalanced output: the BP-173 clipped at >15V into 100k ohms, and at a still-high 7V into 600 ohms.

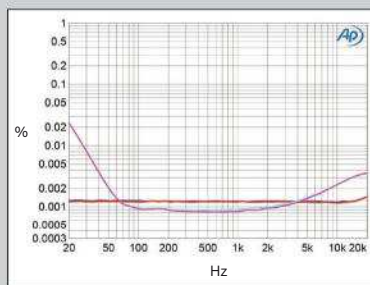
I measured how the BP-173's distortion changed with frequency at a very high level, to be sure that the reading was not dominated by noise. It remained consistently low throughout the audioband into the high 100k ohm load (fig.5, blue and red traces), and was even lower into 600 ohms (cyan, magenta), though it rose slightly at the frequency extremes. At the same high



**Fig.3** Bryston BP-173, balanced distortion (%) vs 1kHz output voltage into 100k ohms.



**Fig.4** Bryston BP-173, balanced distortion (%) vs 1kHz output voltage into 600 ohms.



**Fig.5** Bryston BP-173, balanced THD+N (%) vs frequency at 10V into: 100k ohms (left channel blue, right red), 600 ohms (left cyan, right magenta).

It also captured the ambience of the recording venue, Pittsburgh's Heinz Hall for the Performing Arts, including the sounds of the performers catching their breaths between notes in the first movement, *Moderato – Allegro non troppo*, making the music all the more realistic and compelling. The BP-17<sup>3</sup> easily resolved the differences in timbre between clarinet, bassoon, and contrabassoon as they played above the tremolo of the violins.<sup>4</sup>

Subtle distinctions of vocal timbres were revealed when I played Eriks Ešēnvalds's *The Doors of Heaven*, with the Portland State Chamber Choir directed by Ethan Sperry (24/88 WAV file from CD, Naxos 8.579008), a recording engineered by John Atkinson that's so good I chose it as one of my "Records to Die For" for 2018.<sup>5</sup> As I listened to *The First Tears*, the Portland singers were clearly positioned on a wide soundstage, echoing each other as they sang Ešēnvalds's setting of an Inuit tale of Raven. The voice of each of the three male vocalists had a distinct vocal timbre, and emanated from a position on the soundstage distinctly different from the other two. Similarly, Harry Connick, Jr.'s voice in "Don't Get Around Much Anymore," from the *When Harry Met Sally...* soundtrack (CD, Columbia CK 45319), was smooth and pure, without sounding tubby or nasal.

The BP-17<sup>3</sup>'s extended, transparent upper register captured the shimmering cymbal sounds that begin "The Mooche," from *Rendezvous: Jerome Harris Quintet Plays Jazz* (CD, Stereophile STH013-2); made it possible for me to distinguish the delicate harp and celesta notes from the massed strings and percussion in the third movement of the Shostakovich symphony mentioned earlier; and created a compelling illusion of a waterfall spilling into a pool in the

4 Honeck's superb liner note describes how Shostakovich, fearful of being imprisoned in a Siberian labor camp by Stalin, scored a passage in the third movement, Largo, with "a clarinet, bassoon, and contrabassoon [to play] an emotional song of lament, as if somebody is completely lost in the most deserted, cold ice and left to mourn his own fate."

5 See the February 2018 issue: [www.stereophile.com/content/records-die-2018-page-4](http://www.stereophile.com/content/records-die-2018-page-4).

## ASSOCIATED EQUIPMENT

**Analog Sources** Linn Sondek LP12 turntable with Lingo power supply, Linn Ittok tonearm, Spectral MC cartridge; Day-Sequerra 25th Anniversary FM Reference, McIntosh Laboratory MR-78, Sony XDR-F2HD FM/AM tuners.

**Digital Sources** Bryston BCD-1 CD player & BDP-3 media player (IAD soundboard) & BDA-3 DAC; Oppo digital BPD-103 universal BD player; Lenovo P50 ThinkPad computer running Windows 10 Pro (64-bit), Bryston Windows USB driver, JRiver Media Center 23, Roon Core V1.4 (build 300).

**Preamplification** Sutherland Engineering KC Vibe phono stage & Vibe head amplifier; Bryston BP-26, Mark Levinson ML-7 (with optional phono boards),

**Power Amplifiers** Constellation Audio Inspiration Stereo 1.0, Mark Levinson No.334 & No.534.

**Loudspeakers** Quad ESL-989, Revel Ultima Salon2.

**Cables** Digital: Wireworld Starlight coaxial. Interconnect: Bryston (balanced), Mark Levinson Silver, Pure Silver Cable (balanced), Red Rose Silver One, Totem Acoustic Sinew (single-ended). Speaker: Coincident Speaker Technology CST 1, Pure Silver Cable R50 (biwire double ribbon), QED X-Tube 400, Ultralink Excelsior 6N OFJC. AC: manufacturers' own.

**Accessories** JL Audio CR-1 electronic crossover; Apple iPhone 6 with Studio Six iTestMic & Audio Analyzer App, v.10.7.11; Apple iPad; Torus Power RM 20 power conditioner; Salamander Designs Synergy System Twin-width S40 Rack.

**Listening Room** 13' L by 11.5' W by 8' H with flat ceiling, sparsely furnished with IKEA area rug & overstuffed chair; 6' by 2.5' by 7' alcove in rear wall filled with desk and books; windows in front wall covered with closed blinds; rear of room opens to upstairs hall through 7' by 4' doorway. —Larry Greenhill

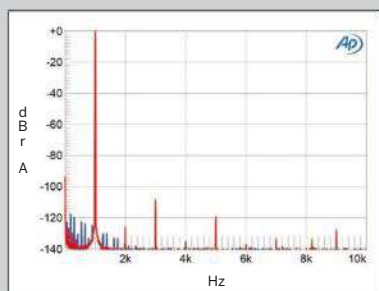
## measurements, continued

output level into 600 ohms, the spectrum of the distortion comprised the third and fifth harmonics (fig.6), but these are very low in level, at a respective -110 and -120dB. At the same level into 100k ohms, these harmonics were at the residual level in the generator's

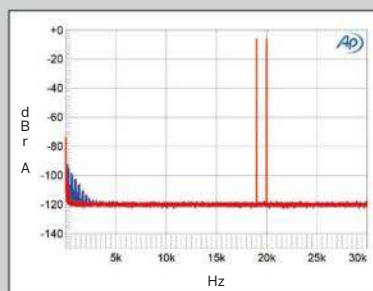
output. Intermodulation distortion at a typical level at which the preamplifier will be used was unmeasurable (fig.7), though the power-supply harmonics in the left channel can be seen. Even at a peak signal level of 10V into 600 ohms (fig.8), the second-order differ-

ence product at 1kHz lay at just -112dB (0.00025%)!

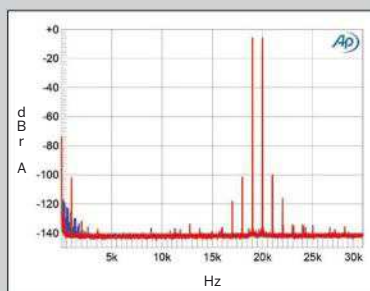
The Bryston BP-17<sup>3</sup>'s measurements indicate that it is superbly well engineered. It is difficult to see how a preamplifier could perform any better on the test bench! —John Atkinson



**Fig.6** Bryston BP-17<sup>3</sup>, balanced spectrum of 1kHz sine wave, DC-1kHz, at 10V into 600 ohms (left channel blue, right red; linear frequency scale).



**Fig.7** Bryston BP-17<sup>3</sup>, balanced HF intermodulation spectrum, DC-30kHz, 19+20kHz at 1V into 100k ohms (left channel blue, right red; linear frequency scale).



**Fig.8** Bryston BP-17<sup>3</sup>, balanced HF intermodulation spectrum, DC-30kHz, 19+20kHz at 10V into 600 ohms (left channel blue, right red; linear frequency scale).



opening of “Running Water,” from the I Ching album.

### Comparisons

I matched the levels of the BP-17<sup>3</sup>, Bryston’s own BP-26 with MPS-2 power supply (\$5390), and the Mark Levinson ML-7 (\$4400 when new, *ca* 1984), all driving the Mark Levinson No.534 power amp. I also consulted the notes I took last year while listening to the Mark Levinson No.526 preamplifier.<sup>6</sup> That ultra-expensive (\$20,000) preamp has built-in DAC and MM/MC phono sections.

While all of these preamps have controls for volume, balance, source selection, and mute, only the ML-7 and BP-26/MPS-2 have toggle switches for Mono/Stereo, High/Low Gain, and Polarity/Invert. The ML-7 has no balanced inputs or outputs, and uses only CAMAC connectors, which require adapters for RCA plugs. Only the BP-17<sup>3</sup> and No.526 can be fully operated with a remote-control handset.

To listen to LPs, I used my Sutherland Engineering Vibe phono preamplifier (\$895), though the ML-7<sup>7</sup> and BP-26 have optional MC phono modules. BP-17<sup>3</sup> owners who use only MC cartridges will need to buy MM module (\$750) and TF-2 step-up transformer (\$1500) to listen to their LPs.

With some CDs, SACDs, and digital files, the BP-17<sup>3</sup>’s dynamics, punchy bass, slam, and soundstage depth matched those of the Mark Levinson ML-7 and the Bryston BP-26 and what had noted about the Mark Levinson No.526. However, neither the Bryston preamps or the ML-7 consistently bettered the No.526’s clarity, air, transparency, transient response, and freedom from midrange grain. Of course, the No.526 costs almost four times as much as a fully optioned BP-17<sup>3</sup>.

### Conclusions

Until now, I’d never changed reference components during a review. I’ve been missing out. Finding the combination of Bryston’s BP-17<sup>3</sup> and the Mark Levinson No.534 power amp was a stroke of serendipity that let me enjoy sound quality almost as good as ML’s No.526 with some recordings at a fraction of its cost. Indeed, the BP-17<sup>3</sup> costs less than any solid-state preamp listed in Class A of the April 2018 edition of “Recommended Components.”

Among new, high-value, line-level preamplifiers, the BP-17<sup>3</sup> is a welcome find. Driving the ML No.534, it produced engaging, detailed, tonally captivating, utterly natural sound that approached reference quality. Its deep bass extension, dynamic range, soundstaging, and speed were so good that I forgot about the review sample’s lack of a phono or digital inputs, the absence of Internet connectivity for firmware updates, and the omission from its standard kit of Bryston’s BR2 remote control. Matched with a top-quality, compatible power amplifier, the BP-17<sup>3</sup> is the bargain preamplifier to beat—but before buying, be sure to audition it with a variety of power amps. Strongly recommended. ■

6 See my review of the Mark Levinson No.526 in the May 2017 issue: [www.stereophile.com/content/mark-levinson-no526-preamplifier](http://www.stereophile.com/content/mark-levinson-no526-preamplifier).

7 In 1984, Mark Levinson supplied each ML-7 preamplifier with a pair of L-2 phono boards, for MM and MC cartridges with outputs of >0.3mV. The L-2 boards had microswitches for changing the gain (38 or 44dB), and switchable input impedance (825 or 50k ohms). Also available were user-installable MC phono boards: the L-3A board, with 53dB gain for medium-output (0.2–0.3mV) MCs; and the L-3 board, with 66dB gain for low-output (0.1–0.2mV) MCs. Both MC boards had a fixed input impedance of 825 ohms. My ML-7 has L-2 and L-3A boards.






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HERB REICHERT

# Rogers High Fidelity 65V-1

## INTEGRATED AMPLIFIER



“Okay, all you high-rolling audiophile know-it-alls—what is the argument against amplifiers that operate in high-bias, class-A, single-ended mode, with the lowest possible parts count? Is there a better strategy for beauty, rhythm, color, texture, and easy-flowing musical verity? I think not. And please explain: Why has mainstream audio gone to such ridiculous and expensive lengths to avoid building and selling precisely these sorts of amps?”

It was I, your humble prattler, who in October 2016 posed that rhetorical question, in my review<sup>1</sup> of the First Watt J2, a 25Wpc power amplifier designed by Nelson Pass.

Now I'm reporting on another class-A, single-ended amplifier, this one *really* low-powered. The 65V-1 integrated amplifier (\$4000) uses EL34 or KT88 pentode tubes—at the time of purchase, the user specifies his or her preference—and is made by mainstream manufacturer Rogers High Fidelity, in Warwick, New York. Rogers's president

and chief designer, Roger Gibboni, has obviously gone to extreme lengths to create a unique-looking integrated amplifier with an old-school finish of black crinkle paint, a tiny purple display, and an entirely new-school iOS control app for iPads that, among other things, uses Bluetooth connectivity to display the 65V-1's power output on a virtual VU meter on the iPad's screen.

That VU meter is an interesting feature. Rogers forgoes conventional power specifications (eg, by watts into 8 ohms) to specify the 65V-1's power output in an unusual way “THD less than 0.5% at 1 Watt, less than 3% at 10 Watt output, 25 Watts peak.”<sup>2</sup>

In the 65V-1's manual, Rogers emphasizes the importance of this iPad VU meter, which samples the power output of both channels, then displays the continuous average

1 See [www.stereophile.com/content/first-watt-j2-power-amplifier](http://www.stereophile.com/content/first-watt-j2-power-amplifier).

2 See [www.rogershighfidelity.com/portfolio-type/rogers-65v-1](http://www.rogershighfidelity.com/portfolio-type/rogers-65v-1).

### SPECIFICATIONS

**Description** Single-ended, tubed, stereo integrated amplifier with switchable triode/Ultralinear output-stage operation. Tube complement: two EF86, two EL34 or KT88. Line-level inputs: 4 unbalanced (RCA).

Outputs: gold-plated, solid copper binding posts. Power output (defined in terms of THD): 1W into 8 ohms at <0.5% THD, 10W at <3% THD, 25W peak. Frequency response: 20Hz–20kHz, ±0.1dB.

**Dimensions** 17" (430mm) W by 7.5" (190mm) H by 12" (305mm) D. Weight: 24 lbs (10.9kg).

**Finish** Black powdercoat.

**Serial number of unit reviewed** 65015.090517.

**Price** \$4000. Approximate

number of dealers: 30. Warranty: Life, transferable. **Manufacturer** Rogers High Fidelity, 28 Church Street, Warwick, NY 10990. Tel: (845) 987-7744. Web: [www.rogershighfidelity.com](http://www.rogershighfidelity.com).

# infin<sup>8</sup>possibilities

## INTRODUCING **SERIES 8**

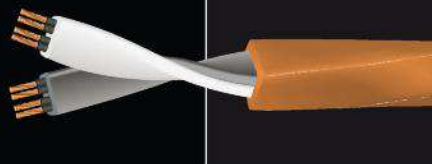


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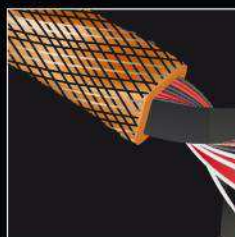
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power. (It is calibrated in watts, from 0 to 25.) They advise the user to study its readings and learn to recognize the sound of amplifier clipping, beginning by “increasing the gain control until saturation is heard in the speakers. The first indication of this distortion is powerful low frequencies overpowering higher frequencies. Note the relative indication of this point on the meter and operate the amplifier approximately 20% below this level.” I no longer own an iPad, but I easily accomplished this task without the meter: I turned down the volume whenever I heard smearing, hardening, squeezing, or congestion.

*Stereophile* defines clipping as the power in watts at 1% THD+noise. By that measure, and judging by the 26 pages of Audio Precision test results included with every 65V-1, my review sample clipped at 3W. But speaking anecdotally, I’d call it a 10Wpc Ultralinear amp and a 3Wpc triode amp—the user selects between these two modes of operation—that handles loud transients pretty well. In Ultralinear mode, the screen grid of a tetrode or pentode power tube is connected to a tap on the primary windings of the amp’s output transformer—and so a portion of the signal that appears on the tube’s plate also appears on that screen grid, providing a type of negative feedback. (In pure pentode operation, which the Rogers amp does not offer, there is DC voltage on the screen grid but no signal.) In the triode mode offered by the 65V-1 and some other contemporary amps that use pentode tubes, the screen grid is con-

nected directly to the plate, so there is no feedback effect.

### Description

The 65V-1 measures 17" wide by 7.5" high by 12" deep and weighs 24 lbs. It’s available with a choice of Mullard EL34 or Gold Lion KT88 tubes. Rogers included sets of both tube types with the review sample, and I tried both. Each unit is burned in for 100 hours before shipping, and comes with a transferable lifetime warranty.

To the right of the front panel is a 1/4" headphone jack. Roger Gibboni told me via e-mail that the 65V-1’s headphone gain is identical to the speaker gain: 26dB. The 65V-1’s input impedance is 100k ohms. According to

Gibboni, “Because the 65V-1 is single-ended, it has a slightly higher output impedance: 9 ohms at 2kHz and 8.5 ohms at 10kHz, which yields a damping factor of approximately 1.”

