SPECIAL ISSUE » SPEAKERS ON TEST

CUTTING-EDGE SPEAKERS from Thiel, Rethm, Audience, Harbeth

GOING THE INTEGRATED AMPLIFIER ROUTE with NAD, Micromega, Jolida

DIGITAL FILE PLAYERS from Decibel, Pure Music, Amarra

SONY MAKES A SONIC STATEMENT

The new SS-AR1 speaker sings

A NEW CLASSIC
State-of-the-art Ypsilon preamplifier from Greece

The Crossroads' ROBERT JOHNSON in stunning 45rpm sound
For nearly 30 years as MBL’s Chief Developer, Jürgen Reis has shaped the acoustic imprint of MBL audio systems. Jürgen’s lifeblood as a musician and sound engineer drives his persistent pursuit of the perfect audio component; this is the very essence of MBL.

Whether refining the MBL Radialstrahler loudspeaker technology, or developing the forthcoming MBL Corona Line of electronics, the passionate music listener in Jürgen must first be satisfied.

Like all MBL employees, Jürgen is dedicated to music and unwaveringly committed to the highest pursuit of natural, emotional sound.
When people feel passionately about something—whether books, golf, auto racing, dog breeding, or music—there is an understandable impulse to create rankings, hierarchies, and lists. Such lists can be helpful. I am quite likely to read someone’s list of The 100 Most Important Jazz Recordings, or of The 100 Greatest Novels in the English Language. Engaging with such rankings and lists has several benefits. First, we all like to see our prejudices validated. When I discover that someone else is also a fan of Ralph Vaughan Williams’s An Oxford Elegy, or of Herbert Howells’s Master Tallis’s Testament, I feel a warm glow of kinship, and feel that my respect for that person reflects well on me. (We are all human, after all.)

More important, when such lists differ from our own, we can profit from the encounter by revisiting music, books, or whatever that we should reconsider, or by reading or listening to something new to us. When I was a Young Baroque Fascist, I thought, based on brief listens to his “sheets of sound,” that John Coltrane was, if not quite a joke, at least a self-absorbed denizen of his own universe with nothing worthwhile to say to me. I had to learn a lot more about music before I could appreciate how Coltrane’s music fits together. (I have even grown to respect Rahsaan Roland Kirk, though not to the extent of keeping his music in heavy rotation.)

Similarly, if a person’s only exposure to Steely Dan has been their early hit “Reelin’ in the Years,” they should not be faulted for writing off the band. There is little in “Reelin’ in the Years” to indicate that, in the fullness of time, the albums Aja and Gaucho would saunter into view.

Problems arise, however, when people take their own lists (or that of some authority; eg, a writer for the New York Times’ list of “Top 10 Classical Composers”) as establishing an absolute ranking rather than a personal preference. Just what does it mean to say that Beethoven is the “greatest” composer, ever? (It probably means only that anyone who says such a thing didn’t get the memo that “Mahler is the new Beethoven.”) Without a rigorous definition of greatest, people might as well save a lot of time and effort by just getting drunk and yelling at each other.

I have no problem with the idea that, in terms of having had the most significant impact on the course that Western music would take, Beethoven is the most influential composer. I also think that that is an inquiry that can stay within reasonably objective grounds. It was Beethoven and Beethoven alone who liberated Western art music from the need to rely on words to convey specific meanings. Even more important for the future of Western society as a whole, the specific meanings Beethoven most often conveyed were of the inestimable, God-given worth of every human being, and that institutions exist to serve people, not the other way around. It’s a disservice and a willful blindness to separate Beethoven from either his revolutionary fervor or from his religious beliefs. But Beethoven’s historical and social importance is one matter. That of “the greatest composer” is another.

If “greatest composer” means “he wrote the best music,” a sane person can only respond, “Sez who?” If Frederick Delius’s The Walk to the Paradise Garden, from A Village Romeo and Juliet, engages my emotions more strongly than does Beethoven’s “Moonlight” sonata, that is my business and only my business. After all, I am the world’s foremost authority on my own preferences.

I cheerfully admit that I, too, can be subject to the instinctive reaction that some music is “better” than others. But as a fair-minded person, I recognize that in trying to substantiate that proposition rigorously, I just end up looking foolish. It all boils down to variations on “Salvador Dalí must be a greater artist than Jackson Pollock, because Dalí’s work shows exquisite draftsmanship not far removed from that of any renaissance master’s, and a grasp of perspective achieved by no other 20th-century artist; whereas Pollock merely threw buckets of paint at a canvas on the floor.” Of course, many people today find that there is more to be gotten out of Pollock’s passionate best work than from Dalí’s often-cold formalism.

As John Atkinson has observed, classical music excels at examining several complex, even contradictory ideas in great depth, while rock music excels at conveying one simple idea with great urgency. “Horses for courses” is an excellent phrase to keep on hand—especially when people blow a gasket when your list of “The Five Greatest composers” doesn’t include you-know-who.
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One hundred years after his birth, the world’s most influential (and mysterious) blues artist, Robert Johnson, is back to celebrate his birthday with not one but two new remasterings.
By Robert Baird

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High-end audio news, including the dealer-sponsored events taking place in July and August, while David Lander offers a tribute to the late Sidney Harman, Brian Damkroger attends a unique concert, and Paul Messenger reports from the London Heathrow Show.

Want to know more? Go to the "News Desk" at www.stereophile.com for up-to-the-minute info.

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Sam Tellig successfully drives the Rethm Trishna loudspeaker with both flea-powered tube amps and the LFD integrated.

Analog Corner
Michael Fremer goes on vinlylicious road trips to Sweden, London, New York, Austin, Texas, and Salina, Kansas.

Listening
Art Dudley auditions music playback software from Decibel, Amarra, and Pure Music.

The Entry Level
Stephen Mejias lives with the NAD C316BEE and JoLida EX 10 integrated amplifiers.

Music in the Round
Kalman Rubinson reviews Integra's new Integra DHC-80.2 preamp/processor, which is fitted with the latest version of Audyssey's room correction software.

Record Reviews
For July's "Recording of the Month," we've settled on the surprising choice of Paul Simon's So Beautiful or So What. In classical this month, we have the latest from Trio Mediaeval. In Rock/Pop there's new music from Wild Beasts and Emmylou Harris. And in Jazz, a critical ear is fixed on the latest from Colin Stetson.

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Amarra, Audience, Ayre Acoustics, Bryston, Harbeth, Pure Music, Rethm, Wharfedale, and Ypsilon respond to our coverage of their products.

Aural Robert
Thanks to a new film and a new record of his songs, Texas singer/songwriter Blaze Foley is finding the success in death that he never had in life, reports Robert Baird.