After attaching the Bluetooth antenna, power cord, speaker cables, and the interconnects from line-level sources to their respective connectors, flip up the Power toggle at far left on the front panel. Observe the red light at the toggle’s tip. Wait 30 seconds, then flip up the Standby toggle to its immediate right. The 65V-1’s front-panel controls are a snap to use. Spring-loaded toggles allow the amplifier to be switched between Standby and Operate, between triode and Ultralinear modes, between headphone and speaker outputs, and to select one of the four line-level inputs—three on the rear panel and one on the front panel. Both these

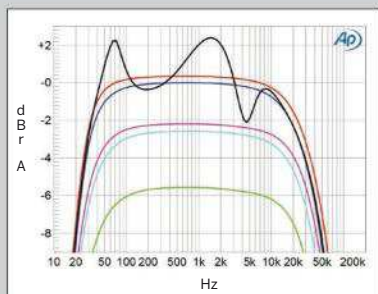
## MEASUREMENTS

I measured the Rogers High Fidelity 65V-1 with my Audio Precision SYS2722 system (see the January 2008 “As We See It,” <http://tinyurl.com/4ffpve4>). The maximum gain at 1kHz into 8 ohms varied with operating mode and output tube and was mostly lower than specified, ranging from 18.7dB (KT88s, triode

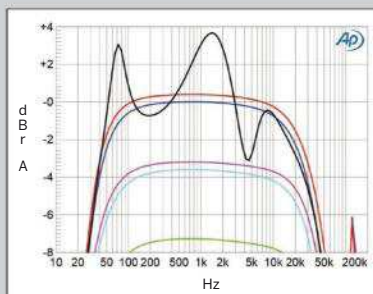
mode) and 21.3dB (EL34s, triode) to 23.8dB (KT88s, Ultralinear mode) and 25.85dB (EL34s, Ultralinear)—all lower than the norm for an integrated amplifier. The maximum gain at the headphone jack measured 25dB. Both the speaker and headphone outputs preserved absolute polarity (i.e., were non-inverting) in all modes and with

both types of output tube. I controlled the 65V-1 with the Bluetooth-connected iPad app. As downloaded, the meter on the iPad app wasn’t calibrated: a measured level of 0.33W into 8 ohms was displayed as 25W!

The input impedance was a usefully high 57k ohms at all audio frequencies. The output impedance was very



**Fig.1** Rogers 65V-1, EL34s, triode mode, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (1dB/vertical div.).



**Fig.2** Rogers 65V-1, EL34s, Ultralinear mode, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (1dB/vertical div.).



**Fig.3** Rogers 65V-1, EL34s, Ultralinear mode, small-signal, 10kHz squarewave into 8 ohms.

switches and the amplifier's front-panel display are duplicated on the iPad app, which is the 65V-1's only form of remote control, and will be found essential by the visually impaired. In my bunker listening room, the amplifier's tiny (2.75" by 1.625"), violet-and-yellow display functioned mainly as a nightlight—it's almost impossible to read, even close up.

But that was okay.

### Listening with Falcon Acoustics LS3/5as

I asked my Facebook friends: "What are the virtues and liabilities of single-ended tube amps?" Their Timeline replies rang true to my own experience: wholeness and continuity; a lit-from-within quality; they "breathe" naturally; hyper-three-dimensional; fully developed harmonics; organic, ear-friendly, coherent, stimulating, musically involving; they produce the finest nuances, incomparable midrange texture, amazing microdynamics, and eerie, preternatural tonality; an intimacy with music like no other; the intentions in the music are more discernible.

One friend wrote, "Virtues: inconvenient, antisocial, unconventional. Liabilities: inconvenient, antisocial, unconventional."

Along with weak bass, the most universally cited liability of single-ended amps was the difficulty of finding loudspeakers sensitive enough to match their low power outputs. Therefore, I thought I'd begin my study of the Rogers 65V-1 by connecting it to a revealing but low-sensitivity (83dB/2.83V/m), two-way, acoustic-suspension loudspeaker, albeit one with a tube-friendly high impedance (15 ohms).

A lifetime of owning Dynaco Stereo 70 amplifiers has created a storehouse of good feelings about EL34 tubes connected in Ultralinear driving various versions of the BBC's classic minimonitor design, the LS3/5a. So I had no

choice but to connect the EL34-equipped 65V-1 to Falcon Acoustics' LS3/5a variant, which I reviewed in the August 2015 issue.<sup>3</sup> I played a variety of roots, reggae, and British ska, and right away remembered: I've never experienced an EL34 amp I didn't like.

In my small room, the insensitive Falcons made some big, enjoyable sounds—but only at low volumes. With "Carbine," the final track of Black Uhuru's *Red* (LP, Mango MLPS 9625A), obvious dynamic compression set in at distinctly un-reggae-like levels (82dB/2m average). Triode mode was too low-powered to be usable.

All was not lost. At lower average volumes of ~76dB/2m, Cheng Gong-liang's *Gugin* (CD, Wind Music TCD 1027), "A UNESCO Masterpiece of the Oral and Intangible Heritage of Humanity" engineered by Kavichandran Alexander, of Water Lily Acoustics, was a sublime experience. The *gugin*, a 3000-year-old Chinese instrument similar to a zither, generates a complex palette of saturated tones that permit a range of expression that may exceed that of the Western violin. Long known as the "ancient *qin*," the *gugin* was the instrument of choice for Chinese poet-scholars. Through the Rogers-Falcon duo, this spectacularly beautiful recording showcased *gugin* master Cheng Gong-liang's Taoist spirit and creative fingerings. The sounds entering my chamber were exceedingly rich and exceptionally tactile. They reminded me for a moment of Jet Li's martial-arts sword fight in the Chess Courtyard, in the film *Hero*.<sup>4</sup> Cheng Gong-liang's notes felt like the quintessence of pure, pulsing, fluxing energy. The Falcon-Rogers pairing's reproductions of this music were small and precise—it couldn't deliver realistic sound-pressure levels—but the transients of the *gugin*'s

3 See [www.stereophile.com/content/falcon-acoustics-ls35a-loudspeaker](http://www.stereophile.com/content/falcon-acoustics-ls35a-loudspeaker).

4 See [www.youtube.com/watch?v=AceoEpmby2Y](http://www.youtube.com/watch?v=AceoEpmby2Y).

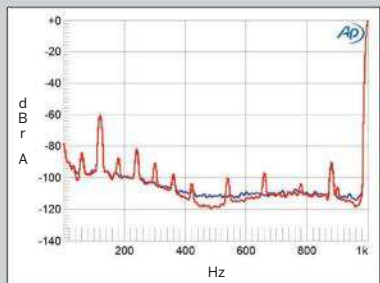
### measurements, continued

high, and again varied with operating mode and output tube, as well as with frequency. In triode mode with Herb Reichert's preferred EL34 tubes, the output impedance ranged from 3.7 ohms at 20Hz and 20kHz to 4.3 ohms at 1kHz. As a result, the variation in frequency response into our standard simulated loudspeaker<sup>1</sup> was very high, at a very audible  $\pm 2.2$ dB (fig.1, gray trace), and there were large changes

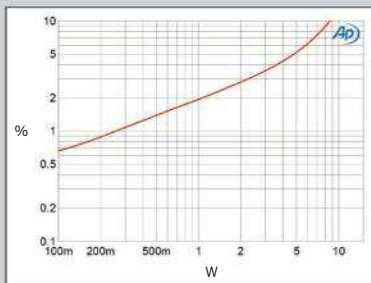
in output level as the load impedance changed from 8 to 2 ohms. The impedance was even higher in Ultralinear mode, reaching 6.8 ohms at 1kHz with KT88 tubes and 8.8 ohms with EL34 tubes, giving rise to response variations of  $\pm 3.3$ dB with the latter (fig.2, gray trace). A small peak at 120kHz can be seen in this graph, which is associated with some damped ringing with a 10kHz squarewave (fig.3).

Channel separation was modest, at 60dB in both directions at 1kHz and around 45dB at the frequency extremes. I monitored the waveform of the crosstalk on an oscilloscope to ensure that I was measuring actual crosstalk and not noise. The wideband, unweighted signal/noise ratio, taken with the inputs shorted to ground but

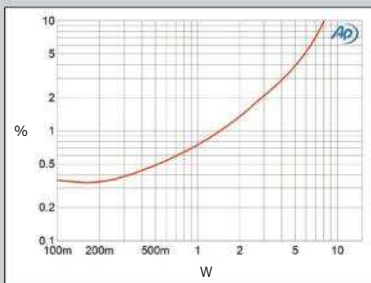
1 See [www.stereophile.com/content/real-life-measurements-page-2](http://www.stereophile.com/content/real-life-measurements-page-2).



**Fig.4** Rogers 65V-1, EL34s, triode mode, spectrum of 1kHz sine wave, DC-1kHz, at 1W into 8 ohms (linear frequency scale).



**Fig.5** Rogers 65V-1, EL34s, triode mode, distortion (%) vs 1kHz continuous output power into 8 ohms.



**Fig.6** Rogers 65V-1, EL34s, triode mode, distortion (%) vs 1kHz continuous output power into 4 ohms.



plucked strings and the supersaturated colors of its harmonics were mesmerizing pleasures.

### Listening with DeVore Fidelity Orangutan O/93s

With triode-connected EL34s, the Rogers 65V-1 played the DeVore Fidelity Orangutan O/93s (10 ohms, 93dB/W/m) loudly and dynamically enough to provide genuinely satisfying sound.

I wish you could have heard how physically present and emotionally intimate the Rogers 65V-1 made Buddy Holly's *Down the Line: Rarities* (2 CDs, Decca B0011675-02) feel through the DeVore Orangutan O/93s. The sense of Holly's physical presence was so captivating that I fell into a Holly listening binge that has yet to end. I'm infatuated with his famous Apartment Tapes, recorded in December 1958 in the living room of the Manhattan flat he shared with his new wife, María Elena Santiago, only weeks before his death at the age of 22.

I didn't need golden ears or laboratory meters to recognize that these recordings were being reproduced with unusual insight. Holly's acoustic guitar, his singing and speaking voice; María Elena's laughing, talking, and chatting on the phone—it all sounded so hauntingly real that I kept playing these tracks over and over. These home recordings, made on an Ampex R2R deck, delivered the type of intimacy I seek from a quality hi-fi. I could easily tell that Holly was sitting on his couch, his back to a window and an acoustic guitar on his lap. I could tell that he was recording into a single microphone on a short stand perched on the coffee table in front of him. In one track, as María Elena speaks to Holly from across the room, you can hear the Fifth Avenue traffic outside. Holly laughs a stoned laugh, then María Elena seems to pick up the mike, giggle mockingly, and loudly count to 10 in Spanish. The DeVore speakers and

Rogers amplifier (EL34s in triode) made every tape-hiss-filled second monumentally human—like real art!

The Rogers 65V-1 let the vivid, undoctored reality of these tapes come through with eerie, preternatural directness. The last song on this set—"Smokey Joe's Café," a Leiber and Stoller masterpiece—was recorded only days before Holly's death. He plays an electric guitar, and every time the song ends, I sit there staring blankly into space, contemplating his genius, and what my Facebook friend meant by "an intimacy with music like no other."

### Comparisons

Still using the DeVore O/93s, I swapped out the Rogers 65V-1 for another tubed, single-ended integrated amp, the Line Magnetic LM-518 IA (\$4400)—except that the 77-lb (!) LM-518 uses directly heated 845 triode tubes and puts out 22Wpc, and its power supply is tube-rectified and choke-filtered. Through the LM-518, music seemed stronger, more whole, continuous, and vividly alive. Bass attack and decay, which are not the LM-518's specialties, were better defined. The treble was less extended than with the 65V-1, but more refined. Most important, the LM-518 put musical energy into my room with greater locomotive force that I believe was not simply the result of more watts, but of the Line Magnetic's lower output impedance—1.1 ohms, *vs* the Rogers's 8.5 ohms—and more substantial power and output transformers. The LM-518's heavy iron seemed to generate less hesitancy, lower distortion, greater ease of rhythmic flow, and enhanced corporeality.

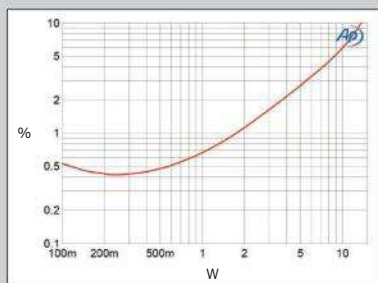
The Rogers's EL34s beat the Line Magnetic's 845s in vocal tone and instrumental texture. In Ultralinear and triode modes, the 65V-1 had an uncanny ability to present instruments and voices in vivid textural relief. In my world, proper tone and highly tactile instrumental textures are major virtues.

the volume control set to its maximum—the worst case—was also modest, at 60.4dB in triode mode, 56.6dB in Ultralinear, both ratios ref. 1W into 8 ohms. Switching an A-weighting filter into circuit improved these ratios to 76.6 and 72.4dB, and spectral analysis of the amplifier's low-frequency noise floor (fig.4) revealed spurious at power-supply-related frequencies, as well as a rise in the random noise floor in the

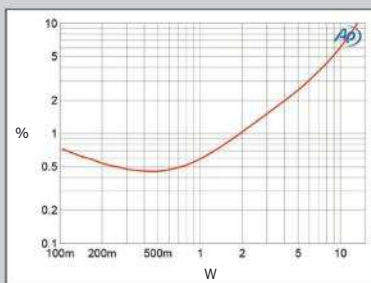
lower midrange and below.

An EL34 tube operated as a single-ended triode is not going to be able to deliver much power, and fig.5 indicates that, with our usual definition of clipping—*i.e.*, when the percentage of THD+noise reaches 1%—the Rogers clipped at just 270mW into 8 ohms. Relaxing the definition to 3% allowed the 65V-1 in triode mode with EL34s to deliver 2.275W into 8 ohms and into 4

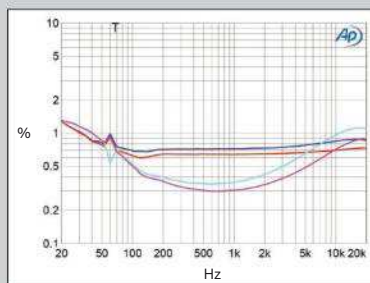
ohms (fig.6), the amplifier clipped at 1.6W (1% THD+N), 4.15W (3%), and 8W (10%). More power was available in Ultralinear mode, both with EL34s (fig.7) and KT88s (fig.8), where a THD+N of 3% was reached at a respective 5.5W and 6W into 8 ohms. But the Rogers 65V-1 is undoubtedly a low-power, high-distortion design. Worried that our review sample may have been faulty, I checked the measurements that



**Fig.7** Rogers 65V-1, EL34s, Ultralinear mode, distortion (%) vs 1kHz continuous output power into 8 ohms.



**Fig.8** Rogers 65V-1, KT88s, Ultralinear mode, distortion (%) vs 1kHz continuous output power into 8 ohms.



**Fig.9** Rogers 65V-1, EL34s, triode mode, THD+N (%) vs frequency at 1V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta).

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### Paired with the Zu Audio Soul Supremes

To try the Rogers 65V-1 in a versatile, moderately priced system, I used it with HoloAudio's Spring "Kitsuné Tuned Edition" Level 3 DAC (\$2499),<sup>5</sup> connected to my stoop-sale Integra DPS-7.2 DVD player used as a CD transport with Kimber Kable's D60 Data Flex Studio coaxial digital cable (\$234.5/0.5m), and to the Rogers with Triode Wire Labs' Spirit interconnects (\$349/m). The 65V-1, with EL34 tubes in triode mode, was tethered to the Zu Audio Soul Supreme speakers (\$4500/pair)<sup>6</sup> with 5' leads of Triode Wire Labs' American speaker cables (\$699).

The primary effect of this rig was arguably some of the most lifelike reproduction of voices I can remember hearing. Proper reproduction of the human voice is not subtle. It is extremely rare when a reproduced voice sounds anything like a *real* voice. With the above-mentioned Buddy Holly CD and the Alan Lomax Collection's *Southern Journey, Volume 2: Ballads and Breakdowns—Songs from the Southern Mountains* (CD, Rounder Select 1702), the musical content and the quality of its reproduction held my attention with unusually high levels of I-was-there tonal and spatial realism. Not only did voices sound extraordinarily lifelike, the singers' articulation of words was extra-intelligible.

Surprisingly, the EL34-triode Rogers-Zu partnership delivered *Music of Edgard Varèse*, with Robert Craft conducting woodwinds, brass, and percussion ("six-eye" LP, Columbia



Masterworks MS 6146) with LOUD deep bass and high-impact fidelity. In fact, the playing of this recording was one of the finest of my many fine moments with the 65V-1. Instrumental tone was a few clicks cooler than neutral, but textures seemed unusually intense.

The Rogers drove the Soul Supremes with unprecedented three-dimensionality. Bass was less deep, weighty, and well-drawn than it is with my First Watt J2 amp. But seldom have the Zus sounded so microdetailed or coherent. This surprisingly

revealing system flowed easily, diving deep into these seductive Varèse compositions. By the end of side 2, I was drenched in music and totally spent.

### Ultralinear vs Triode

First realized in 1937, by audio god Alan Blumlein (1903–1942),<sup>7</sup> Ultralinear operation yields somewhat reduced amounts of each of the aforementioned pentode-triode characteristics. Ultralinear mode is typically well sorted, unobtrusive, competent at everything, never great at anything.

Although I might describe the audio character of pure pentodes as a little *peaky-pointy*, I like that mode of operation—because it delivers a tube's full gain and power. Best of

5 See my review of the HoloAudio Spring in the May 2018 issue.

6 See my review of the Zu Audio Soul Supreme in the July 2016 issue: [www.stereophile.com/content/zu-audio-soul-supreme-loudspeaker](http://www.stereophile.com/content/zu-audio-soul-supreme-loudspeaker).

7 See [https://en.wikipedia.org/wiki/Alan\\_Blumlein](https://en.wikipedia.org/wiki/Alan_Blumlein).

### measurements, continued

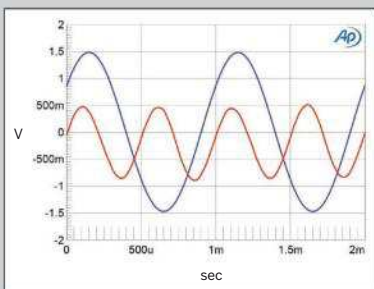
Rogers's Roger Gibboni had included; I am confident that my measurements characterize this unit's behavior.

Fig.9 shows how the THD+N percentage varies with frequency with EL34 tubes in triode mode at 125mW into 8 ohms (blue and red traces) and into 4 ohms (cyan, magenta). As expected from figs. 5 and 6, the THD+N is lower into 4 ohms than into 8 ohms, but is still high. It was even higher in

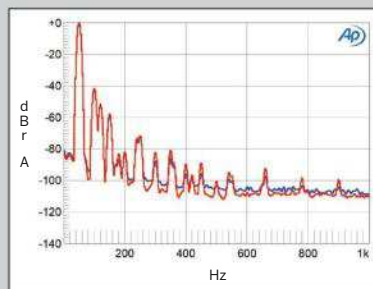
Ultralinear mode, but fortunately, the distortion is predominantly the subjectively innocuous second harmonic (fig.10). However, some higher-order harmonics were present at low frequencies (fig.11). While high-order intermodulation distortion with an equal mix of 19 and 20kHz tones was fairly low, the second-order difference product at 1kHz reached 1% even in the lowest-distortion condition: triode

mode with EL34s into 4 ohms (fig.12).

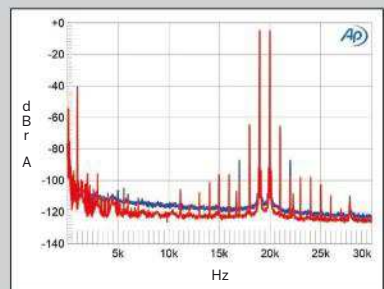
Its measured performance indicates that the Rogers 65V-1 really should be used only with high-sensitivity loudspeakers, but even then, its high output impedance means that its sonic signature will be different with every speaker, and its distortion signature may well fatten the sound. But props to Roger Gibboni for the useful iPad app.—John Atkinson



**Fig.10** Rogers 65V-1, EL34s, triode mode, 1kHz waveform at 1V into 8 ohms, 0.75% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).



**Fig.11** Rogers 65V-1, EL34s, triode mode, spectrum of 50Hz sine wave, DC–1kHz, at 1V into 8 ohms (linear frequency scale).



**Fig.12** Rogers 65V-1, EL34s, triode mode, HF intermodulation spectrum, DC–30kHz, 19+20kHz at 1V peak into 4 ohms (linear frequency scale).



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all, pure pentode operation showcases instrumental textures in spiderweb-filigree ways. The character of pure pentode transparency is dark, deep, emphatically detailed, and highly viscous. Pianos sound especially tangible with pentodes: linear and Apollonian.

Triode-wired pentodes make bass with softer edges, and sound that's slightly congested or diffuse. Textures are less bas-relief than with a pure pentode. But triode wiring offsets these deficiencies by adding color-saturated tonality. Aural images on triode soundstages seem more physical, more brightly illuminated: painterly and Dionysian.

Switching between the Rogers 65V-1's triode and Ultralinear modes yielded results exactly like those just described. With the low-sensitivity Falcon LS3/5a's, I preferred the extra bite, punch, and muscle of Ultralinear. The Zu Soul Supremes and DeVore Orangutan O/93s were both sensitive enough to let me relax, focus on the recording, never obsess about clipping, and luxuriate in the delicacy, intimacy, and more saturated colors of triode-wired pentode sound.

### Driving Headphones

The 65V-1's headphone output had the same basic sound character as its speaker output—but I can't say it yielded dead-quiet, ink-black spaces, especially with such low-sensitivity headphones as the HiFiMan Susvaras, with their impedance of 60 ohms and their sensitivity of 83dB/mW/kHz. The Rogers drove the HiFiMans to only moderate levels, and with a slight, hard dullness to the sound.

The 65V-1's headphone amp achieved its most neutral, voice-articulate, soundstage-revealing best with the more sensitive Focal Utopias (80 ohms, 104dB/mW/kHz). With the title track of the Alan Lomax Collection's *Southern Journey, Volume 6: Sheep, Sheep, Don'tcha Know the Road—Southern Music, Sacred and Sinful* (CD, Rounder Select 1706), sung by Bessie Jones and the Sea Island Singers, a single person is clapping his or her hands about 20" from the mike; I swear, with the 65V-1, I could hear each compression of the palms' flesh squeezing out air. The room was more accurately described, if less colorfully presented, than with any of my other headphone amps.

Unfortunately, the joys of this extraordinary resolution were limited. Overall, the 65V-1's headphone sound seemed not like sweet-glowing, triode-wired, single-ended EL34s, but slightly dulled and hard—more like solid-state with too much feedback.

### Conclusions

I listened to the 65V-1 with both the Mullard EL34 and Gold Lion KT88 tubes. The KT88s delivered a bigger fist and a stronger blow—their detail was more etched. But my most pleasurable experiences—the ones I write about here—were with EL34s.

About 1989, I was powering a variety of highly sensitive loudspeakers with a 2W, push-pull, mono amplifier designed and built by Ken Shindo, of Shindo Laboratory; its single output tube was a 10Y/VT25 directly heated triode. Its output was so low that I couldn't stop obsessing: *Is this enough power?* I constantly cocked an ear, listening for clipping distortion. Nevertheless, while driving a fresh pair of Altec Lansing 604B full-range drivers fitted to very large enclosures,<sup>8</sup> I experienced unprecedented levels of vividness of vocal tone and instrumental texture—something that, ever since, I've sought but never found. I believe the Rogers High Fidelity 65V-1 integrated amplifier, driving

## ASSOCIATED EQUIPMENT

**Analog Sources** AMG Giro G9 turntable & 9WT tonearm, Linn LP12 turntable & SME M2-9 tonearm; AMG Teatro, EMT TSD 75, Koetsu Rosewood Standard MC cartridges.

**Digital Sources** Integra DPS-7.2 DVD player (used as CD transport); Mac mini running Audirvana+ 3.2; HoloAudio Spring "Kitsuné Tuned Edition" Level 3, Mytek HiFi Manhattan II, Schiit Audio Yggdrasil DACs.

**Preamplification** Auditorium 23, Bob's Devices CineMag 1131, Dynavector SUP-200, EMIA Phono, My Sonic Lab 1030 MC step-up transformers; Musical Surroundings Phenomena II+ with Linear Charging power supply, Tavish Design Adagio phono preamplifiers; Pass Laboratories HPA-1, PrimaLuna ProLogue Premium, Rogue Audio RH-5 line-level preamplifiers.

**Headphone Amplifiers** iFi Pro iCAN, microZotl2.0, Pass Laboratories HPA-1, Rogue Audio RH-5.

**Power Amplifiers** First Watt J2, Pass Laboratories XA25, PrimaLuna ProLogue Premium.

**Integrated Amplifiers** Line Magnetic LM-518 IA, Schiit Audio Ragnarok.

**Loudspeakers** DeVore Fidelity Orangutan O/93, Falcon Acoustics LS3/5a, Harbeth Monitor 30.2, Tekton Impact Monitor, Zu Audio Soul Supreme.

**Headphones** Focal Utopia, HiFiMan Susvara.

**Cables** Digital: Kimber Kable D60 Data Flex Studio (coaxial). Interconnect: AudioQuest Big Sur & Cinnamon, Auditorium 23, Kimber Kable Silver Streak, Triode Wire Labs Spirit, Wireworld Silver Eclipse 7. Speaker: AudioQuest GO-4, Auditorium 23, Triode Wire Labs American. AC: AudioQuest Tornado, Triode Wire Labs Digital American.

**Accessories** AudioQuest Niagara 1000 power conditioner; Harmonic Resolution Systems M3X-1719-AMG GR LF, PS Audio PerfectWave PowerBase isolation platforms; Sound Anchor speaker stands; Acoustical-Systems SmarTractor, Dr. Feickert Analogue cartridge-alignment protractors; Musical Surroundings Fozgometer azimuth-range meter.

—Herb Reichert

the Zu Audio Soul Supremes, may have come close to my memories of that incredible combination of Shindo amp and Altec speaker. I also believe that some part of the Rogers-Zu combo's rich tones and vivid textures may be a consequence of the 65V-1's high output impedance. But I don't care. The effect is emotionally engaging.

The 65V-1 is a charming, satisfying amplifier that, to reveal anything near its full potential, needs to be paired with extra-sensitive (*ie*, greater than 92dB/W/m) speakers whose average impedance exceeds 8 ohms. Matched to a pair of such speakers (models from Audio Note, Avantgarde, DeVore, Klipsch, Tekton, Volti, Voxativ, and Zu come quickly to mind), the Rogers 65V-1 should exhibit most of those traits my Facebook friends ascribed to single-ended amplifiers, and especially: intimacy with the music, incomparable midrange texture, and eerie, preternatural tonality.

Rogers High Fidelity's 65V-1 is an uncommon audio product in search of uncommon audiophiles. Might you be one of them? ■

<sup>8</sup> Altec's literature described the 604B as "The most efficient all-range speaker unit ever built." See [www.technicalaudio.com/pdf/Duplex\\_Speakers\\_related\\_to\\_Altec\\_604/604\\_1949\\_604B\\_Duplex\\_Speaker.pdf](http://www.technicalaudio.com/pdf/Duplex_Speakers_related_to_Altec_604/604_1949_604B_Duplex_Speaker.pdf).

# Hygge.

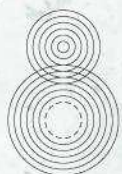
Who says it needs to be all about lamps and couches?

**“What are you doing for your 40th?”**, everyone asked. We thought about it and decided that since we aren't wild about lavish cakes (although we do love a tasty fastelavnsbolle), we'd celebrate a little differently. Even the *thought* of making new speakers makes us warm and fuzzy, so that's what we chose to do.

## Meet the Special Forty: hygge for your ears.

Laurels aren't for resting on, which is why we gave Dynaudio Labs free rein to play. (It gave our accountants a heart attack). Our only instruction: take our classic tech and see what you'd do differently this time. Their design was nothing short of genius.

They took our classic Esotar 28mm soft-dome tweeter design, put our DSR\* precision coating on it and then **machined an aerodynamic vent** into the powerful neodymium magnet. Then they added more damping material and another pressure-release conduit. Take it apart and look behind it: it's a work of art (except please don't take it apart; we spent ages putting it together).



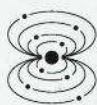
*We made the drivers' frequencies overlap so we could keep the first-order crossover simple. After all, why add things that might affect the signal if you don't have to?*

**We called the new tweeter the Esotar Forty**, and it's exclusive to this speaker.

We also gave the Special Forty a new woofer, made from our own super-stable Magnesium Silicate

Polymer material. Its dome is coupled directly to the voice-coil for incredibly precise midrange performance, and it's aided by the **new AirFlow Basket** – an aerodynamically shaped chassis that optimizes rear airflow and isolates the driver from unwanted vibrations and resonances.

The woofer also has a **custom magnetic field**, one we created in the lab, thanks to a unique hybrid magnet system. It's part ferrite, part neodymium, and it physically manipulates flux to bend it around the voice-coil for greater power and efficiency.



*The magnet sits inside the voice-coil (others put it outside). That lets us beam its energy to where we want it to go – not where it wants to go.*

Those innovations mean the tweeter can reach down to 1000Hz, and the woofer up to 4000Hz. That overlap means smoother integration between treble and bass, and **performance that borders on the mesmerizing.**

We could explain it using maths, but here it is in English: the extra air movement and flux containment means we have more control over the tweeter and woofer. And that means **a more detailed, precise and honest performance.** Just what we (and you) want.

This is a simple-looking speaker. Sure. But wait until you see its Grey Birch High Gloss and Red Birch High Gloss finishes. We painstakingly laminated Finnish Birch veneers many, many, many times and cross-cut them to

achieve this striking pattern. Then we used special stains to bring it out even further. Nice, isn't it.



*The biggest decision you'll make today: Red Birch High Gloss or Grey Birch High Gloss? (Or just get one of each. You know it makes sense.)*

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**Special occasion.  
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Special Forty.**



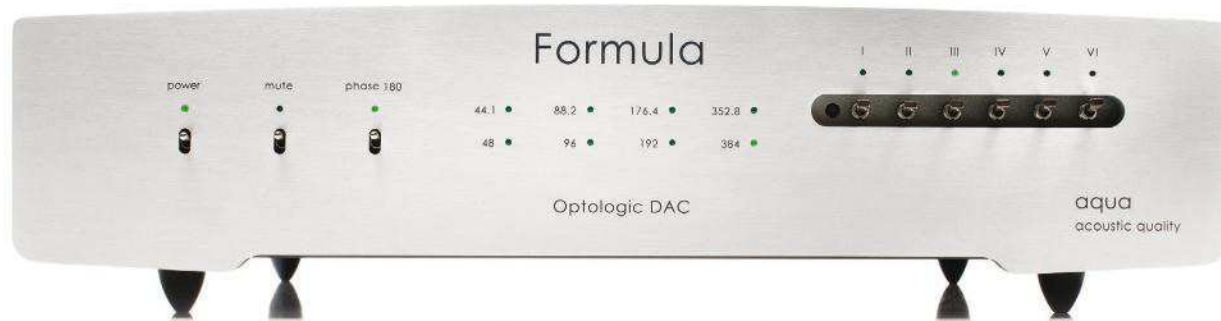
\*Wondering what 'DSR' stands for? It's Dynaudio Secret Recipe. And that's all you're getting out of us – apart from a fantastic tweeter, of course.



JASON VICTOR SERINUS

# Aqua Acoustic Quality Formula xHD

## D/A PROCESSOR



At the 2018 Consumer Electronics Show, when John Atkinson and I entered the room shared by Lamm Industries, Aqua Acoustic Quality, and Kharma, we were looking for two things: good sound, and digital products for me to review. When we spied AAQ's Formula xHD digital-to-analog converter, the possibility of evaluating a potentially excellent DAC made by someone other than the usual suspects felt like a golden opportunity.

There were two mitigating factors. First, I usually don't use a preamplifier with either of my reference DACs, dCS's Rossini (\$23,999) and Vivaldi (\$35,999). Instead, I try to keep things simple, and use the dCS DACs' onboard volume controls, rather than add to the system a preamp. (Did I just describe as "simple" an expensive digital front end that, together with the dCS Network Bridge, Scarlatti clock, and Paganini transport comprises up to four components, all connected by a maze of cables?) The conundrum

was easily solved: John suggested that I borrow Lamm Industries' L2.1 Reference preamplifier (\$22,790), which he described as "excellent," and which Art Dudley favorably reviewed in the July 2017 issue.<sup>1</sup>

Second, I was not totally blown away by the sound of digital recordings through this room's \$649,440 system. While there was much in the system to admire, as I said in my report on this room, this rig "rounded the leading edges of tones," and I questioned "Whether it did full justice to the lower voices and wealth of detail in two of John Atkinson's superb choral recordings."<sup>2</sup> As someone who prefers to review products whose sound attracts me in the first place, I was a bit uneasy as I committed to reviewing the Formula xHD. Then again, I'd heard it in a system comprising mul-

1 See [www.stereophile.com/content/lamm-industries-l21-reference-preamplifier](http://www.stereophile.com/content/lamm-industries-l21-reference-preamplifier).

2 See my report on CES 2018 at [www.stereophile.com/content/lamm-and-friends-think-big](http://www.stereophile.com/content/lamm-and-friends-think-big).

## SPECIFICATIONS

**Description** D/A processor with proprietary Optologic D/A conversion system. Pure R2R ladder: FPGA-based without digital filter. Compatible formats: PCM to 16–24-bit/44.1–768kHz, DSD64–DSD256 via DoP, DXD. Digital inputs: RJ45 AQLink (I<sup>2</sup>S serial bus), BNC coax (S/PDIF, 75 ohm), RCA coax (S/PDIF), AES/EBU (balanced, 110 ohm),

USB 2 Type 2.0 (OSX, Linux driverless, all formats). Modular input: AES/EBU, RCA coax, AT&T (ST Fiber), Optical TosLink. Analog outputs: 1 pair unbalanced (RCA); 1 pair transformer-coupled balanced. Maximum output level: 2.4V, unbalanced; 3.8V, balanced. Output impedance 10 ohms, unbalanced; 600 ohms, balanced. Power consump-

tion: 100–115V/220–240V, 50/60Hz—58VA.