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MKW850 8" Ultra Reference In-Wall Speakers $199.50

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www.stereophile.com, July 2011
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Visit [www.polkaudio.com](http://www.polkaudio.com) for a dealer near you.
Contagious
Editor: I love “The Entry Level,” Stephen Mejias’s writing is wonderful, and I find his enthusiasm for music contagious. Great work.
—Joe Fuetter 
jfuet@embarqmail.com

Red-hot flavor
Editor: Your May 2011 issue included Stephen Mejias’s recipe for a special meatloaf on p.50. That sounds truly delicious, but may I suggest changing the Tabasco sauce for Frank’s Original Red Hot? It is truly flavor over heat, and you can get your old lady to put that s--- on everything! That’s flavor for you!
—Carlos E. Bauza 
bauza05@yahoo.com

The Upward Price Spiral
Editor: In John Atkinson’s very appropriate column on “The Upward Price Spiral” of audio gear (“As We See It,” April 2011), he seemed to accept the inevitability of growing income inequality, although, to be fair, he did not seem to feel it was necessarily a good thing. There is certainly a lot of merit in his solution: that companies continue to make quality products at an affordable price. Certainly, from my point of view, there is no need to apologize for reviewing $300 speakers. When I still had a good middle-class job, I bought Vandersteen’s. Now, if I ever buy any audio gear again, it will be something like the Wharfedale Diamond 10.1s reviewed in the same issue.

I do feel a need to respond directly to the economic issues he raised, however. He quoted Prof. Andrew Caplin and Senator Rand Paul on the need to accept inequality as a fact of life, without much comment beyond saying that they seem to have a point. Please allow me to name a few dissenting voices: Nobel Prize–winning economists Joseph Stiglitz and Paul Krugman have written extensively on why they believe that our level of wealth inequality cannot be sustained, at least not in a healthy democracy.
—Roberto Keim
Talent, OR

Active music making
Editor: Contrary to “When the Music’s Over,” Steve Guttenberg’s May 2011 “As We See It,” the advent of digital recording did not mortally wound the “creative mojo” of music. Digital recording and technology have introduced to inquisitive music listeners more types of music and searching musicians than ever before. What digital recording did do was kill the old business model of the music industry, and the industry titans have not yet figured out how to take back control of both content and profits—that may never return to pre-digital levels.

When you talk about rock reinventing itself every few years from the early 1950s through the early 1980s, was that a function of creative leaps forward, or of the manipulations of a tightly controlled music industry with a business plan similar to that of the fashion industry? The slowing pace of creativity in rock seems to parallel the advancements in the broadcast medium and music reproduction. As people are exposed to more and musicians assimilate a greater number of influences, change seems to come more organically.

And finally, people are still listening to music, and their listening habits have not changed. For the vast majority of people, music is for background noise, dancing to, or singing along with, just as it was in the analog era. The only change is that now they can take it with them wherever they go.
—Sean O’Connel
hi@semiscale.com

Passive listening
Editor: I enjoyed Steve Guttenberg’s May column, “When the Music’s Over.” He touched on something that has plagued me for some time; namely, the modern aversion to active listening. I think this has little to do with record companies, or lack of artistic creativity or free time (people have more than ever), and more to do with fatigue.

We are bombarded by music. Wherever you go, there it is, and it’s blaring. Outdoors at gas stations, indoors in restaurants and stores—there is no refuge from this scourge. Our ears are their holes. Ask the waiters to turn it down—they’ll look at you as if you have worms coming out of your nose: “It’s for ambiance.” We are consigned to listening passively to this real-life soundtrack.

Active listening is dead because music’s ubiquitousness has loosened its grip on the imagination. How rare and exciting to have heard music performed before the time of recordings! Think of the ticketless young men who roamed Bayreuth, in the furtive hope of hearing Wagner. No wonder. We have the ceaseless drone of lazy aural stimulation. They had only one chance to see and hear.
—Ed Sherling MD
edsherling@yahoo.com

High resolution
Editor: I read with interest Stephen Mejias’s column in the May issue (p.47), in which he described “digitizing” vinyl with a USB turntable. That he found the end result unsatisfactory compared to direct playback was unsurprising. The performance bottleneck of 16-bit/44.1kHz of the analog-to-digital converter built into the turntable is significant, and represents outdated technology. Digital recording at 24 bits has been with us for over a decade, and has recently become quite affordable.

More important, almost any vinyl playback setup is capable of exceeding that of 16/44.1 resolution-and-bandwidth choke point by a considerable margin. A much better match is a high-resolution (24/192) analog-to-digital converter.

These are just as easy to use as a USB turntable and, in terms of price, well within the purview of Stephen’s “The Entry Level” column. Vinyl is demonstrably capable of reproducing signals up to at least 96kHz, the limit of such a converter. (And if wide frequency response isn’t important, then why all the fuss about high-resolution digital?) Compared to 24/192, recording at 16/44.1 seems to me like recording vinyl by holding a microphone next to the speaker. In 2011, one can do much better than that without breaking the bank.

—Rob Robinson, Channel D
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Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to stephen.mejias@sorc.com at least eight weeks before the month of the event. The deadline for the September 2011 issue is June 22, 2011. We will reply with a confirmation. If you do not receive confirmation within 24 hours, please e-mail us again. If you prefer to communicate through fax, the number is (212) 915-4167.

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US: WASHINGTON DC
David Lander
Audio enthusiasts who spotted the obituary in the New York Times for Sidney Harman, the hi-fi industry pioneer and tycoon, who died at age 92 on March 12, might have been surprised at the headline identifying him as “Newsweek Chairman.” He had acquired the ailing magazine just nine months before.

Had Harman died a year earlier headline writers might have referred to the indelible polymath as the president of Friends World College, an unconventional institution founded by the Quakers—or as an Under Secretary of Commerce for the Carter administration.

But wherever he ventured, Harman—a progressive management specialist with an earned PhD in social psychology, an author and teacher, and the eponymous benefactor behind the Harman Center for the Arts, in Washington, DC—remained hardwired to the high-fidelity industry he had helped establish.

His initial enterprise was Harman/Kardon, which he and Bernard Kardon, an engineer with whom he had worked at the David Bogen Company, founded in 1953. Harman went on to buy many companies, including some he had previously owned and sold, and ultimately became the audio industry’s most ebullient impresario. Harman International Industries, the corporation he ran until passing the torch to a handpicked successor a month before turning 89, now comprises more than a dozen consumer and professional brands, among them AKG, Crown, Infinity, H/K, JBL, Mark Levinson, Lexicon, Revel, and Snider. Its various operations employ some 11,800 people worldwide, and sales for calendar 2010 were $3.5 billion.

Sidney Harman’s interest in the business of sound can be traced to the time he worked for Bogen, then best known for public-address equipment, when he played music at home through modified Bogen speakers. Irving Stern, a longtime associate, recalled leisure-time listening sessions during which Harman envisioned an abundance of buyers for high-quality gear specifically designed for home use. Harman/Kardon’s products did more than merely prove his thesis; components ranging from the earliest receivers to the higher-end Citation models helped make it fact.

Harmann purchased JBL in 1969, and Irving Stern, a highly cultivated man you’d expect to encounter in an art gallery, was its marketing vice president when I met him a few years later. JBL’s president at the time was Arnold Wolf, an industrial designer who had shaped the JBL Paragon, a monumental one-piece stereophonic speaker system. A former juvenile radio actor and college drama director, Wolf created the distinctive JBL logo, which is still in use.