**Dimensions** 17.7" (450mm) W by 3.9" (100mm) H by 14.6" (370mm) D. Weight: 19.8 lb (9kg).

**Finishes** Silver, Black.

**Serial number of unit reviewed** 1370.

**Price** \$17,000. Approximate number of dealers: 14. Warranty: 5 years.

**Manufacturer**

AQ Technologies S.r.l., Via Luciano Manara 17, 20122 Milan, Italy. Tel: (39) 338-2300347. Web: [www.aquahifi.com](http://www.aquahifi.com). US distributor: Well Pleased Audio Vida, 1934 Old Gallows Road, Suite 350-R, Tyson's Corner, VA 22182. Tel: (703) 750-5461. Web: [www.wellpleasedav.com](http://www.wellpleasedav.com).

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tiple components whose sound was unknown to me—who knew what was responsible for what?

### Stairway to Heaven?

A relatively new company, AQ Technologies, aka Aqua Acoustic Quality, was founded in Milan, Italy, in 2010 by product designer and CEO Cristian Anelli. AQT released its original Formula DAC in 2016, a year after the company entered the US market, and introduced its successor, the Formula xHD Optologic (\$17,000), last fall at the 2017 Rocky Mountain Audio Fest.

The Formula xHD has no chips or digital filters. Its fully decoupled, non-oversampling, 24-bit, four-branch resistor-to-resistor (R2R) ladder conversion technology is based on field-programmable gate arrays (FPGAs). Each channel's R2R ladder network is galvanically and magnetically isolated from the FPGAs and connected by way of opto-couplers, or light couplers, hence this system's name: Optologic. AAQ's website claims that its Optologic system "creates complete isolation of all digital circuitry—including the clock—from the analogue section, for a clean, noiseless ground plane. It also plays the main role in the differential management of the R2R ladders, achieving perfect symmetry between the counter-phase halves."

Boasting "Proprietary hybrid 2-stage XMOS xCore XE216 + FPGA," the Formula xHD's Isolated Synchronous Discrete Circuit (ISDC) handles digital decoding and clock management. The analog and digital power supplies use MOSFETs, J-FETs, BJTs, and ultrafast diodes. Capacitor

choices are a mix of electrolytics, tantalums, and other types. The signal path is direct-coupled and free of capacitors. The Formula xHD's two output stages—one single-ended, one transformer-coupled and balanced—use discrete BJTs and J-FETs alongside metal-film resistors.

For owners of AAQ's La Diva CD transport (or, presumably, other transports with an I<sup>2</sup>S interface), the Formula xHD includes an RJ45 AQlink (I<sup>2</sup>S serial bus) that decodes PCM up to 24-bit/768kHz and DSD up to 256Fs via DoP, as does its USB Type B port. BNC, RCA, and AES/EBU digital inputs handle PCM up to 24/192. An optional AT&T (ST fiber) input tops out at PCM 24/192, and an optional optical/TosLink input tops out at PCM 24/96. The Formula xHD's modular, multi-circuit-board design should permit easy upgrading as new improvements are developed.

On the left of the front panel are three toggle switches: Power on/off, Mute, and Phase 180; on the right are six more toggles, one for each of the six digital inputs, labeled I through VI, with a green LED above each. Eight more LEDs at front center indicate the sample rates: 44.1, 88.2, 176.4, 352.8kHz, and 48, 96, 192, and 384kHz. In other words, the front panel is quite busy, and not destined to win design awards.

On the rear panel are pairs of balanced (XLR) and single-ended (RCA) analog outputs; the digital inputs are AQlink I<sup>2</sup>S, USB-B, Modular (Ethernet), RCA, BNC, and AES/EBU; there are also a Remote jack and an IEC power inlet. AT&T and optical TosLink inputs are optional. The digital inputs are numbered I–VI, corresponding to the

## MEASUREMENTS

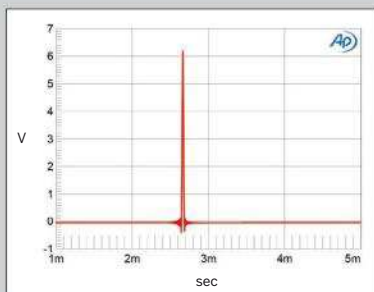
I measured the Aqua Formula xHD DAC with my Audio Precision SYS2722 system (see the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>), using both the Audio Precision's coaxial and AES/EBU digital outputs, and USB data sourced from my MacBook Pro running on battery power with Pure Music 3.0 playing WAV and AIFF test-tone files. Apple's USB Prober utility identified the Formula xHD as "aqua XHD" from "aqua," its serial number as "0 (none)," and confirmed that its USB port operated

in the optimal isochronous asynchronous mode. Apple's AudioMIDI utility revealed that, via USB, the Formula xHD accepted 24-bit integer data sampled at all rates up to 768kHz. Its coaxial and AES/EBU inputs accepted PCM datastreams with sample rates up to 192kHz.

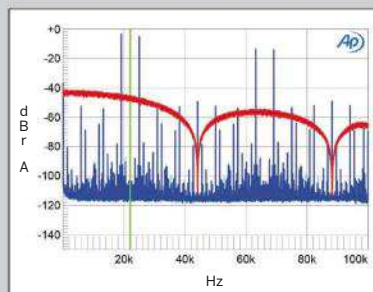
The Formula xHD's maximum output level at 1kHz in was 3.84V from its balanced outputs and 2.8V from its unbalanced outputs, the latter 2.9dB higher than the CD standard's 2V. The outputs preserved absolute polarity with the

front-panel Phase LED dark. (The XLR jacks are wired with pin 2 hot.) The unbalanced output impedance was higher than the specified 19 ohms, at 100 ohms across the audioband. The balanced output impedance is specified as 600 ohms; I measured 24 ohms at low frequencies, and 68 ohms at the top of the audioband.

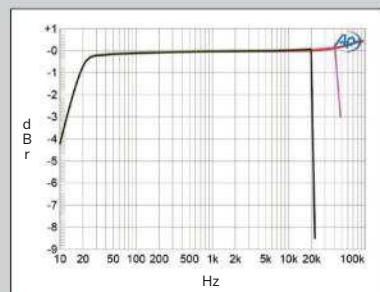
The reconstruction filter's impulse response was a perfect pulse (fig.1; ignore the tiny amounts of pre- and post-ringing, which are due to the SYS2722's anti-aliasing filter operating



**Fig.1** Aqua Formula xHD, impulse response (one sample at 0dBFS, 44.1kHz sampling, 4ms time window).



**Fig.2** Aqua Formula xHD, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).



**Fig.3** Aqua Formula xHD, balanced frequency response at -12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel green, right gray), 96kHz (left cyan, right magenta), 192kHz (left blue, right red) (1dB/vertical div.).

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numbered LEDs on the front. You just have to remember which is which.

The remote control, which is the same as the one provided with AQT's La Diva transport, can also be used to select inputs and invert polarity on the Formula xHD. I doubt the remote's design was responsible for my inability to figure out how to use it to switch inputs.

### Setup

Mark Sossa, of Aqua Acoustic Quality's US distributor, Well Pleased A/V, sent me the very same unit JA and I had heard at CES. Even before installing the Formula xHD, I connected the dCS Rossini DAC to the two-piece Lamm L2.1 Reference preamp, and spent a while evaluating the Lamm's sound. It took me not very long to confirm that it was extremely transparent and open on top, and fully capable of transmitting deep bass, while adding an extra touch of warmth and midrange generosity. While the Lamm 2.1 did beef up the upper lows and lower mids, the extra weight felt natural rather than bloated.

My goal was to use the best source components at my disposal to send the Formula xHD music from discs, files, and Tidal. I first hooked up the dCS Paganini transport via BNC, and dCS's Network Bridge network player via Eth-



ernet. The Formula xHD's unbalanced outputs were connected to the Lamm preamp and it sat on a Grand Prix Formula Platform—these help my system achieve utmost transparency—which I in turn placed on a shelf of my Grand Prix Monaco equipment rack.

Sossa assured me that the review sample had already seen 300 hours of use, which AAQ considers sufficient. He also said that some users have claimed that the Formula xHD needs 500 hours of

break-in before it can fully strut its stuff.

### Listening

After playing Nordost break-in tones through the system for 24 hours, to ensure that the cables were settled in, I began listening. What possessed me to begin with Michael Tilson Thomas and the San Francisco Symphony's download-only recording of Berg's *Three Pieces for Orchestra* (24/192 FLAC, SFS Media/HDtracks), whose disturbing atonalities seem to presage WWI, I don't know. But detailed listens to it and other pieces over the next two days through dCS's Network Bridge and Paganini transport convinced me that while the Aqua Formula xHD fully conveyed the emotion of music, the highs were subdued and the color palette limited. In

### measurements, continued

at a sample rate of 200kHz). There is no digital reconstruction filter, and with white noise sampled at 44.1kHz (fig.2, magenta and red traces) there was a slow rolloff above the audioband, disturbed by nulls at 44.1 and 88.2kHz. Consequently, the aliased image of a full-scale 19.1kHz tone (cyan and blue traces) was hardly suppressed at all.

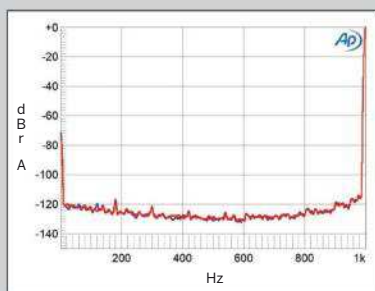
Looking in more detail at the frequency response from the balanced outputs (fig.3): Other than a rolloff below 25Hz, it is flat in the audioband at all sample rates, though there is a very

slight rising trend toward 100kHz at the higher sample rates. Measured at the unbalanced outputs, the response was flat from 10Hz up (not shown). The channels were well matched from both sets of outputs.

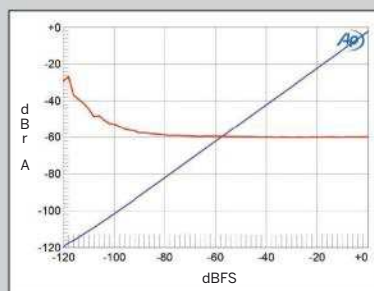
The Formula xHD's channel separation was excellent, at >105dB from 100Hz to 10kHz, and the low-frequency noise floor was virtually free from any power-supply-related spurs (fig.4). One thing I noted during this test was that the 1kHz waveform on my oscilloscope was stepped rather than

smooth, which is typical of an NOS (Non-OverSampling) DAC. A relevant issue with resistor-ladder DACs is the linearity error: Will a digital signal at, say, -80dBFS be reproduced at the outputs by an analog signal the same 80dB down from full level? However, the Aqua performed well in this respect. When I examined its linearity (fig.5), the error was negligible down to -80dBFS, and remained below 1dB down to -104dBFS.

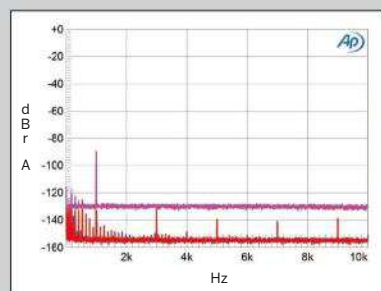
<sup>1</sup> My thanks to Jürgen Reis of MBL for suggesting this test to me.



**Fig.4** Aqua Formula xHD, spectrum, 0Hz–1kHz, of dithered 1kHz tone at 0dBFS (20dB/vertical div.).



**Fig.5** Aqua Formula xHD, 1kHz output level vs data level in dBFS (blue, 10dB/vertical div.); linearity error (red, 1dB/vertical div.).



**Fig.6** Aqua Formula xHD, spectrum with noise and spurs of dithered 1kHz tone at -90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

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fact, the sound reminded me of what I'd heard in the Aqua-Lamm-Kharma room at CES 2018.

Three days and three pages of extremely detailed notes later, after the Formula xHD had passed the 400-hour mark, its top began to open up, revealing a sound suffused with light and a beautiful, warm midrange. Burning it in further while reviewing soprano Sonya Yoncheva's *The Verdi Album*, with Massimo Zanetti conducting the Munich Radio Orchestra (CD, Sony Music 0889854179823; 24/96, Primephonic),<sup>3</sup> I finally noticed the emergence of a three-dimensional soundstage, and the Formula xHD's ability to reveal the changing colors and weights of voice and orchestra as emotions shifted—as well as moments when Yoncheva's vocalism was less than spot on. I threw out my notes and started over.

One familiar recording that I love, and play regularly to test systems, is Eileen Farrell's *Sings Verdi* (CD, Sony Classical Masterworks 62358/ArkivCD). Through the Formula xHD her low tones sounded wonderful, and the warmth of her voice remained intact. That said, her highs were softer and didn't float as freely as I'm accustomed to hearing, and the cello section of the Columbia Symphony Orchestra (conducted by Max Rudolf) had less weight. Ditto Beverly Sills's performance of Richard Strauss's transcendently beautiful song "Breit' über mein haupt," with Aldo Ceccato conducting the London Philharmonic, from *The Art of Beverly Sills* (CD, EMI Classics 64425/ArkivCD): the midrange was gorgeous, but the highs seemed less radiant than I'd hoped for.

Some of the gruffness that has recently surfaced in the voice of baritone Matthias Goerne is audible in his and pianist Markus Hinterhäuser's recording of "Meine Rose," from Schumann's Six Poems, Op.90, on their recital *Einsamkeit* (24/96 WAV, Harmonia Mundi HMM 902243/HDtracks)—but the Formula xHD smoothed it over. In addition, the deepest resonances of the voice and the bottom line of the piano were shortchanged.

When I turned to Murray Perahia's recording (on piano) of one of my favorite Handel works, the Harpsichord Suite in E, HWV 430 (CD, Sony Classical 62785), his instrument was less naturally percussive than I'm accustomed to—it sounded as if the soft pedal was depressed. Given that I also heard less bass foundation and natural treble ring than usual, the joy at the center of this superb performance touched me less.

Although I couldn't play the two-channel DSD layers of SACDs from my Paganini transport, which requires a DAC with dual AES/EBU inputs, I listened to the 16/44.1 layer of a recording of Vadim Gluzman performing Brahms's Violin Concerto, with the Lucerne Symphony Orchestra under James Gaffigan (SACD/CD, BIS 2172). Focus was excellent, with beautiful warmth and fullness in the midrange, a sweetness to the sound, and a credible halo of air around the violin. I didn't hear the level of color saturation I know this recording contains, but that may well be because I was listening to PCM 16/44.1 instead of DSD64.

<sup>3</sup> Read my review at [www.stereophile.com/content/yoncheva-and-calleja-give-verdi-workout](http://www.stereophile.com/content/yoncheva-and-calleja-give-verdi-workout).

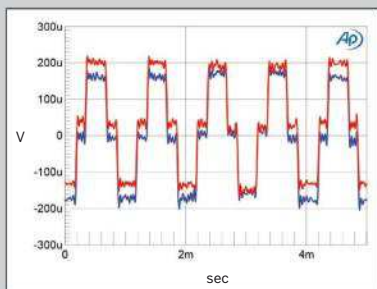
## measurements, continued

Increasing the bit depth from 16 to 24 with a dithered 1kHz tone at -90dBFS (fig.6) dropped the noise floor by 25dB. However, the many distortion harmonics visible in the 24-bit signal suggest that something is not optimal in the Formula xHD's handling of low-level data with this bit depth. As with the HoloAudio Spring DAC reviewed in May, another resistor-ladder DAC, perhaps the LSBs are being truncated. With undithered data representing a tone at exactly -90.31dBFS (fig.7), the three DC voltage levels described by the data were well resolved. With

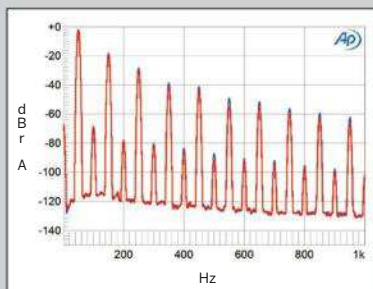
undithered 24-bit data, the result was a clean sinewave (not shown).

When I tested the Formula xHD's harmonic distortion from its balanced outputs, I got a surprise: With the 50Hz tone I usually use, the distortion was extremely high. Even at -3dBFS into 100k ohms (fig.8), the third harmonic lay at just -20dB (10%), which will be very audible. The unbalanced outputs offered very much lower distortion, even into 600 ohms (fig.9). Fig.10 plots the percentage of THD+noise against frequency with a full-scale signal into the high 100k

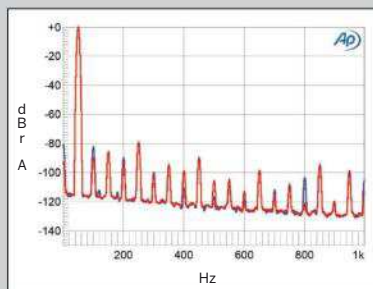
ohms load from both balanced and unbalanced outputs. You can see that while both outputs offer similarly low distortion in the treble, the balanced THD+N percentage increases rapidly below 200Hz, with almost complete waveform clipping below 80Hz. As the distortion from the balanced output is almost completely odd-order harmonics, I suspect that what we are seeing in fig.10 is saturation of the output transformer's core. Fortunately, as Jason Victor Serinus used only the Aqua's unbalanced outputs, he dodged this bullet.