These key lieutenants, and others, mirrored Harman’s deep-seated intellectual bent, which I experienced firsthand when I spent some time alone with him in his office in the mid-1970s. His headquarters were then located in a Long Island village appropriately named Lake Success, and Harman was impeccably attired in a suit without a wrinkle. He was focused, and exceedingly eloquent.

Also visiting that day was the astute aide who had tapped Wolf to head up JBL, incongruously dressed in denim overalls. He was Sandy Berlin, and he was then running a Harman-owned automobile-mirror factory in Bolivar (rhymes with Oliver), Tennessee, where he was putting his employer’s advanced workplace theories into practice. Though the eponymous series of home loudspeakers that was built in Bolivar fizzled, Berlin later told me that Harman’s programs for giving workers some control over the traditionally stifling factory environment proved successful enough to inspire one employee to run for mayor of that small city.

Nearly two decades after parting company with Harman in 1976, Berlin sold his own firm, Madrigal Audio Laboratories, which also manufactured Mark Levinson gear, to Harman International. At Sidney Harman’s request, he signed on to establish a new
Guests, visitors, and new members are invited, and parking is free. For more info, visit www.laocas.com or call Bob Levi at (714) 281-5850.

MARYLAND—VIRGINIA—WASHINGTON, DC
Friday—Sunday, July 8–10: The Capital Audiofest will be held at the Crowne Plaza Rockville Hotel (3 Research Court, Rockville, Maryland). For more info, visit www.capitalaudiofest.com or call (703) 839-5684.

PENNSYLVANIA
Saturday, June 25, 12–4pm: The Philadelphia Area Audio Group will hold its monthly meeting at Overture Ultimate Home Electronics (2423 Concord Pike, Wilmington). Terry Menacker of Overture and Irv Gross of Magico will present the new Magico Q3 loudspeaker with Spectral Audio electronics (including the DMA-260 Reference stereo amplifier) and MIT cables. Prospective members are invited. For more info, contact Joe Galbraith at slipnot1@comcast.net.

INDUSTRY UPDATE
speaker line, to be christened Revel. I knew Berlin during his Madrigal days, and remember a telling comment he made about his once and future boss. If someone took away everything that Sidney Harman had and left him standing in the street, Berlin asserted with complete conviction, it wouldn't be long before he was right back on top.

UK: LONDON HEATHROW
Paul Messenger
Four weeks after Britain's biggest-ever Sound & Vision: The Bristol Show, in February a much smaller event, Audio World 2011, took place at the Park Inn, near Heathrow Airport. Though relatively tiny, it complemented Sound & Vision in catering to a different sort of exhibitor and visitor. This event was dedicated strictly to two-channel audio and aimed primarily at the tweakier, enthusiast end of the market. It featured more tubes than computers, more LPs than CDs, and, inevitably, a number of unfamiliar new brands.

That last, of course, is what made it interesting: Attending a hi-fi show without discovering a sprinkling of newcomers is like eating a meal without seasoning. Audio World 2011 might have had only three dozen exhibits, but they were more than intriguing enough to keep me occupied for hours. And, as a bonus, I heard some very decent sound from a mixture of dealers, distributors, and newcomers, most of whom are involved in hi-fi's high end.

Having recently spent several happy weeks enjoying a pair of Japanese speakers—Feastrexes, each of which has a single small, full-range, field-coil-driven drive-unit—I was feeling well disposed toward limited-bandwidth, crossoverless designs. That's when I encountered Joe Jouhal, from Jersey, in the Channel Islands. His striking-looking JoSound JO 45/1 and JO 45/3 models use one and three full-range Jordan drivers, respectively, in shapely enclosures elegantly fashioned from bamboo. (Bamboo, actually a species of grass, can be grown and harvested far more sustainably than the wood of actual trees because it grows far more rapidly.) The JoSounds' bass-loading technique is described as a "reverse-Tractrix transmission line."

Also new to me was another maker of single-driver speakers, this time of the high-sensitivity persuasion: the Berlin-
based Voxativ, led by Inès Adler and backed by the Schimmel Piano Corporation. Their Ampeggio back-horn-loaded speakers featured their own 200mm Lowther-lookalike drivers. The demo samples had conventional permanent magnets of neodymium, but a field-coil-motor version is also available, which got me rather excited.

In the April Stereophile I mentioned that retro-fi enthusiast John Howes, of Howes Acoustics, plans to produce replicas of the Voigt Domestic Corner Horn of the 1930s. Howes is still working on this complex project—its enclosure is made of a combination of plywood, concrete, and carefully shaped plaster—so he brought along instead his smaller Quarter Wave speakers. With full-range Lowther PM6A drivers, this modified variation on a design by Edward Michelson, published in Hi-Fi News in October 1970, were being driven by Howes’ various monoblock power amps: his heavily modified and restored Quad Hs, plus the single-ended-triode mods based on new-old-stock PX4 and PX25 tubes. Purely for pleasure, last year I bought a pair of PX4s, so I wasn’t surprised by the very good sound quality (though I’m regularly amazed at just how loud 3W can go).

In the next room were Howes’ regular collaborators, Hastings-based transformer makers Stevens & Billington, better known for the transformer-based Music First passive preamps. The two companies together are designing a new two-box phono stage; the main unit will use pairs of 6SL7 and 6N5P tubes from the 1940s, alongside a separate step-up transformer. Adding to the room’s nostalgic analog atmosphere were a Nottingham Analogue Space Deck turntable, a ReVox A77 open-reel recorder, and a Quad 303 power amplifier driving a pair of Quad ESL-63 electrostatic speakers.

I’ve long been intrigued by Vertex AQ (see “Industry Update,” May 2011), and use a number of their cables and support platforms in my system. The company is now building its technology, designed to reduce the effects of mechanical and ultrasonic vibrations and RFI and EMI, into actual components of its own. Vertex AQ’s Aletheia dac-1 D/A converter, which first appeared last fall, is notable for the extreme simplicity of its circuitry—only high-class passive components separate its TDA1543 DAC chip from its output terminals—while the company’s many...
modus operandi

Every loudspeaker begins as an idea.

And as long as it remains in the realm of idea, it also retains the quality of Ideal-ness (See: Plato's Theory of Forms.)

In the realm of the ideal, enclosures are paradoxically ultra-rigid and non-resonant. Drivers are accurate and distortion free—capable of huge dynamic swings and the subtlest of micro shadings. Crossovers—well, crossovers wouldn't exist, since they're an admission humans can't construct a solitary transducer that convincingly reproduces the entire audio spectrum.

Once you begin building something, the concept of ideal goes right out the window. Everything becomes compromise.

There are two approaches to compromise. One says: Be practical. Think about the bottom line. Be realistic about what our customers are really going to notice and care about.

The other approach acknowledges the inevitability of compromise without embracing it. It says: we will resist compromise every inch of the way. It says: though the ideal may be unattainable, it is approachable, and every concrete step toward that goal is a worthwhile victory.

That is the path we've chosen at Wilson Audio. It is our philosophy, our passion, our modus operandi.

Watch the video at www.wilsonaudio.com. Click on Company, then Factory Tour.
anti-vibration/RFI/EMI treatments are given full rein.