**Fig.7** Aqua Formula xHD, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit TosLink data (left channel blue, right red).



**Fig.8** Aqua Formula xHD, balanced output, spectrum of 50Hz sinewave, DC-1kHz, at -3dBFS into 100k ohms (left channel blue, right red; linear frequency scale).



**Fig.9** Aqua Formula xHD, unbalanced output, spectrum of 50Hz sinewave, DC-1kHz, at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).

## Computer Playback

After John Atkinson pointed out that almost no-one who buys a Formula xHD will own a dCS Network Bridge, out came ye olde MacBook Pro running Audirvana Plus, a Nordost Valhalla 2 USB cable, and two AudioQuest JitterBug USB noise attenuators. Around the same time, I switched amplification from my Pass Laboratories XA200.8 monoblocks to Dan D'Agostino Master Systems Progression monoblocks, which, from previous experience, I expected to deliver tighter, stronger bass, as well as more detail and wider dynamic range.

While previous listening had convinced me that the sound of files played from a computer could not equal that from the Network Bridge, my MacBook Pro came into its own after I'd spent half an hour subjecting it to warm-up and demagnetization tracks. Only then did its soundstage widen and its edginess decrease, and listening again become a pleasure.

Nonetheless, the sonic limitations of using a multipurpose computer as a source became apparent when I played a bass-response demo track given me by Wilson Audio's Peter McGrath: "Limit to Your Love," from James Blake's *James Blake* (16/44.1 WAV, A&M 949999). As much as this track sounded clear and transparent, low bass was present but of lesser impact than what I'm used to. Ditto "Electrified II," from Yello's *Toy* (24/48 WAV, Polydor 4782160/HDtracks), in which the bass response was more moderate than through my reference DAC, and the annoying sizzle around voices was toned down. When I briefly listened via

the dCS Network Bridge, the sound of both recordings was wetter, with brighter highs, clearer snaps in the Blake, quieter backgrounds, and slightly more bass.

Further exploration of treble and bass response via computer confirmed that, in a high-resolution version of *Bach Trios*, by mandolinist Chris Thile, cellist Yo-Yo Ma, and double bassist Edgar Meyer (24/96 WAV, Nonesuch 558933/HDtracks), Meyer's instrument was diminished in presence and prominence. As for Ludovic Morlot and the Seattle Symphony's recording of Stravinsky's *The Rite of Spring* (24/96 WAV, Seattle Symphony Media SSM1005/HDtracks), the bass was less heart-stopping, and the extra frisson in the highs that I'm used to hearing was absent.

## How Does It Stack Up?

Were this lack of bass from audio files and the toned-down response on top due to the computer source alone, or was it also revealing limitations in the Aqua Formula xHD? I removed the dCS Paganini transport and replaced it with the dCS Rossini DAC (\$23,999), whose MQA update I evaluated in our May 2018 issue.

To ensure an even playing field, I set the Rossini's volume control for unattenuated output, and used the Lamm L2.1 Reference preamp to control volume. I also used the same MacBook Pro and Nordost USB link to send digital files.

To those tempted to cry foul at this comparison of the Formula xHD with the dCS Rossini, which costs \$7000 more, note that the Rossini has its own volume control. In

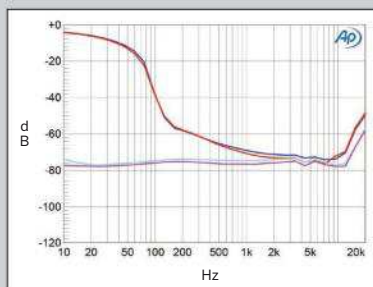
## measurements, continued

The poor ultrasonic rejection visible in fig.2 resulted in a multitude of aliased images with a full-scale mix of 19 and 20kHz tones (fig.11), and reducing the signal level by up to 10dB produced no change in the number of images. Fortunately, music rarely has significant energy toward the top of the audioband.

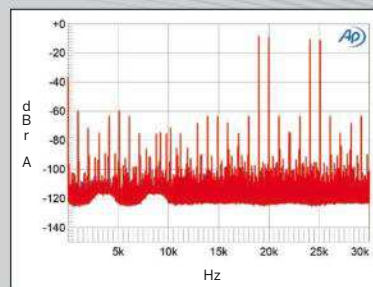
When I tested the Formula xHD for its rejection of word-clock jitter, using undithered 16-bit J-Test data fed to its AES/EBU input, the odd-order harmonics of the low-frequency, LSB-level squarewave were much higher than they should have been (fig.12). (The correct levels are indicated by the sloping green line.) This behavior was identical when I repeated the test using the coaxial inputs. However, the picture looked a little cleaner with 24-bit J-Test data sourced via USB (fig.13).

Most of the questionable aspects of the Aqua Formula xHD's measured performance stem from its lack of a reconstruction filter. But its poor rejection of word-clock jitter, and that inadequate transformer used to implement the balanced outputs, are flaws that should have been avoided.

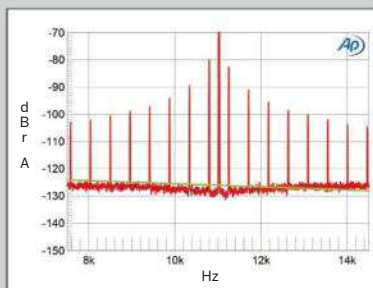
—John Atkinson



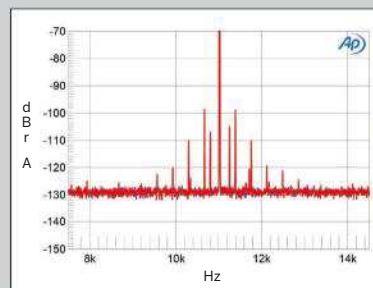
**Fig.10** Aqua Formula xHD, THD+N (%) vs frequency at 0dBFS: balanced output (left channel blue, right red), unbalanced output (left cyan, right magenta).



**Fig.11** Aqua Formula xHD, balanced output, HF intermodulation spectrum, DC–30kHz, 19+20kHz at 0dBFS into 600 ohms, 44.1kHz data (left channel blue, right red; linear frequency scale)



**Fig.12** Aqua Formula xHD, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit AES/EBU data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.



**Fig.13** Aqua Formula xHD, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit USB data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range,  $\pm 3.5$ kHz.



an all-digital system—even one with a BD player such as the Oppo Digital UDP-205, which can output to an external DAC—this feature obviates the need for a preamp (here, one that costs \$22,790).

After several days of warm-up, the Rossini was ready. Upsampling to DXD (the Rossini's upsampling can't be defeated), it delivered more profound bass, greater three-dimensionality, and more deeply contrasting colors with the James Blake track. The Stravinsky was even more telling: the Formula xHD's lovely warmth was replaced by a more saturated but neutral color palette. The Rossini also produced a more convincing impression of the so-so acoustic of Benaroya Hall, where the Seattle Symphony performs and records: the image of the orchestra was set farther back, and the soundstage was wider and higher. Finally, the Rossini's greater bass translated into a more thrilling listening experience that made it more clear why the audience erupted in cheers after that huge, final bass wallop.

### Conclusions

Aqua Acoustic Quality's Formula xHD is an extremely fine-sounding DAC whose warmth and ability to decode files of extremely high resolution should win it many admirers. Many will also applaud its designer's rejection of digital filters, oversampling, upsampling, and MQA. Thanks to the Formula xHD's ability to smooth over digital's rough edges, I don't hesitate to recommend that it be auditioned by anyone with \$17,000 to spare, and whose system suffers from bright or harsh sound, or who values, above all else, the warmth and bloom often ascribed to analog sources. ■

### ASSOCIATED EQUIPMENT

**Digital Sources** dCS Paganini SACD/CD transport & Scarlatti clock & Rossini DAC & Vivaldi DAC & Network Bridge network player; Oppo Digital UDP-205 universal BD player; Intel NUC7i7BNH with 8GB RAM, 128GB SSD running Roon; Linksys router with 2 TP-Link gigabit Ethernet media converters & multimode duplex fiber-optic cable; Apple MacBook Pro computer with Intel i7, SSD, 8GB RAM; iPad Pro; external hard drives, USB sticks.

**Preamplifier** Lamm Industries L2.1 Reference.

**Power Amplifiers** Dan D'Agostino Master Systems Progression, Pass Laboratories XA200.8 (all monoblocks).

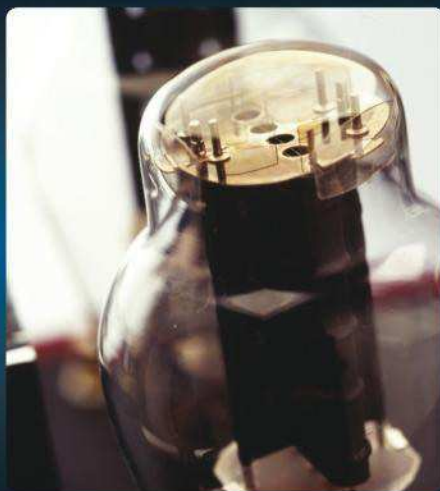
**Loudspeakers** Wilson Audio Specialties Alexia 2.

**Cables** Digital: AudioQuest Diamond, Wireworld Platinum Starlight Cat8 (Ethernet); Nordost Odin 1 & 2 & Valhalla 2 (USB). Interconnect: Nordost Odin 2. HDMI: Transparent. Speaker: Nordost Odin 2. AC: Nordost Odin 2.

**Accessories** Grand Prix Monaco rack & amp stands, 1.5" Formula platform; Nordost QX4, QK1, QV2 AC power accessories; Synergistic Research Transporter & Power-Cell; Isotek EVO3 Sigmas & Audience aR2p-TSSOX power conditioners, GreenWave filter, AudioQuest NRG Edison outlets; Nordost Sort Lifts for speaker cables; Marigo Clear Transformation mat; Stein Music Signature Harmonizers, Blue Suns/Diamonds, Quantum Organizer; Bybee Room Neutralizers; Absolare Stabilians; Resolution Acoustics room treatment; Stillpoints Aperture panels.

Room 20' L by 16' W by 9' H.—Jason Victor Serinus

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# Fact or Fantasy?

## Dear Audiophile/Music Lover,

It's a **fact** that every system I have heard—in every audiophile's home that I have visited—is a pale shadow of what it could have been.

It doesn't matter who did it, what "rules" they followed, or how great the components were supposed to be. The sad **fact** is that if the system doesn't "play the room" properly, it is significantly underperforming its potential.

## Fantasy

The **fantasy** is the belief that a new amp, preamp, or cable is somehow going to make it all happen. It might help, but not nearly as much as it could if your system was voiced properly to your room. This voicing is called **RoomPlay**.

## The Real Deal

Here is an edited excerpt from a review by a **RoomPlay** client,\* posted by Richfield\_hunter on Audiogon.com:

*"As an audiophile, I was always searching for the next level of performance. I tried many equipment changes and tweaks over the years and most of the time achieved a higher level of performance. But I always wondered if the changes were how the sound was recorded and IF I was getting the most out of my sound room. I decided to schedule Jim Smith for one of his **RoomPlay** sessions.*

*[RoomPlay] has been the single largest improvement in sound quality*

*that my system has ever experienced. I am amazed at the differences I hear.*

*The music now flows with more rhythm and tempo. The harmony and blend between the treble and bass is improved and it sounds more like live music. Music is more emotionally engaging.*

*It is as if I can see into the recording. The resolution of detail is remarkable on every song. The soundstage is more three-dimensional and the height, depth and width seem more right. Hearing the location of the performers on the soundstage has added an extra dimension of excitement to the listening experience.*

*I find myself just listening to the music and toe-tapping like never before. I truly am enjoying the music.*

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*Jim Smith has the vast experience and incredible ability to hear the changes and get the most out of our rooms and system components. Jim's **RoomPlay** sessions are worth every penny spent—you too can enjoy the music like never before."*

## Fact vs. Fantasy

The **fact** is that I get comments like this after each and every **RoomPlay** session. These music lovers are astounded at how much their system has improved. **Fantasy** time is over



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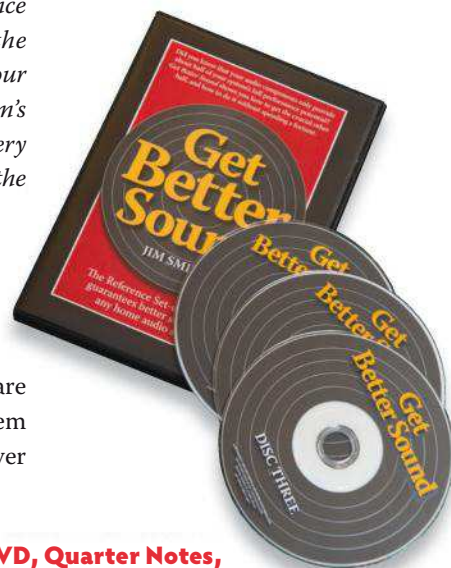
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Best regards,

*Jim Smith*

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# FOLLOW-UP

BY JIM AUSTIN & KEN MICALLEF

**THIS ISSUE:** Second listens to preamplifiers from Ayre and PS Audio and loudspeakers from Klipsch.

## AYRE ACOUSTICS KX-5 TWENTY PREAMPLIFIER & PS AUDIO BHK SIGNATURE PREAMPLIFIER

In the March 2018 issue, Art Dudley admired the sound quality of Ayre Acoustics' KX-5 Twenty preamplifier, but didn't love some of its operational aspects.<sup>1</sup> I've staged this Follow-Up as a putative face-off between the Ayre and my current reference preamplifier, the PS Audio BHK Signature, which I reviewed in the June 2017 issue.<sup>2</sup>

Although the PS Audio BHK Signature and Ayre KX-5 Twenty preamplifiers have some things in common—*eg*, both are fully balanced and have both XLR and RCA outputs, not to mention the fact that both products are made in Boulder, Colorado—their prices were arrived at from opposite directions. At \$5995, the BHK Signature isn't just PS Audio's current flagship preamp: it's one of the most expensive components the company has ever produced. But at \$9950, Ayre's KX-5 Twenty is a result of trickled-down technology: Ayre introduced its Variable-Gain Transconductance (VGT) volume-control circuit in the KX-R preamp,



which at the time cost \$18,500; the current, updated version, the KX-R Twenty, costs \$27,500. Is it better to benefit from trickled-down technology, and settle for less than a company's best—or experience the purest expression of a company's audio vision?

I decided I would compare the two preamps using a single recording: Saint-Saëns's *The Carnival of the Animals*, with pianist Martha Argerich, and Antonio Pappano also playing piano while conducting a chamber ensemble drawn from the Rome Santa Cecilia Academy Orchestra (CD, Warner Classics 0190295755553). I'd been listening to this excellent-sounding album for a couple of weeks—to the MQA version on Tidal, via Roon—when I saw Robert Levine's review in the March 2018 *Stereophile*. With its disc-mate, Saint-Saëns's Symphony 3, "Organ," Robert awarded the recording 4.5 stars for the performance and full marks—a rare five stars—for sonics. "Stunning!" he concluded. "Full of contrasting instrumental timbres and colors, *Carnival* makes a good audition piece—and while it may be children's program music, I like it!"

First, though, I had to match levels. I began with my PS Audio BHK Signature preamp, setting it to a level that seemed natural for the music. Then I played a white-noise

track, and measured the output with a digital meter: 79.2dB, with the BHK's volume level set to "40" (in a range of "00" to "100"), as indicated on the preamp's digital readout. Then I moved the interconnects over to the Ayre and played the white noise again, adjusting the volume level until it matched the PS Audio's as closely as possible. The best I could do was 78.5dB, with the Ayre's volume set at "30" (out of "46"), so I moved the BHK's volume control down a click, to "39." That put the volume at my listening chair at 78.6dB—just 0.1dB louder than the Ayre. That's good volume-matching. In the ensuing comparisons, I kept my paws off the volume control.

Subtle differences emerged immediately in *Carnival*'s first movement, *Introduction and Royal March of the Lion*: just past the 30-second mark, when the two pianos play octave runs at *ff*, the first piano ascending as the second descends. The engineers seem to have taken the recording level right up to the edge of the red. Through the Ayre it was loud, intense, percussive, even noisy—the last not a fault of the preamp, but clearly intended by the engineers. The PS Audio preamp softened the transients just a touch, slightly polishing the edges. There was nothing *polite* about the sound; it was just *more* polite.

The two pianos dominate *Carnival*'s first several short movements, sometimes in combination with various solo strings. Through both preamps the pianos sounded as they should, their natural percussiveness in the

higher notes balanced against resonance in the bass and a good sense of the surrounding acoustic. The Ayre revealed a touch more of the pianos' percussive leading edges. The strings buzzed viscerally.

The fifth movement, *Elephants*, is a short (1:28) demo-quality track, the pachyderm portrayed by Libero Lanzilotta's bowed double bass, sounding rich, fat, and buzzy, with a woody resonance (from the bass's body) that's more audible on some notes than others. Between 30 and 60 seconds in, Lanzilotta plays a lovely legato passage, with subtle dynamic shadings—a little softer, then a little louder—before returning to the main staccato figure. It's one of those communicative moments—not profound, perhaps, but moving in a simple, human way that connects the listener (in this case, me) to the music. There's a shift from hearing a recording to experiencing a human musician playing an instrument. I'm probably in good company when I say that this is why we listen through good systems. That elephant may be big, but while

1 See [www.stereophile.com/content/ayre-acoustics-kx-5-twenty-line-preamplifier](http://www.stereophile.com/content/ayre-acoustics-kx-5-twenty-line-preamplifier). Ayre Acoustics, Inc., 2300-B Central Avenue, Boulder, CO 80301. Tel: (303) 442-7300. Web: [www.ayre.com](http://www.ayre.com).

2 See [www.stereophile.com/content/ps-audio-bhk-signature-preamplifier](http://www.stereophile.com/content/ps-audio-bhk-signature-preamplifier). PS Audio, 4826 Sterling Drive, Boulder, CO 80301. Tel: (720) 406-8946. Web: [www.psaudio.com](http://www.psaudio.com).



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### FOLLOW-UP

the playing is impeccable, the player seems exposed, even vulnerable.

Speaking of *exposed*: This bass/elephant exposed the most obvious difference I heard between the two preamps, though it still was quite subtle. The Ayre's sound was drier than the PS Audio's: more rosin, less wood; more core, less body. I *could*

natural balance of timbres and natural distance. Here, that balance was nearly ideal through both preamps, but with a slight difference of perspective: The Ayre carved out a slightly deeper space, while through the PS Audio, paradoxically, the cello seemed farther away. The Ayre's reproduction of space was, I thought, a touch more realistic, but



describe this as the PS Audio's sound being a little wetter. Both perspectives are legitimate, and I don't know which is more "correct," more neutral. I used to think neutrality was a meaningful notion. I still think it's useful—indeed, essential—as an abstract objective, but as an empirical goal it's problematic: How do you decide what a collection of bits actually *sounds* like?

In *Fossils*, Saint-Saëns recapitulates a trick he'd played 12 years earlier, in *Danse Macabre*: using xylophones to evoke rattling bones,<sup>3</sup> even as he introduces shreds of familiar melodies, from "Au clair de la Lune" to "Twinkle, Twinkle Little Star" and a famous aria from Rossini's *The Barber of Seville*. (There's a musical joke here: Saint-Saëns equates those tired melodies with old, buried bones.) The xylophone carves out a big soundstage, wide and deep. The prize for depth goes to the Ayre—the PS Audio's space was ever so slightly flatter—but both preamps performed well. Again, the difference was small.

If the mid-18th-century folk song "Au clair de la Lune" was a fossil in Saint-Saëns's time, his *The Swan* is a fossil in our own. But it's a pretty melody, here expressively performed by cellist Gabriele Geminiani in excellent sound. Two delicate pianos define a big space, the cello planted between them. The cello is recorded more distantly than the double bass in *Elephants*, with less body and more room sound. This, for me, was a reminder that perfection in audio is often about balance, not extremes—not the ultimate in buzz or honk, but a

this was something I could hear only in a direct comparison.

Both preamps were exceptionally quiet. The sounds of both were vivid, with lovely, rich textures. Both delivered weighty, solid bass. The PS Audio's bass was subjectively a touch stronger, but again, I don't know which was closer to what's buried in this recording's bits.

The sounds of the two preamps were, overall, more similar than different, but if you're choosing between them, there's much else to base a choice on. First, the BHK has two tubes, in its input stage. These can be swapped out with other variants to subtly tune the sound—but tubes also wear out over time, degrading your system's performance imperceptibly, day by day, until audiophile friends who drop by for a listen start giving you odd looks. Tubes are fun to play with. Tubes are unpredictable. Tubes are tubes.

As for controls and logistics, the PS Audio gets the nod. The BHK's innovative volume control has finer steps—roughly 0.5dB—than the Ayre's innovative volume control (1.3dB, as measured at my listening chair with white noise). Indeed, increments of 1.3dB are coarse enough that I had difficulty finding the appropriate volume for some recordings. The BHK has five inputs, each with balanced (XLR) and unbalanced (RCA) connectors. The Ayre has separate balanced (four XLR) and unbalanced (two RCA) inputs; if you've got three unbalanced sources, you're out of luck. The Ayre, though,

<sup>3</sup> In *Danse Macabre*, it's card-playing skeletons; in *Fossils*, the bones of dead animals.





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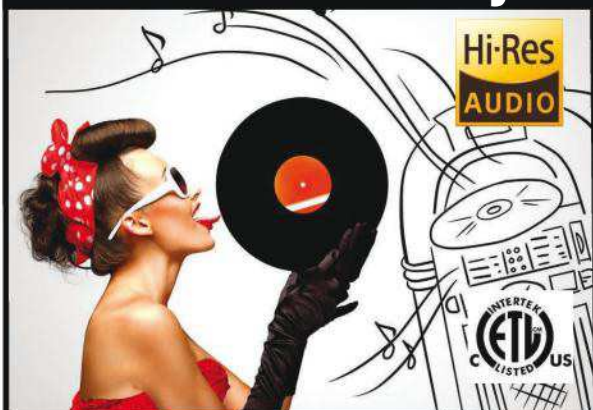
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has the nicer volume knob: it's nice and smooth, and feels better than the BHK's haptic-feedback design.<sup>4</sup>

Ayre's preamp lets you adjust input levels for each input individually, offsetting especially hot ones so that you don't hurt your ears when changing inputs. You can't do that with the PSA. To change the BHK's balance, you must dig into its menu system; there's no front-panel knob. The Ayre doesn't appear to

labels and Ayre's logo) that, over time, bubbles around the buttons.<sup>5</sup> The Ayre remote's layout is simple and easy to use, but it's not backlit. The PS Audio's remote *is* backlit; it has more plastic, but its textured-aluminum faceplate is nicer, with printed-on labels. The BHK remote is more complicated, though, with controls for a transport, a DAC, and a preamp. Whatever. I'm sure you'll quickly adjust to either one.



## The Heresy was originally designed, in 1957, as a meat-and-potatoes center-channel speaker.

have a balance control of any kind.

Most XLR connectors—including those on the BHK—lock in place. Technical advantages aside, this is one of the reasons I prefer balanced interconnects: stick 'em in, hear 'em click, push a button to remove—no struggling with too-tight RCA connectors. But the Ayre's balanced inputs *don't* lock, and I think I know why. Three of the Ayre's balanced sockets are arrayed in a column and are only 1/8" or so apart—not enough space, I think, for the little metal levers you press to release an XLR plug. This is not a performance issue—I never had any problem with loose connections on the Ayre, and wouldn't expect to—but small things like this can affect pride of ownership.

The remote controls are quite different. The Ayre's is made mostly of black-painted metal, with some plastic; it has good heft, but a cheesy decal on the front (ANALOG and DIGITAL

Which would I choose? I already own the PS Audio, so I don't have to. The BHK Signature is a great preamplifier, honest and musical. But if I'd instead auditioned the Ayre Acoustics KX-5 Twenty and bought it, I'd probably be just as happy, if slightly poorer—the BHK Signature preamp costs \$3995 less than the KX-5 Twenty. That's real money.—**Jim Austin**

### KLIPSCH HERITAGE HERESY III LOUDSPEAKER

In the November 2012 edition of his "Listening" column, Art Dudley wrote, "The coelacanthic Klipsch Heresy III . . . is among domestic audio's living fossils, the original Heresy having been introduced in 1957 as a 'center-channel' speaker for use with stereo pairs of the original Klipschorn. . . ."<sup>6</sup>

A fat little floorstander measuring 23.8" high by 15.5" wide by 13.25"

<sup>4</sup> One annoying thing I noticed about the BHK after writing the original review: If you turn the volume knob very slowly, the volume doesn't change at all.

<sup>5</sup> This appears to be the same model of remote control that Benchmark Media Systems provides with their DAC3 HGC D/A converter (\$2195). Its decal, too, is bubbling.

<sup>6</sup> See [www.stereophile.com/content/listening-119](http://www.stereophile.com/content/listening-119).

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deep, the Klipsch Heritage Heresy III (\$1998/pair) is a fossil.<sup>7</sup> Its tweed-like grille, 12" pleated-surround woofer, and horn-loaded midrange and high-frequency drivers are, by contemporary hi-fi standards, practically *Homo heidelbergensis*. The Heresy was originally designed, in 1957, as a meat-and-potatoes center-channel speaker. But an audiophile speaker? It was never intended as any such thing. Fellow *Stereophile* contributor Steve Guttenberg confirmed that when, responding to the news that I'd be reviewing the Heresy III, he exclaimed, "Those aren't audiophile speakers. Those are *party* speakers!"

After I'd positioned the Heresys' butt-ends 2' from the front wall, their interior sidewalls 5' apart, and each speaker 6' from my listening seat, Steve's description seemed spot on. Connected to my Apple MacBook computer, PS Audio NuWave DAC, and Heed Elixir integrated amplifier, the Klipsches (99dB sensitivity and 8 ohms nominal impedance) sounded big and exuberant. Music jumped out of them with verve, energy, and gusto. Little did I know what awaited me, once I'd switched from streaming tunes via Tidal to spinning big, shiny black discs on my Kuzma Stabi turntable with Stogi tonearm, and sending their signals through my Shindo Laboratory Allegro preamplifier and Haut-Brion power amplifier.

According to Klipsch's website, the Heresy has been revised several times since 1957: "In 2006, the Heresy III was upgraded with a more powerful [fiber-composite] woofer, bi-wire network, as well as midrange and



tweeter compression drivers, featuring a titanium diaphragm [replacing phenolic diaphragms] for smooth and accurate definition." My review pair arrived in living-room-friendly matched walnut veneers.

The Klipsch site also states that "The Heresy III offers the greatest degree of placement flexibility of all of the Heritage models due to its relatively compact size." Friends, this is sadly untrue. When toed-in and listened to at fairly close range—say, from 4' to 5' away—the Heresy IIIs will blast your ears clean off your head. I found that the Heresy's horn-loaded 1" and 1.75" titanium-diaphragm compression drivers could be merciless with some recordings. Jackie McLean's *One Step Beyond* (LP, Blue Note BLP 4137) produced tinny cymbal sounds and metallic-sounding reeds. String sections on some classical LPs sliced my skull in half like a samurai's blade. Firing the Heresys straight ahead largely ameliorated the problem.

With the right records and optimally set-up, the Heresy was a marvel. I'd never before heard a speaker, at any price, sound so fast, so energetic, so purely *alive*. From acoustic jazz and manipulated electronic compositions to classical and middle-eastern folk, the Heresy communicated the essence of the music stamped into each disc, as well as the width and breadth of the recording venue, with presence, power, and weight.

While the Heresys didn't do ultimate deep bass as well as my DeVore Fidelity Orangutan O/93s—rather bizarre, given the Klipsches' 12" woofers—the little fat boys wrung extremely coher-



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ent, taut, and superbly clear double-bass notes from my favorite jazz discs. While their bass-reproducing abilities were often revelations of clarity, the Heresys also imaged very well within a broad soundstage. I can fault only the Heresy's sometimes strident treble, and even that was disc-specific.

Driven by my Kuzmas and Shindos, the Heresys showered me with intense levels of fun and discovery, communicating a visceral, deep sense of *knowing* with each disc. The sheer *speed* of the speakers' sound was uncanny. It satisfied my lust for deeply articulated double-bass notes, cymbal arrays that shimmered as much as they stung, and melody instruments—saxes, guitars, violins—imbued with solid touch and impact. The Heresys didn't sound as romantic or as tonally rich as my DeVore O/93s—they lacked the ultimate sense of humanity the Orangutans deliver by the truckload. No, the chunky IIIs were indeed party speakers—they were all about rhythm and release, about very specific details cast on immersive soundstages that seemed to re-create the original recording venues. Nothing was glossed over, submerged, or suppressed. When I played Herbert von Karajan and the Berlin Philharmonic's 1977 recording of Stravinsky's *The Rite of Spring* (LP, Deutsche Grammophon 2862 001), the second half of side 2 sounded like a riot: the orchestra raced, plunged, exploded with mind-boggling speed and rich sonorities and occasional skull-shredding string transients. But—the dynamics!!

Double bassist Dave Holland's *Triplicate* (LP, ECM 1373) features drummer Jack DeJohnette and alto saxophonist Steve Coleman in a driving, exploratory trio outing. The Heresys told me more about Holland's chewy bass lines and DeJohnette's sweltering drum and cymbal attacks than I'd ever before heard from this album. Every note of Holland's signature bass sound was laid bare; every finely delineated manipulation of fingers on string and neck, every pluck and hammer, gave me greater insight into his mighty magic. I've heard DeJohnette's drums and cymbals in many live venues, as well as in his own basement studio in upstate New York. The master's touch on his oddly dark cymbals and dry-toned drums was fully revealed by the Heresy III, again giving me greater understanding of what I take to be the intent behind this great musician's playing.

The Heresys were so clear, resolute,

and fast that they approached the ideal of live music in the home, if that's your thing. It's not mine—studio and live sound are two different things. But the Heresy's inherent speed and überwide dynamic range were as close to live as I've heard in my MacDougal Street residence.

Some albums are purely studio creations, the results of digital samples manipulated and combined to realize the composer's vision. Fennesz's *Bés* is such an album (LP, Editions Mego 165), its rolling bass waves and golden rhythmic and melodic tentacles given full expression via the Heresy IIIs. Fennesz's music oozed and spread around my pad, creating a large, cavernous space of viscous electronic beauty. The Heresys' soundstaging was one of their most convincing traits—an oddity, given that these speakers are . . . well, like I said, fat little floorstanders. But the Klipsch Heresy has remained in production for 61 years for many reasons, and high on the list is its natural-sounding presentation of original recorded (or created) spaces.

Sonny Rollins's *Newk's Time* (mono LP, Blue Note 4001) is an all-time classic of hard bop. The tenor saxophonist's improvisational prowess and organizational logic are galvanizing forces, given flight by pianist Wynton Kelly, bassist Doug Watkins, and drummer Philly Joe Jones. Though the Heresys occasionally blasted Sonny's horn like a warning siren, their overall rendition of the dynamics, speed, and spatial aspects of *Newk's Time* outweighed those negatives.

One typical lazy Sunday toward the end of my listening to the Heresy IIIs, I wandered over to In Living Stereo, a high-end audio salon in Greenwich Village. As I chatted with Steve Guttenberg and the store's Steve Cohen, a woman in her early 40s walked in. What she then said was a shock: "Last night, I heard a pair of Klipschorn speakers and they changed my life."

It's hard for *any* piece of audio kit to change the life of a crusty audio reviewer. But Klipsch's Heritage Heresy III came close. It revealed the joys still possible from a venerable loudspeaker design in which speed, dynamics, depth, and breadth all come together in a well-designed and affordable package. Choosing the correct ancillary components is a must with the Heresy III—but the results may reward you, as they did me, with the pleasure of music sublimely reproduced. —Ken Micallef ■

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— Michael Fremer's review of Storm Series Dragon AC Power Cables in *Stereophile*, May 2018 ([www.stereophile.com](http://www.stereophile.com))

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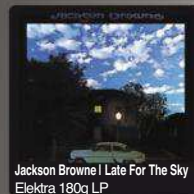
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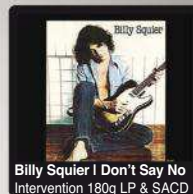
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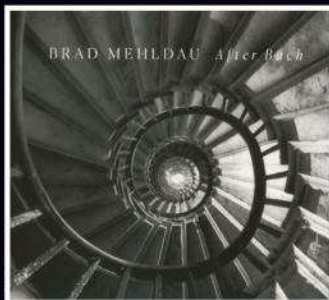
# RECORD REVIEWS

**T**hat American jazz pianist Brad Mehldau has made a recording of J.S. Bach's music should come as no great surprise to anyone who's followed his extraordinarily varied career. In many ways, it seems a natural progression.

Having become one of the most important jazz pianists of this century, and dabbled in classical-flavored music, film scores, and even performances of popular music (by Oasis Soundgarden and Nick Drake, to name just a few of the artists he's covered), Mehldau has finally gotten around to recording this album of five pieces by one of the greatest keyboard improvisers in history. Mehldau's method here is to play a more or less straight version of a Bach prelude or fugue from *The Well-Tempered Clavier*, BWV 846–893, followed by his own "After Bach" reimagining of the same piece. All five Bach compositions are played surprisingly well by a pianist clearly intent on showing he's got the chops, and the understanding of Bach, to excel at this ambitious project. He puts his stamp on the album by opening and closing it with two originals inspired by Bach: "Before Bach: Benediction" and "Prayer for Healing."

The music of J.S. Bach has, of course, been connected to jazz music and players many times before. In the mid-1980s, John Lewis, of the Modern Jazz Quartet, recorded three albums based on Book I of *The Well-Tempered Clavier*. French pianist Jacques Loussier has made a career of playing Bach in an idiosyncratic style. Mehldau's straight readings on this album are highly reminiscent of Keith Jarrett on his 1988 recording of *WTC Book I* (ECM). *After Bach* fits neatly into a career that has never been circumscribed by simple definitions. Much to Mehldau's credit, he's always been more interested in forward momentum and remaining curious and active, rather than in working within any single musical genre or tradition. In the past decade alone he's toured with jazz guitarist John Scofield, and formed a drums'n'bass-influenced duo with drummer Mark Guiliana.