The demonstration, presented by UK dealer The Right Note, also featured a new collaboration with Kaiser Acoustics, a German maker of sound-treatment products, to prepare various Vertex AQ treatments and other upgrades as options for Kaiser’s interesting if curiously named Kawero! Vivace speaker. The speaker’s complex crossover network and internal wiring had received particular attention from Vertex, and the various upgrades can be retrofitted.

One of the more interesting games to play at a high-end show is checking out which components the various exhibitors do not make and/or sell are being used to demo the products they do. AMR amplifiers and CD players seemed to be clear winners at Audio World 2011—these interesting hybrid components appeared in a number of rooms. AMR’s UK distributor, Select Audio, introduced the new DP-777 digital processor, which, in complete contrast to Vertex AQ’s Aletheia dac-1, must be one of the most complex DACs around. Its highlights include two separate chipsets: a 32-bit DAC for high-definition sources, and a classic multi-bit DAC for playing 16-bit/44.1kHz CDs. The DP-777 also has a 192kHz asynchronous USB input, plus tubed input and output stages.

They might have become unfashionable as hi-fi components have grown inexorably smaller, but there’s something about speakers with 15" bass drivers that sets them apart, and somehow gets closer to reality. I’ve pondered this for years, and suspect that there may well be a qualitative difference between a large-area source moving very little (like a horn mouth) and a small one making much greater excursions. While I don’t see a new trend emerging, it was nice to find a Gold version of Revolver’s three-way Cygnis flagship speaker, in which a head unit similar to that of the original Cygnis is mounted on a large (4+ cubic feet) bass module with a 15" driver.

Audio World 2011 was a show of surprises, and none more surprising than what I saw when I entered the room of Analogue Alchemy, a manufacturing name new to me, to find, lined up along one wall and all glowing blue, no fewer than five different turntables. The music was coming from two large speakers with actively driven push-pull dipole bass systems. The company’s principals are Russian émigrés based in Harrow, North London, with links to LVA Europe, which fosters business relations between the former Soviet bloc and Western European countries. It’s too early to speculate how this brand will develop, but I’ll be keeping an eye on its website, www.analoguealchemy.com.

Tube amps may have outnumbered the solid-state variety at Audio World—at any rate, it must have been a close call. Among the many examples of tube models shown, those from British brands included Art Audio, Audion, Howes Acoustics, and Audio Note UK; the US was represented by VTL and StereoKnight, and Italy by Viva, Unison, and Pathos. While some might dismiss tubes—and vinyl, for that matter—as retro-fi, my day at Audio World 2011 left me wondering whether these retro technologies might actually have more to do with the future of serious hi-fi reproduction than computers, servers, and streamers.

US: SANTA ROSA, CALIFORNIA
Brian Damkroger

On February 19 and 20, 2011, patrons and guests of the American Philharmonic of Sonoma County were treated to a program, Canticles of Time, consisting of Brahms’s Tragic Overture, Debussy’s Prélude à l’Après-midi d’un Faune, Chausson’s Poème for violin and orchestra, and Beethoven’s Symphony 5. The performance marked the final concert as principal conductor of Gabriel Sakakeeny, who in 1998 cofounded what has become perhaps the nation’s premier all-volunteer orchestra. Both performances were superb, but the Sunday-afternoon finale saw Sakakeeny, the 75-piece orchestra, and violin virtuoso Solenn Séguillon in top form as the group electrified the audience and filled the challenging space of Santa Rosa’s Wells Fargo Center with these works’ full harmonic splendor.

A casual perusal of the above paragraph might prompt the question “Why is there a discussion of a concert in my Stereophile?” More detail-oriented readers, however, may have picked up a few cues. They might, for example, recognize the name of Gabriel Sakakeeny as that of the lead designer for erstwhile high-end company Precision Fidelity, and of the auteur of such classic designs as the C7 preamplifier and M-80 hybrid power amp. A really careful reader might wonder exactly how a 75-person orchestra can credibly fill a challenging hall with anything approaching harmonic splendor.

The secret lies in a project that Sakakeeny has been working on for the past decade, while building the American Philharmonic. Fielding a first-quality orchestra is a daunting endeavor, and doing it as an all-volunteer effort approaches the quixotic. Sakakeeny noted that “the motivation for the project and the American Philharmonic are the same: they’re about bringing classical music, in all its glory and splendor, to more people.” The culmination of the project, at least in prototype form, was...
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on display in the Santa Rosa performances. The physical evidence comprised two large road cases of amplifiers and digital signal processing (DSP) gear, and several triangular, three-speaker arrays of Magnepan SMG loudspeakers spread across the stage behind the orchestra. The most significant evidence, however, was the orchestra's sound. It soared through the program with the richness and power of, if not a 140-person orchestra, something a lot closer to that than the 75-person ensemble on the stage. The sound was completely natural and devoid of any electronic artifacts. Try as I might, I could hear no evidence of the sound reinforcement—other than a small orchestra sounding like a big one, that is.

I had a chance to talk with Sakakeeny and ask two questions. First: Why did he do it?

"Why?" he laughed. "Necessity. We can't field a 140-person orchestra. We're an all-volunteer organization, so we have three constituencies: the audience, the volunteers and other supporters, and the musicians themselves. To be a success, we had to provide a completely satisfying experience to all three, which requires performing—credibly, successfully performing—the full repertoire of classical music. Our budget, our logistics, our hall ... none of these will support more than the orchestra you saw here. I had to figure out how to handle—with our orchestra—the type of programs we wanted to perform.

"So," I said, "on to question two. How does it work?"

"It's really pretty straightforward; once you define the problem properly, the solution becomes obvious." As Sakakeeny explained, a violin—any stringed instrument—is a bi-pole radiator of sorts: two different, vibrating surfaces a few inches apart, whose sounds combine to create a mix of reinforcement, cancellation, and diffraction that gives the instrument its unique acoustic power and harmonic signature. What the audience hears, however, is the free-field acoustical power and choral nature of the entire violin section. The goal of the project was to create a way to put additional acoustic power into the reverberant field of the room in a way that resembles and locates 80 violins instead of the 20 that they typically field. It's not really a question of louder, Sakakeeny told me, but of getting the creamier, richer sound of a larger string section.

Some details of the setup were obvious, such as the triangular arrays of three speakers each, which combine each speaker's characteristic "figure-8" radiation pattern to create a relatively uniform 360° pattern of the arrays. The arrays aren't positioned haphazardly. Walking the stage after the concert, I noticed that the location of each speaker was marked on the stage, as well as on computer-generated diagrams of the stage layout—diagrams dimensioned in inches with locations noted in fractions of an inch. The location of each speaker and of each array was calculated based on measurements taken in the hall and as part of the overall DSP envelope.

When I asked Sakakeeny why he used the Magnepans, which are dipoles, rather than some sort of bipoles, he conceded that "We could use any type of speaker, actually. It would just require a different treatment, different algorithms in the DSP, to get the result we want." He explained that the goal wasn't to replace 100 instruments with 100 speakers, but to create the field of acoustical signature of 100 instruments with as few actual instruments and as little equipment as possible. "There's really nothing magic about using dipoles, or the Magnepans," he said, "other than [that] they have some characteristics which make them well suited to the project, such as their large radiating surface and the way they can completely disappear when playing back strings."