## EDITOR'S PICK RECORDING OF THE MONTH



### BRAD MEHLDAU *After Bach*

Brad Mehldau, piano  
Nonesuch 7559-79318-0 (CD).  
2018. Robert Hurwitz, exec. prod.;  
Tom Korkidis, prod. coord.; Tom  
Lazarus, eng., mix, mastering; Brad  
Montgomery, mix. ADD? TT: 69:24

PERFORMANCE ★★★★★  
SONICS ★★★★★

In 2015, Mehldau received a commission—underwritten by Carnegie Hall, the Royal Conservatory of Music, the National Concert Hall, and Wigmore Hall—to compose new pieces based on Bach's music improvisations based on Bach, called *Three Pieces After Bach*, which he subsequently began performing and which formed the basis for this album.

In terms of spirituality, as well as the skill and savvy of his playing, Mehldau clearly understands what makes Bach's music tick. The pianist's exacting contrapuntal technique, harmonic density, and often muted but still potent emotionality mirror those of the man he pays tribute to in this recording. The pianist Timo Andres, a Nonesuch label mate, may have summed it up best in his liner note: "There have always been elements of Mehldau's style that recall Bach, especially his densely woven voicing—but he's not striving to imitate or play dress-up. Rather, *After Bach* surveys their shared ground as

keyboardists, improvisers and composers, making implicit parallels explicit."

While Mehldau's improvisations on *After Bach* may be a bit too loose and jazzy for classical-music purists, these ruminations—a trend in all of Mehldau's playing that may indeed be his strongest suit as a pianist—seem to be trying to work off whatever emotional contrail this modern pianist senses in the original composition.

Nowhere in this recording does that work better than in "After Bach: Ostinato," which follows a solemn reading of Fugue 16 in g, from *WTC Book II*, in which a grand and sweeping rhythmic sense takes over, and between repetitions of one note Mehldau uses the sustain pedal as he draws out emotions swirling behind the scenes of the original piece. As he spirals downward in an ever-slowing rhythm, the spaces between notes growing, "Ostinato" is finally enveloped in a silence that serves as a thrilling segue to Mehldau's "Prayer for Healing," a short melodic piece in the gray-and-sepia hues he prefers that nevertheless projects guarded hopefulness. Another highlight, this time more upbeat, vibrant, and jaunty, is "After Bach: Rondo," which follows Prelude 3 in C#, from Book I. Yet another track that drew me back again and again was Mehldau's beautiful reading of the Prelude 1 in C (Book II), in which a lighter touch on the keys, and a slightly more relaxed sense of rhythm than is present in most recordings of the original, give the music a previously unheard poignance. Throughout this recording, Mehldau's playing is moving and deeply inspired.

Placing microphones around and inside an acoustic piano is harder than it looks. Here it's been done with expert grace and a clear sense of function. The resonances of the instrument, recorded at Mechanics Hall in Worcester, MA, are captured in glorious natural detail, as a modern master of the keyboard reproduces the original music and creates his own interpretations, in the process fashioning an album that exposes fascinating new musical angles on Bach's towering legacy. —Robert Baird ■

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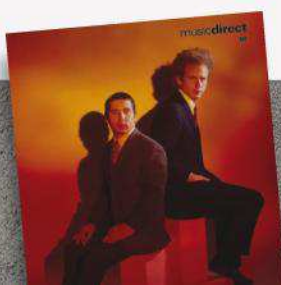
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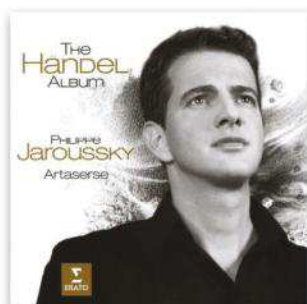
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## CLASSICAL



**PHILIPPE JAROUSSKY**  
*The Händel Album*

Arias from *Amadigi di Gaula*, Ezio, Flavio, Giustino, Imeneo, Radamisto, Riccardo Primo, Serse, Siroe, Tolomeo  
Philippe Jaroussky, countertenor; Artaserse  
Erato 0190295759667 (CD). 2017. Alain Lanceron, prod.; Michel Pierre, eng. DDD. TT: 71:28

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

The sheer loveliness of Philippe Jaroussky's voice can occasionally hypnotize the listener into thinking he's not thinking. His artistry is so perfect, his tone so peculiarly beautiful, that it's easy to miss the depth of his interpretations. He's one of those artists one can listen to casually and merely bathe in the sound; a closer listen reveals much more.

Here, in this CD of 14 arias from Handel operas composed for castrato, he offers grief, resignation, rage. The dazzling vengeance aria "Rompo i lacci," from *Flavio*, contains the usual staggering runs, roulades, and octave leaps, all perfectly executed, but oddly it's the B section, slow and introspective, that stands out for its seamless legato and luscious tone. Tolomeo's death scene, "Stille amare," presents the character as poison overtakes his body. Without resorting to exaggeration, Jaroussky makes us feel the life ebbing away. Radamisto, raging against a tyrant, joins with strings to express fury in "Vile! Se mi dai vita"; it's a perfect melding of instruments and voice—a true rush to rage. A metaphor aria from *Riccardo Primo*—he's agitated by a fierce storm—is a startling cascade of notes, Jaroussky dipping gingerly but effectively into chest voice.

One must be amazed at what Jaroussky can do with a small, if perfectly focused, light voice: it may not have the various colors of some other countertenors—eg, Max Emanuel Cenac and Franco Fagioli—but he uses it with such expertise, and his feel for the baroque is so impeccable, that he never fails to hypnotize. His own ensemble, Artaserse, plays brilliantly. —Robert Levine

## ROCK/POP



**AMEN DUNES**  
*Freedom*

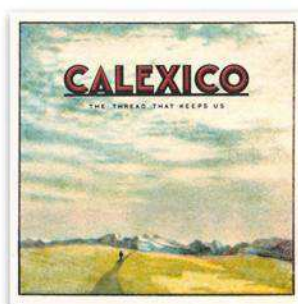
Sacred Bones SBR-195 (LP/CD/WAV). 2018.  
Damon McMahon, prod.; Chris Coady, Panoram, prods., engs. DDA/DDD? TT: 46:10

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

Amen Dunes's music has always been difficult to pin down, perhaps in part because the band's one constant is its founder, Damon McMahon, whose varied musical interests lean toward the bizarre. Since *DIA* (2009), which matched Royal Trux's lo-fi irreverence with Syd Barrett's psychedelic folk, McMahon's studio releases have grown at once grander and more approachable. For *Freedom*, recorded at Electric Lady Studios and produced by Chris Coady (Beach House, Yeah Yeah Yeahs), McMahon enlisted studio musicians Steve Marion (guitars), Jordi Wheeler (keys), Gus Seyffert (bass), and Parker Kindred (drums) to create his most accessible work yet.

The brief opening, "Intro," calls to mind sentiments recently expressed by the Times Up and Me Too movements: "This is your time," a young boy enthusiastically announces, "Their time is done," before swirling synths and fuzzed bass create a foundation on which McMahon's mother recites a quote from abstract painter Agnes Martin: "I don't have any ideas myself. I have a vacant mind." In interviews McMahon has talked about wanting to relinquish ideas of self, suggesting Martin's words served as a beacon.

McMahon contemplates what it means to be a man, a musician, himself. His songs are marked by a bouncing tambourine jangle ("Blue Rose"), thick rolling bass ("Time"), and country-swing shuffle ("Calling Paul the Suffering"). While he delivers his lyrics with a swagger that sometimes recalls Mick Jagger, and an indifference that at others conjures Lou Reed, he too often relies on a spitty tremolo that grows wearisome, and serves only to mask his meaning. —Stephen Mejias



**CALEXICO**  
*The Thread That Keeps Us*

City Slang SLANG50138LTD (2 LPs). 2018.  
Craig Schumacher, prod., eng.; Joey Burns, John Convertino, prods.; Tom Hagerman, Sergio Mendoza, Chris Schultz, Thomas Small, Martin Wenk, engs.  
ADA? TT: 67:31

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

I've long marveled at Calexico's musical evolution from folkish desert-rock duo with occasional Latin influences to bona fide Southwestern ambassador deftly integrating folk, rock, pedal-steel-powered country, reggae, psychedelia, and Mexican pop. *The Thread That Keeps Us* maintains this sense of place, particularly in gorgeous, windswept numbers like the Morricone-esque cinematic psych of "Voices in the Field" and the Spanish-language mariachi rock of "Flores y Tamales."

Calexico has also perfected the art of the anthem—fittingly enough, as this album is overtly political in places, its lyrics detailing and decrying the "age of extremes" we're living in—in such songs as the soaring, U2-like "End of the World with You" and the heavy-twang stomper "Dead in the Water." Throw in a bonus LP with the deluxe European edition, its seven tracks showing off the band's more understated, trancey side, and Calexico emerges as one of the most diverse, free-ranging outfits operating.

A forum thread at Discogs.com drew some lively debate over the quality of the mastering and mixing. I hear no "pointlessly muffled" passages, but I did have to turn up the volume on side A. In this band, seven to nine people perform at any given moment, so a bit more volume helps spread that density across the soundstage and lets the dynamic nuances emerge.

Other commentators speculated on the US edition (one LP, 15 songs) being a poor pressing, the 180gm European pressing reviewed here presumably being superior. Inconclusive, but still worth noting. —Fred Mills

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## JAZZ



**SUE FOLEY**  
*The Ice Queen*

Stony Plain SPCD 1398 (CD). 2018. Mike Flanigin, prod.; Chris Bell, eng. {SPARS?} TT: 53:24

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

*The Ice Queen* is Sue Foley's 15th album as a leader, and for my money it's her best ever. The Ottawa-born Foley turns 50 this year, at the top of her game, having recently been part of the hottest project out of Austin, Texas, the Jungle Show.

Foley was a child prodigy who immediately took to the blues from rock'n'roll sources, but had the sense to move to Austin to find out what it was really about. After paying her dues playing at Antone's and other local juke joints, and learning the trade watching Jimmie Vaughan, Charlie Sexton, George Rains, and the Texas Horns, Foley made her first four very good records for the Antone's label.

Though Foley identifies as Canadian, she's really a Texas artist, and in true blues tradition her hard-driving touring schedule makes her a citizen of the world. *The Ice Queen* grew directly out of her role in the Jungle Show, with guitarists Vaughan and Billy Gibbons, Hammond B3 organist Mike Flanigin, and drummer Chris Layton, all of whom play on the album.

Flanigin produced the record at Fire Station Studios, in San Marcos, Texas, leading an all-star cast that includes Rains, the Texas Horns, guitarist Derek O'Brien, and members of the Tedeschi-Trucks Band. The record showcases all of Foley's strengths as a songwriter fronting: a trio ("Run," "Death of a Dream," "The Ice Queen"); a quartet ("Fool's Gold," with Flanigin, Layton, and Gibbons); a quintet ("Come to Me," with Sexton; "The Lucky Ones," with Vaughan); and a big band ("If I Have Forsaken You"). It closes with a moving solo version of the Carter Family's "Cannonball Blues." —John Swenson



**TOM ARTHURS TRIO**  
*One Year*

Tom Arthurs, trumpet; Richard Fairhurst, piano; Markku Ounaskari, drums, percussion  
Ozella OZ077CD (CD). 2018. Tom Arthurs, prod.; Miles Perkin, eng. DDD. TT: 48:24

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

Like so many important European jazz musicians, Tom Arthurs hit US radar screens only when he appeared on an ECM album: Julia Hülsmann's *In Full View* (2013), on which Arthurs was stunning. He is more stunning on his own records. *One Year* is the fifth, all on small European labels.

It is a strange, elusive, challenging work. Arthurs reports that he composed it in fragments during a quiet month of an otherwise hectic year, 2014. Later, he juxtaposed the fragments to make six tracks. In "Verklöstert," a bare form evaporates into cryptic drum stirrings and returns with notes missing, leaving only five, repeated in Arthurs's deeply layered, haunting trumpet voice. This music moves episodically, in detached melodies. The other players in the stark ensemble are pianist Richard Fairhurst, who mostly creates obsessive cyclic patterns as context for Arthurs, and drummer Markku Ounaskari, primarily a colorist and conjurer of atmosphere. No one exactly "solos," and no piece sustains a single direction. But as *One Year* stops and starts and arrays itself in musical space, outbreaks of unfamiliar lyricism keep occurring. "Rising" is a long trumpet journey without destinations but with sudden hard turns into austere beauty. In "Evergreens," sound itself is the destination. It presides in Arthurs's lingering trumpet resonance and Fairhurst's glittering piano light.

Arthurs is British but is based in Germany. He sounds something like Kenny Wheeler or Tomasz Stanko, filtered through the Berlin reductionist movement. If this is where jazz is going, the future looks promising. It will require creative listening. —Thomas Conrad

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**FRANK CARLBERG /  
NOAH PREMINGER**  
*Whispers and Cries*

Noah Preminger, tenor saxophone;  
Frank Carlberg, piano  
Red Piano RPR-14599-4431 (CD). 2018. Frank  
Carlberg, Noah Preminger, prods.; Jimmy Katz, eng.  
DDD. TT: 67:31

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

Since 2015, tenor saxophonist Noah Preminger has released five albums recorded by the great engineer Jimmy Katz (who is also the famous jazz photographer Jimmy Katz). Musically and sonically, they constitute one of the most compelling bodies of work in new-millennium jazz. The latest is *Whispers and Cries*, a duo project with pianist Frank Carlberg. Katz recorded it in Jordan Hall, an extraordinary acoustic environment of 1000 seats at the New England Conservatory, in Boston. The hall was empty. We are the live audience. The sound puts us there.

In a program of standards, Preminger and Carlberg seize on each old song as fresh creative provocation. Their interpretations are bold, free, impulsive, irreverent, and definitive. The first track sets the rules of engagement. Carlberg begins with dark, ominous chords and bright single-note stabs. You never feel “Someone to Watch Over Me” coming. A cacophonous introductory workout contains the seeds of “Take the ‘A’ Train.” All the abstract prologues build suspense. When they cohere into “The Meaning of the Blues” or “Try a Little Tenderness,” it is a rush. Preminger and Carlberg jar and challenge each other. They take turns breaking loose into the open space around every tune. They often erupt, but are most powerful when they go quiet. Each player lingers at the margins of the melody, as if reluctant to experience the memories it evokes. But when they’re finally drawn into the song and embrace it, sadness and loss become surrender and release.

—Thomas Conrad



**HELOÍSA FERNANDES**  
*Faces*

Heloísa Fernandes, Fazioli F228 piano  
Heloísa Fernandes AA0001000 (import CD). 2017.  
H. Fernandes, prod.; André Magalhães, prod., eng.,  
mix; Victor Lejeune, eng.; Homero Lotito, mastering.  
DDD. TT: 47:21

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

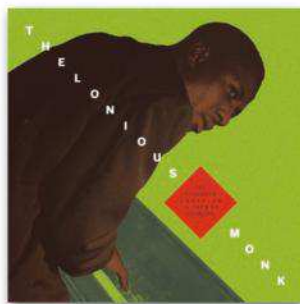
*Faces* is Brazilian pianist Heloísa Fernandes’s third album and first solo release. Evident everywhere is her classical training: full commitment to each exquisitely chosen note, absolute precision of articulation and rhythmic rigor. Some tracks are through-composed, others improvised on set themes, others entirely improvised, but with no hint of blues or swing. Not jazz, this is uncategorizable contemporary music created in the moment, à la Keith Jarrett’s early solo albums improvised in the studio, played with equally assured virtuosity.

The freshly festive *Colheita e Caicó*, a fantasia on Brazilian folk tunes, roams far. *The Three Graces* embodies in sound those deities’ qualities of clarity, brilliance, creativity, and joy in a Brazilian Impressionism that replaces the French variety’s harmonic clouds with bracing pellucidity of line and unsugared voicings. A second suite, *Rios*, marries all that to hauntingly spare minimalisms of means: Fernandes’s choice of the next note, dynamic, chord always surprises. More surprising is *Mergulho*, played mostly inside the piano. As Fernandes plucks, brushes, strikes strings with hands, her piano becomes omnitonal, omniform—a desolate steel mill, winds, the sea—as adjacent low-bass frequencies throb and beat. Here she sings: a modal keening that could be Brazilian or Sudanese or Neolithic.

The sound of this 7' 6" Fazioli grand is purring rich. More ambience would have been good, but under Fernandes’s fingers the piano becomes its own hall. The ears wander, exploring notes and harmonics at leisure.

Hard to find. Not cheap. Worth it.  
—Richard Lehnert





**THELONIOUS MONK**  
*The Complete Prestige 10-Inch LP Collection*

Craft CR00031 (5 LPs). 1952-54/2017.  
 Bob Weinstock, Ira Gitler, Teacho Wiltshire, orig.  
 prods.; Rudy Van Gelder, Doug Hawkins, Irv Green,  
 Les Cahan, orig. engs.; Nick Phillips, reissue prod.;  
 Joe Tarantino, reissue eng. AAA? TT: 112:27

**PERFORMANCE** ★★★★★  
**SONICS** ★★★★★

Released concurrently with Monk's centennial, this handsome boxed set reproduces all five of the 10" Monk LPs released by Prestige in the early 1950s—including one issued under Sonny Rollins's name—complete with jackets and labels, plus additional liner notes by Monk biographer Robin D.G. Kelley. While not as consequential as the preceding Monk releases on Blue Note, they amply display Monk's genius as a composer and pianist. The only problem is the bass-heavy sound of these pressings, which so exaggerates the warmth and brightness of the original vinyl that it sometimes distracts from the music.