Sakakeeny concluded: "That really gets to the heart of what makes this system work, which is creating the field that realistically and naturally re-creates all five aspects of music for the listener: pitch, duration, loudness, location, and timbre. All are choral phenomena—that is, they are all a mixture of the multiple, slightly different characteristics of the individual players and instruments. For this to work, it's absolutely critical to preserve the choral nature of these musical aspects. You can't have something that sounds like one giant player, or multiple versions of the same couple of players in different spots. You have to preserve the choral phenomenon."

Having attended the performances, I can attest that the system is an unqualified success. Sakakeeny's 75-person orchestra delivered an outstanding reading of their challenging and diverse program. While it didn't sound like the New Philharmonic at Carnegie or the San Francisco Symphony at Davies Symphony Hall, it sounded a lot more like either of those than like 75 players on stage in a small, oddly shaped meeting and performance space. Most important, the performance and sound were totally satisfying, the reinforcement completely transparent. I doubt if anyone in the audience had any inkling of the acoustic and technical wizardry they were hearing.

Where is this all going? The system I heard was a prototype, and though the group took it on a 10-performance, two-week trip to China, Sakakeeny noted that it needs to be modernized and simplified before it would be practical for another organization. Right now, he explained, they spend about $18,000 per weekend for stage technicians to do the setup. His goal is to reduce that to just a handful of work-hours. Similarly, the DSP and amplification hardware alone cost $65,000 just 10 years ago—it would all be a lot simpler and less expensive today. "For this to be viable for an orchestra," he said, "I have in my mind that it needs to be in the same cost range as a set of timpani, or maybe a celeste or concert grand piano ... so maybe $60,000 at one end to say, $120,000 at the other. But that's just my gut reaction; it's not based on any sort of market research."

To say that the technology is successful would be an understatement; to say that Gabriel Sakakeeny is a visionary would be a huge understatement.
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India is the world's largest producer of bananas—28% of global production, according to Wikipedia.

Kochi, aka Cochin, in the south of India, on the west coast, is a prime banana-growing area—and its beaches make it a tourist destination. They grow red, green, yellow, even purple bananas. Some are delicacies found nowhere else. Not surprisingly, bananas are a staple of the local diet.

Alas, bananas from Cochin—or anywhere else—are perishable. You couldn't get them through customs anyway. All I needed was an excuse to visit Cochin, and now I've got one: Rethm loudspeakers are made there. Strange, though, that the Rethm Trishna doesn't accept banana plugs, only spades or bare wire.

I asked Jacob George about this. An architect by profession, Jacob is also top banana at Rethm. I noted his lightly accented American English—not your usual British Empire accent—and asked how he'd come by it.

"Brooklyn," he explained as he beamed at my wife, Marina (aka Brooklynskaya). Jacob spent four years studying architecture at the Pratt Institute School of Architecture, in the Williamsburg section of that esteemed borough. You might call him an honorary Brooklynite. He arrived with his son, Aman, to set up the Trishnas in our living room.

Architecturally, the Trishna is stunning. (I'll bet Jacob's buildings are striking, too.) There's a horizontal cylinder on top to accommodate the 5" paper-cone full-range driver and rear-wave horn. The cylinder leads to what Jacob calls a "labyrinth" that vents near the base. Could this be called a bottom-loaded horn? Deep inside the Trishna is a sealed isobaric bass chamber with two 6.5" paper-cone woofers. (Jacob will explain isobaric in a minute.) A solid-state FET amplifier powers the bass drive-units. Yes, the Trishna must be plugged into the wall. All connections are on the side of each speaker that faces the side-wall, so wires shouldn't be intrusive.

All in all, a tidy package with a small footprint—note-worthy for a high-sensitivity speaker. Most such speakers are BIG, including the larger ones from Rethm. The sensitivity is given as 96dB/W/m, the nominal impedance 8 ohms. Dimensions are 39" (1000mm) high by 6.6" (170mm) wide by 14.4" (370mm) deep. Two steel footplates stabilize the speaker so that it can't be toppled—not even by a tipsy reviewer. Each plate has four threaded holes, to accept the included spikes.

Jacob George introduced his first commercial loudspeaker in 2000, so he's been at this for about a dozen years. He's brought a lot of thought and experience to the Trishna, which is Rethm's entry-level model at $4750/pair. He actually apologized for the price, which seems to me quite reasonable, considering the build and sound quality. Unlike some speaker manufacturers, he doesn't seem interested in making speakers only for the filthy-rich.

What Jacob had set up in our living room was the first production pair of Trishnas, fresh from the factory. They smelled that way, too. While the varnish had dried, the odor didn't dissipate for another two weeks. They could have used a few more days of Cochin air. The speaker is finished in two shades of gray. I'll bet Jacob could make you a pair in a different color, if you asked, but Marina and I found these attractive.

Before the Trishnas arrived, Jacob told me he'd also bring along his own Rethm Raagam speaker cables. These cryogenically treated, flat copper cables are terminated (if that's the word) with spade lugs cut into the copper conductors themselves. The cables retail for $850/8' pair and are protected by acoiled but open-air plastic wrap.

While I liked the sound of the Raagam cables (I tried them only with the Trishnas), I was less keen on their terminations—or ends, if you will. They can easily bend or crease, and eventually break if you continue to connect and disconnect. With some amplifiers, including my LFD IV LE integrated, the awkwardness of connecting the Raagams rendered them unusable. My MiniWatt N3 integrated amplifier accepts only bananas.

If you buy the Raagams, keep in mind their fragile ends, which I managed to turn into mush. And, alas, your cables won't come in the beautiful woven briefcase Jacob brought them in. It read: "Asia Microfinance Forum: Colombo, Sri Lanka, October 12-15, 2010." Jacob wasn't there, but his wife was. She is a "microfinance consultant." I went bananas over that briefcase. Too bad I had to give it up.

I went bananas over the Trishna, too.

So many manufacturers who seek "global" acceptance make their speakers sound the same as everyone else's: bland enough to satisfy everyone and thrill no one. Or made to measure ruler-flat, as if flat frequency response were a sacred cow. (Know what I do with sacred cows? I moo back.) Unfortunately, Jacob picked up the Trishnas...
before John Atkinson could come over and measure them.

I like it, too, when speakers are not designed to play loud. You can’t max out on Mahler with the Trishnas, or shake the floor with Shostakovich—but can you with any loudspeaker? They were just fine for Schubert—songs, symphonies, chamber works—and superb for small-group jazz. I wished I could have found my old Ravi Shankar records.

Most audiophiles listen to music way too loud. The louder you listen, the less you hear. The Trishna is best suited to moderate listening levels in small to midsize rooms. It’s best suited to small amps, too. Audiophiles tend to get the sound they deserve; unfortunately, music lovers get what they deserve, too.

The word ratham is Sanskrit for harmony. I asked Jacob to define trishna.

“When we started making the speakers, we had in mind the three stages in the life of a musician. Maarga is the path that must first be found. Saadhana is the discipline and devotion of practice. Moksha is the attainment of enlightenment.”

The Moksha loudspeaker has not yet dawned. Maarga was the name of Rethm’s old entry-level speaker, now superseded by the Trishna. The Saadhana was reviewed by Art Dudley a few years back.1

How do you accommodate an entry-level speaker without breaking the story line?

“I had to find a word that fitted. I decided that, before one starts searching for ‘the path,’ one first has to have the ‘desire,’ and this is what trishna means.”

The Trishna’s cabinet combines PVC pipe finished with high-gloss automotive paint and plywood with a real-wood veneer and a clear-coat finish. When I asked Jacob about that labyrinth inside the cabinet, he sent me a detailed architectural sketch and asked that we not publish it. I see his point. If you want to knock off this speaker, you’ll need to buy one and saw it in half. Or have it X-rayed.

The labyrinth is a path of baffles. First, the backwave from the full-range driver zigs upward, then turns and zags down, then turns and splits to zig in two directions (there’s a fork in the road). Finally, the bass energy exits at the bottom of the cabinet. Jacob explained the advantages: “By getting the rearwave to travel a distance of over 5’, we enhance certain midbass frequencies being delivered by the full-range driver. We enhance frequencies all the way down to about 50Hz.”

At this point, the powered woofers have already kicked in. Jacob explained the sealed isobaric bass chamber: “An isobaric system uses two drivers moving in tandem. This allows for a bass enclosure to be half the size of an enclosure using a single driver. We needed ‘small’ to fit inside the Trishna enclosure. Isobaric chambers can be sealed or vented (ported). I have always preferred the sound of sealed units, as I feel that bass quality is generally tighter and more linear than it is with ported enclosures, even if some sound-pressure level (SPL) is sacrificed.”

Does anyone remember the Linn Iso- barik speaker? Roy Hall, of Music Hall, used to manufacture them in the US for his schoolyard chum, Ivor Tiefenbrun of.
Linn. That’s how Roy came from Glasgow, Scotland, to Great Neck, Long Island. When production stopped, Roy’s wife, Rita, would not move to Glasgow. And I gained my closest friend. Strange how the world works. Rowdy Roy is from a rough Glasgow neighborhood called The Gorbals. I have a title for his memoirs: My Life in Hi-Fi: From the Gorbals to Great Neck.

I digress.

In earlier models, Jacob George used Lowther full-range drivers. For the Rethm, he has the full-range and bass drivers made “by a wonderful person named Milind Patel, who was head of R&D for Peerless, India.” Patel’s company, Hermit Audio, is based in Mumbai. Each 5” paper cone is surrounded by foam. A “whizzer cone” (a cone within a cone) extends the high frequencies. A stainless-steel phase plug sits in the center, to enhance dispersion.

The pulp used for some paper-cone full-range drivers—from Fostex, for instance—have included banana leaves, as have some umbrellas. There is no shortage of banana leaves in Cochin—just banana plugs. Jacob laughed. Actually, that’s just a guess on my part—but I could detect a laugh in his reply to my e-mail:

“It is not banana-pulp paper. It is an exotic paper specially made in the UK for a very specific purpose. However, I know nothing about its composition. I knew about this paper because we use it for very specialized architectural drawing involving ink. I have known and used and loved this paper since the early 1970s, and it has the stiffness that we were looking for in a driver cone. When we started working on the new drivers, I sent Mr. Patel this paper, and it worked out very well. We liked the tone as well.”

Ah, yes, the tone of the cone. Every cone material has its own sonic signature.

I am concerned about the fragility of this driver, however, including its delicately shaped whizzer cone—ies almost flower-like. There’s nothing to protect the driver. Or cover it. I would avoid exposing the driver to direct sunlight. I might be careful with cats as well—our Maksim took a fancy to the driver. Is it edible? He seemed to think so, which is how I got off on the banana business. He looked set to bite into one of the whizzer cones, which to him may have looked like a flower.

One advantage of a full-range driver is that the tone of the cone is the same from the upper bass through the midrange and treble. With most loudspeakers, the cone materials of the midrange driver and the tweeter are dissimilar. The different cone materials don’t always blend well.

“I always have the feeling that ‘something is not quite right’ when I listen to multiway systems,” said Jacob. He explained the advantages of having no crossover: “Not having a crossover essentially does three things. First, no power is lost. Crossover networks tend to be power-robbing devices. Efficiency and the ‘quickness’ of response time are maximized without a crossover.

“Second, there are no phase shifts. Components in a crossover almost inevitably mess with the phase of the signal and throw the signal out of phase. Of course, this can be minimized through clever network design. But still...

“Third, there is no loss of definition,
which has to do with the phase shifting I just mentioned and the fact that the signal has to go through a series of additional electronic components, which naturally leave their marks on the signal. I believe that the best equipment—be it electronics or loudspeakers—is the simplest. The reason why certain loudspeakers sound so ‘alive’ despite having crossovers is that the crossovers are very simple. Minimalist.”

There are no crossovers in the Trishna. The full-range driver receives the entire signal, with no filter, and delivers what bass it can. There is a low-pass filter for the isobaric bass drivers. Jacob: “All we have is a minimalist low-pass filter to cut the high frequencies while keeping phase shift to about 15°, which is usually considered negligible. The filter starts attenuating the bass module at about 100Hz in a slow rolloff that disappears completely at about 220Hz.”

To drive the bass units, Jacob says, “We have a very high-quality amplifier that would actually do well as a regular power amp. We did this instead of using one of those inexpensive op-amp modules that a lot of subwoofers use today.” (There is a level adjustment control for the bass module.) As for driving the whole speaker, Jacob says you need a minimum of 2Wpc, though this will depend on your room and your preferred listening levels. That’s two watts per channel. The Trishna was designed with flea-watt single-ended-triode tube amps in mind. Indeed, Jacob is at work on his own SET amp, which will deliver about 15Wpc.

He told me that he’s not yet heard a solid-state amplifier he’s entirely happy with. He hasn’t heard my LFD LE IV integrated. The reason he didn’t hear the LFD when he visited is that it was impossible to attach the Rethm speaker cables to the LFD without bending the cables entirely out of shape. After he’d left, I did it anyway. After a few days, I put the Rethm speaker cables back in the Banking with the Poor bag before I broke them completely.

I pulled out my Atohm ZEF cables from France. I used a bare-wire connection. It’s a bit more expensive than the Trishna—just hooked the wire around the speaker binding post and tightened the nut. Jacob does have a point about connectors; in theory, they can only degrade the sound. It’s partly a matter of dissimilar materials: the speaker-cable conductors and the spade lugs. Or banana plugs.

I began with two SET integrated amps that use the 300B tube: the Shuguang Audio Classic 300B, from China; and the Allnic Audio T-1500 300B, from South Korea. Intos 8 ohms, the Shuguang is rated to deliver 8Wpc, the Allnic 12.5Wpc. My Sony XA-775ES SACD/CD player sent its digital output (CD only, of course) to my Rega DAC via an Audio Art IC-3 interconnect.