Recorded in two trio sessions in 1952—one with Art Blakey on drums, the other with Max Roach—the first disc, *Thelonious Monk Trio*, presents the earliest recordings of the Monk classics "Little Rootie Tootie," "Bye-Ya," "Monk's Dream," "Trinkle, Tinkle," and "Bemsha Swing." Monk's nonpareil gift for quirky melody is abundantly evident, and his piano playing, while not conventionally virtuosic, is nonetheless brilliant, replete with his characteristic dissonances and glissandos. "Bye-Ya," in which Blakey beats out a lively Latin rhythm, is particularly impressive. Besides the excessive resonance of the obscure but musically adequate bassist Gary Mapp, Monk's loud moaning on the Roach-propelled B-side provides another distraction.

In 1953, Monk recorded three lesser-known original compositions in longer takes for *Thelonious Monk Quintet Blows for LP*, featuring Sonny Rollins on tenor sax, Julius Watkins on

French horn, Percy Heath on bass, and the unknown Willie Jones on drums. Bebopping smoothly, Rollins carries the ball in "Friday the Thirteenth," a relatively unremarkable tune written for the occasion, as well as the more memorable "Let's Call This," with Watkins playing trombone-like bop. Monk takes the lead in "Think of One," soloing smartly.

Monk made his first recordings at Rudy Van Gelder's New Jersey studio in 1954, with saxophonist Frank Foster, trumpeter Ray Copeland, bassist Curley Russell, and drummer Blakey. Of the three original tunes on *Thelonious Monk Quintet*, only the boppish "Hackensack," based on Coleman Hawkins's "Riffide," approaches the familiarity or distinctiveness of "Smoke Gets in Your Eyes," which gets a tongue-in-cheek treatment. While Copeland can certainly compare to Julius Watkins, the highly accomplished Foster is no match for Sonny Rollins, and even Monk seems less than inspired while still sounding excellent.

Later in 1954 Monk recorded *Thelonious Monk Plays* at Van Gelder's studio, with just Heath and Blakey. One can hardly blame Van Gelder, but the sound is even boomier than on the previous album. Monk, however, is in fine form in the complex "Work" and the more straightforward "Nutt," as well as in his unaccompanied appropriation of the standard "Just a Gigolo." The album's highpoint is the recorded debut of the justly celebrated "Blue Monk," a rare Monk blues that he wrote on the spot, and here plays to often-imitated, never-duplicated perfection.

Recorded a month afterward, the final album—variously titled *Sonny Rollins and Thelonious Monk*, *Sonny Rollins Quartet*, or *Sonny Rollins and Thelonious Monk Quartet*, depending on whether you read the front cover, the back cover, or the label—consists of three standards, with no Monk material. The pianist is relegated to a sideman role, together with bassist Tommy Potter and drummer Art Taylor. Rollins turns "The Way You Look Tonight" into a boisterous romp, as he and Monk each twist the tune around. Rollins and Monk both give "More Than You Know" a romantic rendering, playing sublimely inventive variations on the melody, while in the upbeat "I Want to Be Happy," the melody virtually vanishes into the bebop. —Larry Birnbaum

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**THIS ISSUE:** Robyatt, SMC, iFi, Rega, and Rogers respond to our reviews of their products.

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## Kuzma 4Point 9

Editor:

All of us at Kuzma would like to thank Michael Fremer for his review of our 4Point 9 tonearm. We are pleased that he heard details on the *John Wesley Harding* record that he had never heard before. We are also happy that he compares it to a much more expensive tonearm, and appreciates our achievement in bringing the 4Point tonearm experience to more turntable users.

Mr. Fremer comments that the new circular arm rest does not hold the arm in place, and that if the arm is bumped it will fly across the record. If the lift is in the up position, then the needle will stay above the record with no harm done. If the grip were stronger, then accidental force on the arm could possibly damage the bearings.

Mr. Fremer wrote that the vertical pivot position (PP) on the 4Point 9 is well below the arm, and that the arm's center of gravity (CoG) is well above the pivot point. Viewing the 4Point 9 from the side, the cartridge, tube, and upper part of the tower are above the PP, and the heavier part of the arm and the counterweight are below the PP, positioning the CoG close to the PP, which is also at record level.

Tracking is affected more by the height of the PP above the record surface than by the height of the CoG, which must be in front of the PP to create the vertical tracking force (VTF). The CoG and PP can be above, at, or below the record level—designer's choice. The tip of the stylus also acts a horizontal force (HF) caused by surface friction, which is

increased by the groove's modulation.

Here are three examples to consider (more details on our website):

CoG above PP: This always pushes the cartridge farther downward than when the CoG is at neutral level. This means that the VTF will increase even more on the rise and decrease least on the descent, thus giving the least chance for mistracking a warp.

PP above record level: The HF will rotate the tonearm and cartridge upward, thus lowering the VTF and creating the potential for mistracking, especially of warps.

PP at record level, as in 4Point arms: The HF does not affect negatively the VTF.

In all 4Point tonearms the PP is at record level, and the CoG is just slightly above and in front of the PP. In our opinion, this is the best solution for the tonearms' tracking.

Franc Kuzma  
Kuzma LLC  
Scot Markwell

Elite AV Distribution (US distributor)

## SMC Audio Nexus AC 8

Editor:

My thanks to Michael Fremer for his look at the Nexus AC 8 power-distribution and ground-enhancement system. This design is the result of my research into the effects of structural materials, conductor technology, mechanical isolation, filter topologies, and grounding behavior on the performance of AC power-delivery systems. Michael is correct: This piece was inspired by the Bocchino Mariner 10 IEC inlet, a connector that set a completely new standard for performance, and got me thinking hard about AC power delivery in high-performance audio.

I realized that this piece was going to be expensive to build, but decided to move ahead with a no-holds-barred design to see where it would lead. The custom Panzerholz (Tankwood) chassis alone is a very costly item, but I felt its contribution was essential. The built-in Stillpoints isolation technology costs more

## iFi Audio Pro iCAN

Editor:

We would like to thank Herb Reichert and *Stereophile* for his fine review of the iFi Pro iCAN amplifier in this issue. iFi is pleased that Herb enjoyed the sound of the Pro iCAN, especially in Tube+ mode, and that he considers it "A must-audition."

We would like to offer our approach to some features that were less praised. The iCAN was designed as a reference product—a "Swiss army knife" that offers benefits with real solutions to real issues of which there are an almost infinite number of combinations.

**XBASS ANALOGUE SOUND PROCESSING (ASP):** Different recordings and different headphones exhibit different frequency responses. XBass is an analog signal-processing (ASP) circuitry, and it is sonically superior to digital signal processing (DSP) systems. XBass is

tailored to correct the bass deficiency in the headphone/loudspeaker and achieve the desired level. It provides a minimum of 12dB boost at 10/20/40Hz.

**3D HOLOGRAPHIC MATRIX CIRCUITS FOR HEADPHONES:** provides not only "out of head" placement of the sound sources, but renders the whole soundfield in a way that strongly parallels listening to loudspeakers in a normal room. This is the first system in commercial production to achieve this, and drew from the works of Alan Blumlein.

3D Holographic for Speakers is an analog matrix circuit that first corrects the fundamental spatial distortion in stereo recordings, and second, increases the width of the apparent soundstage beyond the width dictated by the loudspeaker placement.

Rest assured that the features incorporated do not diminish the reference sound quality we strive for and that Herb enjoyed.

We happily agree: the Pro iCAN is a must-audition.  
Victoria Pickles,  
Director—Markets  
iFi Audio





than many complete pieces of high-end audio gear, but it was clear to me that effective mechanical isolation was a necessary component.

The simple fact is that the Nexus AC 8 is very expensive to build, and this was not done as a whim—I have carefully evaluated all the components of the Nexus to find the parts best suited for their roles, and am very happy with the result. The Nexus AC 8 has become an essential part of my music system. It delivers levels of clarity, transparency, harmonic integrity, and freedom from noise that I have not found any other way. I wish this level of performance could be achieved at lower cost, but that has not been my experience.

The one takeaway I hope your readers will get is this: Anything you do to improve the quality of the power and grounding feeding your equipment is well worth the effort and cost—the payoff is deeper engagement with your music.

Steve McCormack  
SMC Audio

#### Rega Research Apollo

Editor:

Thanks to Art Dudley for such a glowing review, and for getting to grips with what

Rega is all about: the Music, pure and simple.

Stephen Daniels, President  
The Sound Organisation



#### Rogers High Fidelity 65V-1

Editor:

Thanks to Herb Reichert for his thorough and enthusiastic review.

Herb, more than any reviewer we know, understands the magic and joy that can be found in a low-powered vacuum-tube amplifier, and, like him, we love EL34s. Herb described the palpable nature of sound that the 65V-1 produces, writing, of a Buddy Holly recording: “it all sounded so hauntingly real that I kept playing these tracks over and over.” Herb

also said, “The Rogers 65V-1 let the vivid, undoctored reality of these tapes come through with eerie, preternatural directness. . . . [Holly] plays an electric guitar, and every time the song ends, I sit there staring blankly into space, contemplating his genius, and what my Facebook friend meant by ‘an intimacy with music like no other.’”

Herb also describes a variety of vocal recordings played back with “arguably some of the most lifelike reproduction of voices I can remember hearing,” and “with unusually high levels of I-was-there tonal and spatial realism.”

Our goal at Rogers High Fidelity is to build lifetime instruments that will provide years of listening enjoyment, providing exactly the magic of music that Herb describes. We’re proud to build our products to aerospace standards in a dedicated facility here in the US. We’re also proud to offer up-to-date levels of connectivity and monitoring with our iPad app, and to provide extensive test documentation using state-of-the-art test gear for every product we build.

Thank you again, John and Herb, for the opportunity to reach *Stereophile* readers.

Roger Gibboni  
Rogers High Fidelity

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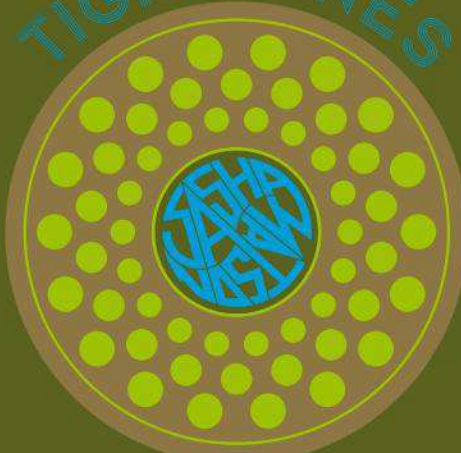


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# AURAL ROBERT

BY ROBERT BAIRD

## If Dreams Were Lightning, Thunder Was Desire

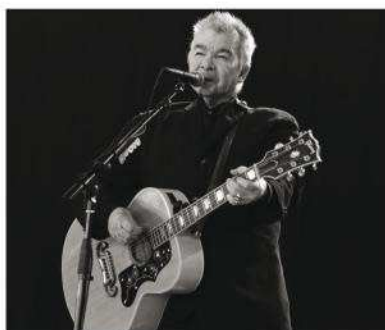
**S**ongwriters live to tell stories, and few can tell them as well as John Prine.

And yet it's been 15 years since Prine released a record of fresh original material. In the meantime, he's toured relentlessly, fought off cancer twice, had both knees and a hip replaced, and an elbow fixed.

While that daunting journey might have discouraged lesser beings, or at least convinced them to curtail their live appearances, the road and the adulation he receives on it is clearly Prine's animating passion these days—that and his new record, *The Tree of Forgiveness*, which, he says, has reawakened his interest in making studio albums. Recorded in Nashville, where the longtime Chicagoan now lives, the new album is playful Prine at his yarn-spinning best. In “When I Get to Heaven,” the album's most heartfelt and profound original, he spins a tale about the nightclub he's gonna open in heaven, a place where he forgives everyone. And yet, with a wink, his divine magnanimity only goes so far: “I might invite a few choice critics / those syphilitic parasites.”

“Oh man,” he says with a gleeful chuckle, “Amanda Shires and I were on a tour in the UK, and we were on a train going to the next city. I sat down next to her on the train, and she had her iPhone out, and she had a rhyming app open. I'd never seen one before. I've never even looked at a rhyming dictionary. I said, ‘Put the word *critic* in there, will ya?’ She did, and the first two words that came out were *syphilitic parasitic*. I did a little dance, and ran back to my seat and said, ‘That's it!’”

It was clear, even in our brief phone conversation, that Prine is still a long way from knock-knock-knockin' on heaven's door. *The Tree of Forgiveness* is a return to form that shows the ever-present humor, warmth, and wisdom that make him one of the last survivors of the late-1960s/early-'70s golden age of poet-prophets and their guitars.



Since the sudden death of his longtime manager, Al Bunetta, in 2015, Prine's career has become a family affair: his son Jody runs Oh Boy Records, and his wife, Fiona, serves as manager. A year ago, the pair forced him to move into a Nashville hotel and get to work on boxes of lyrics he'd collected.

“When I started out, 40 years ago, songwriting was my hobby. I'd go up in my room with a guitar and write a song. Now it's work. I try and find ways to get away from it. I guess somehow, when my family put a deadline on me, all of a sudden I got all these old ideas out. I had five songs finished, and I wrote two more, and by then it was time to go into the studio with Dave Cobb.”

Currently Nashville's hottest young record producer, Cobb [See my profile of Dave Cobb in the October 2016 *Stereophile*] was “totally hands on,” according to Prine, to the point of also playing guitar on several songs. *The Tree of Forgiveness* was recorded at RCA's famed Studio A, where Cobb is now chief engineer. Guest musicians included Jason Isbell and his wife, Amanda Shires.

“Cobb didn't want to hear any of the songs ahead of time before we got into the studio. I'd sing him one, and he would run out into the studio and move the mikes around and tell the drummer what to do. He never told me to do one thing different. My vocals and performances were mainly live. The longest I sang one song was four takes.”

Simultaneous with the release of the new record, Rhino Records has reissued Prine's first three albums on LP, including his still-incredible, self-titled debut, which contains “Sam Stone,” “Angel from Montgomery,” “Your Flag Decal Won't Get You Into Heaven Anymore,” and several other tunes that will always be key parts of his songwriting legacy. *John Prine* (1971), *Diamonds in the Rough* (1972), and *Sweet Revenge* (1973) have all been pressed at RTI from new masters cut from the original master tapes by Kevin Gray, of Cohearant Audio.

How does Prine feel about the sound of those classic records, now almost 50 years old? “I made that first album at Chips Moman's American Sound Studio, in Memphis, with the guys who'd backed Elvis. I don't think I'd change the arrangements today because they are so classic. But I used to have a hard time listening to myself on the first four Atlantic records. I can feel how nervous I was, I can hear it in my voice. It makes me uncomfortable, listening to me being uncomfortable.”

Like those early albums, *The Tree of Forgiveness* includes several of Prine's trademark tall tales unforgettably rendered in song. “I got a buddy, his name is John Earle, and we go fishing twice a year over in north-central Arkansas. It's not always good fishing, but we don't care, we just want to get some cold beer and float down the river. John always gets to telling me these stories. He told me when he was a teenager in Lincoln, on Thursday nights the farmers would come to town and drop their daughters off at a bowling alley before they went to try and sell their eggs. The farmers had so many daughters, they'd keep the one who was the best cook at home, and they would take the rest of them to town and hope they got married off. One of the secretaries at Oh Boy looked it up and found out it was a real thing, so I wrote a song called ‘Egg & Daughter Nite, Lincoln Nebraska, 1967 (Crazy Bone).’”

And that's the truth. Or something like it. Welcome back, Mr. Prine. ■

Music Editor Robert Baird (RBaird@enthusiastnetwork.com) finds all this talk of having too many records patently absurd.





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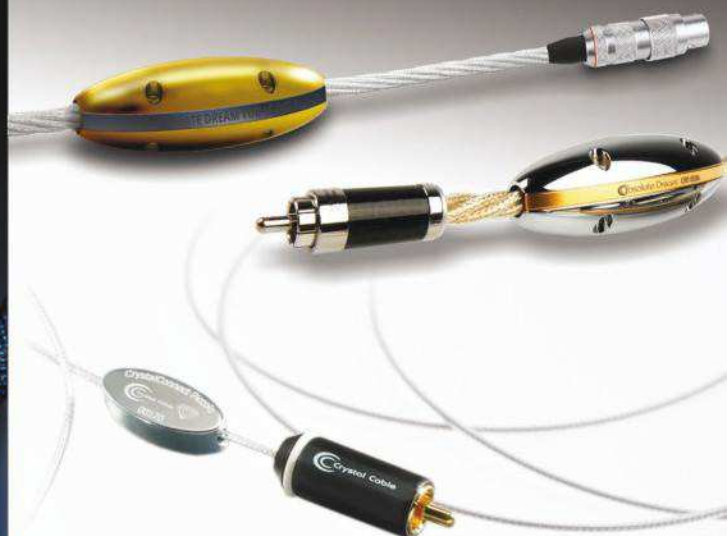
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Stereophile - March, 2018