The Rethm Trishna makes its compromises, as do all speakers, even those that sell for over $100,000/pair and are claimed to be “the best in the world.” Is the best speaker in the world made in Colorado, California? By that geezer in a sweater from the Granite State? Maybe the best speakers in the world are made by Richard Shahinian in Medford, Long Island, Really.

Speaking of Shahinian, my colleague John Marks, a Shahinian fan, has written that different speakers are optimized to do different things particularly well. It’s a matter of priorities: the designer’s and, especially, yours. Some image particularly well. Some hit the harmonics just right. Others exhibit big, fat bottom ends. Some play extremely loud without pooping out. What do you want from a loudspeaker? Quality or quantity? Music or noise . . . et, music or hi-fi?

I loved what I heard from the Rethm Trishna. It delivered tight bass that I could tune for the room. Jacob recommended setting the Trishna’s bass adjustment dial to 12-1 o’clock, but I upped it to 2 o’clock—maybe I wanted a little extra bass. If I turned it any higher, I got more boom than bloom. This is the way to adjust: Turn it up, then back off when the bass level starts to overload the room. One of the great things about the Rethm Trishna is that you don’t have to fuss with the crossover levels. No crossover.

I was playing Resonances, Hélène Grimaud’s latest piano-recital record (CD, Deutsche Grammophone B001515402). Two works highlight this disc: Mozart’s Piano Sonata 8 in a, K.310, and Liszt’s Piano Sonata in b. I have never heard the Mozart played with such freshness and almost reckless abandon, or with such flawless musicianship. As for the Liszt, the experience was so moving that I had to stop and play the rest of the disc—Berg’s Piano Sonata I and Bartók’s Romanian Folkdances—the following day.

Grimaud says she is gifted—or afflicted, as the case might be—with synaesthesia: that is, she hears colors. She plays colors, too. A manufacturer friend (he doesn’t make speakers) called the other day and, as usual, asked me what I was excited about, starting with music. I mentioned Grimaud’s Resonances, and David Fray’s disc of Mozart piano concertos (I’ll get to it in a moment). Then he asked about equipment. I brought up the Rethm Trishnas, which he hadn’t heard. How could he? I had the world’s first production pair. I told him the newly varnished truth.

We chatted about full-range drivers. He talked about their immediacy, focus, and coherence, of the sense of music not being broken into component parts for a wretched audiophile or an even more wretched hi-fi writer. Even when a full-range drive-unit isn’t doing everything right, he suggested, it’s doing some things so right that the sound becomes compulsively, rivetingly listenable. There is a sense of nothing getting in the way. Or, as I cruelly put it, there is no phase-fuck from a crossover.

With the Rethm Trishna I was reminded of Quad’s original electrostatic speaker, now called the ESL-57. The ESL-57 didn’t play very loud either, nor could it deliver deep bass. I do think its tonal neutrality was unsurpassed.

And here is where one might cavil with the Trishnas. With some recordings more than others, I thought that the speakers, in our living room, had
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Ike S. • April 2, 2010

Original 1993 PBJ pictured above
a tendency to elevate the upper midrange, adding to that sense of immediacy and enhancing low-level detail while stopping just short of turning strident. Tubes helped.

Just to confuse things, the solid-state LFD IV LE integrated was superb, too, with the Retlums. It tightened and extended—strengthened, if you will—the bass response of the Trishna’s full-range driver. The resolution was exceptional.

Ears accommodate. Mine did, anyway, especially as the Trishnas did so much so right, in such a beautiful package at relatively modest cost. I think Jacob George is right, in such a beautiful package at relatively modest cost. I think Jacob George is right: They have an excellent approach: Let the full-range driver can deliver some usable bass down to 50Hz or so. Use it!

Did the Trishna’s crossoverlessness enhance this sense of spontaneity? I think it did.

Curiously, the Trishna made some mediocre recordings more listenable. I love Kurt Sanderling’s set of the Beethoven symphonies, also with the Philharmonia, originally recorded for EMI and now reissued as a five-disc set (Discy HR 705222, recently available from Berkshire Record Outlet for $19.95; www.bronic.com). The recordings lack clarity and focus; the interpretations, however, are superb, especially of symphonies 1, 2, 4, and 6. Through the Trishnas, I could make out details in the music and the interpretations that I hadn’t heard before. The Retlums were especially convincing with woodwinds. Alas, this is the last Beethoven cycle we shall get from Maestro Sanderling, who turns 99 on September 19. He finally retired a decade ago.

I tried the MiniWatt N3 single-ended integrated amplifier—you know, the one with EL84 output tubes that sells for $378 and looks like a headphone amp. Sonya and Lev were coming to dinner—good thing the Trishnas’ varnish had dried. Lev likes levity, so I put on a classic jazz CD: Bossa Nova (Verve), with Gene Ammons and Sonny Stitt, recorded 50 years ago. I made it look as if the Allnic T-1500 was playing. I chose track 3, “Autumn Leaves,” a Soviet-era favorite (the song, that is).

Even I was taken aback by the immediacy of the sound. Five decades vanished. We were in Chicago on August 27, 1961, the day this set was recorded. I was preparing for my sophomore year in college. Lev was still a lad in Leningrad. Then I revealed my treek, as Marina called it: I was running the MiniWatt, which turned out to be an excellent match with the Trishnas. True, the speakers cost more than ten times the price of the amp, and no one will take you seriously if you run with this combo.

The Trishna’s limitations was mainly its inability to play very loud—there is only so much sound to be had from a 5” full-range driver—which indicates its suitability for small-scale orchestral works as opposed to large-scale orchestral works. The Trishna was designed with small-scale listening in mind, and with small amps in mind, too. That doesn’t mean you can’t play large-scale works; they’ll just scale down. Maybe that’s a good thing—you can’t replicate concert-hall levels in your living room. Even in Mahler or Tchaikovsky, and certainly in Beethoven, the quieter passages are where much of the magic is. This is where the Trishna shines: It did not run roughshod over fine details.

I was sorry to see these speakers leave for Walter Swanbon’s Fidelis AV in Derry, New Hampshire, where you might hear them. Meanwhile, I might get hooked on single-driver speakers. I think Jacob George is right: They have a way of making multi-driver speakers, those with crossovers, sound somehow off. They don’t make so much noise, with so many drivers, that the music is lost.

Now, if only Jacob would supply banana-to-spade adapters...
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I was at a hi-fi show in Stockholm, Sweden last February to give five well-attended seminars on turntable setup. The audiences were enthusiastic, diverse in age, and strongly interested in vinyl playback.

Thanks to my host, Robert Grubstad—he owns Audio Concept, one of the most attractive and well-stocked audio stores I've ever been in—I was able to fulfill a long-time dream: a tour of the Saab factory. Grubstad called one of his customers, Thomas Frederick, who is Matts Odemalm's partner in Performance Acoustics Labs (see below), who has some high-powered industrial connections in Sweden, and the tour was arranged—provided I agreed to spend an evening at Thomas's place, listening to music and talking audio. I agreed.

The visit to the Saab factory in Trollhättan was fascinating. On my behalf, the tour was conducted in English. I felt honored, of course, but I've driven nothing but Saabs since 1972—I figured it was only fair. Because I shared the tour with some recent engineering-school graduates who'd been hired by ABB, the Swedish firm that builds that nation's electrical grid and the robots Saab uses to build cars, I got a more thorough tour than the norm, including a look into the "clean" building where the bodies are painted.

As a friend later said, "If you got into the paint building, you really got inside." The young engineers were part of a team whose job it was to cut the energy consumption of Saab's paint department by 25%. I was surprised to learn that an automobile factory's paint line consumes far more energy than any other part of the manufacturing process.

The next morning, while being interviewed in the hotel lobby by a writer for an online Swedish audio magazine, I saw, standing outside, a reporter for Swedish National Radio speaking into a microphone hooked up to a portable transmitter. When she'd finished her broadcast and entered the lobby, I asked her what her report had been about. She told me that the surprise blizzard the night before had dumped more than a half a foot of snow on Stockholm. I'd flown through that blizzard on a knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan. I'd flown through that blizzard on a knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan. I'd flown through that blizzard on a knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan—knuckle-biting flight back from Trollhättan.

Noting my accent, the reporter asked what had brought me to Sweden. I told her about the hi-fi show at the Sheraton on Saturday and Sunday, and asked if I could promote it on the radio. "No commercial mentions," she said, then told me that if she asked me on the air what I was doing in Sweden, I could slip it in. (I did—four times.) When I told her I'd also just toured the Saab factory, her face lit up; I got even more air time, and was able to mention the show yet again.

That evening at Thomas's home, in a cozy converted garage lined with LPs and CDs, we listened for hours to a superb MBL-based system. While the walls of LPs themselves acted as acoustical enhancements, Thomas's space had been carefully designed and treated by acoustician Matts Odemalm, who was also on hand. Odemalm is represented in America by Performance Acoustics Labs, a partnership with Harmonic Resolution Systems' Mike Latvis and Thomas Frederick.

Thomas is a clarinet aficionado and player with a large collection of jazz and classical vinyl and CDs, many of which feature the instrument. He knows what the clarinet should sound like, and has spent what was necessary to hear that sound from his system, including wiring it with Wireworld Eclipse copper and platinum interconnect and digital cables.

It's always a pleasure listening to a system that's very different from but of equally high caliber to my own, and sharing hours of new music and conversation with some of the great products produced by the high-performance audio industry. It reinforces the sense that, far from being a producer...
of superfluous luxury commodities, the High End serves a valuable function in our high-pressure society. It’s good to know that a music fanatic such as Russia’s President, Dimitri Medvedev, gets to blow off steam in front of a top-shelf audio system. (He prefers headbanger music: AC/DC, Black Sabbath, etc.)

It was a great trip for many reasons, but mostly because I got to meet so many enthusiastic vinyl fanatics at the Stockholm Show.

**On to Austin**

A few weeks later I flew to Austin, Texas, to attend South by Southwest (SXSW), the annual music and cinema showcase [see "Aural Robert" in last month’s issue—Ed.]. Word of Bob Ludwig’s panel discussion on vinyl mastering last fall in San Francisco, at the annual Convention of the Audio Engineering Society, and in which I’d participated, had reached the SXSW organizers, who had asked Ludwig to repeat the seminar at SXSW. Ludwig, Doug Sax, and I spoke to a large crowd of mostly young people: artists, managers, and others interested in issuing their music on vinyl.

I spent the three days before the panel listening to live music day and night at the packed clubs along Sixth Street, and hanging out with *Stereophile* music editor Robert Baird and his music-consuming friend Fred Mills, a contributing music editor for *Stereophile* and Editor/Online Editor of *Blurt*. I also hung with my fanatical audiophile friend David Hyman, CEO of Mog.com, who gave the keynote speech at one of *Stereophile’s* New York City hi-fi shows a few years back. Hyman’s site offers an “all you can eat” music-subscription service that features high-bit-rate MP3s, as well as an ingenious player with a virtual slider that lets you explore new music close to your playlist tastes—or as far out as you’re willing to move the slider.

At home, Hyman listens to vinyl on his Spiral Groove turntable with Centroid tonearm and Lyra Titan cartridge. I shared face time with Furnace Manufacturing’s Eric Astor and Manish Naik. Furnace, the official record manufacturer for Record Store Day,
produced all or most of the collectible special LPs sold last April 16 at stores across America and, during SXSW, the company had a booth at the Austin Convention Center touting its LP-making skills. In a partnership with Schallplattenfabrik Pallas GmbH, in Diepholz, Germany, Furnace ships lacquers overseas, and Pallas sends back LPs that are slipped into jackets at Furnace's production facility in Alexandria, Virginia, which also does CD and DVD duplication. The arrangement makes Pallas's superb LP pressings competitive in price with domestic pressings, and was used to produce last year's Neil Young boxed set, the double 45rpm edition of Fleetwood Mac's Rumours, and many other great additions to the ongoing bonanza of new LPs.

Most of the bands I heard at SXSW were unexceptional, which is why they hadn't been signed to a label and most probably wouldn't be. Still, what most lacked in talent they made up for in great enthusiasm, which made for fun watching and listening—often with good earplugs in. A country-folk band signed to Warner Bros., The Belle Brigade, played a well-received set at NPR's venue. I found them a bit too "good-timey" for my tastes, but perfect for NPR's.

More to my liking were Fruition String Band, a street-performing string band based in Portland, Oregon, and an unsigned quartet from Raleigh-Durham with the less-than-useful name The Sugar Gliders, who played on the patio of a wine bar. That outdoor set was fascinating: rather than merely performing, they literally produced a record onstage. The carefully arranged songs featured intricate fade-ups, dissolves, and sound effects, as well as ingenious, shifting synth accents, all produced live on stage with the aid of a well-camouflaged click track. What made the performance even more remarkable was that the guy running the PA board was a total stranger to the band who'd been hired by the bar.

The Sugar Gliders' rhythmically jumpy music was a sort of amalgam of Radiohead, the Cure, Talking Heads, even the Thompson Twins (but don't hold that against them). And they were fun to look at: the bearded, long-haired
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James Cagney. The archetypal music-business project was completed by the high-energy, "real macher" lawyer/agent/manager/club-owner type who was shepherding the group.

Knowing hardly anyone there was a good antidote for the massive ego boost. I usually get at a Consumer Electronics Show as soon as I deplane. No one rushed up to say hello. No one paid me the slightest attention. For once, it was up to me to reach out and engage strangers. It was fun.

Sitting on a giant cement flower pot on one street corner, I met a young, Chicago-based entrepreneur who'd just started a record label, specifically to record and promote an artist he'd discovered, and who was in tow. He told me he'd tracked Kellen and Me's entire album in analog on a Studer A80 tape deck at Injun Studios, that Bob Ludwig would master it, and that it would definitely be released on vinyl and as a digital download, but probably not on CD. I told him about the panel discussion on vinyl mastering that Ludwig and I would be participating in, and the next day, there he was.

In the green room before that seminar, "Mastering Vinyl, Hear All About It," Doug Sax said he thought that, however many attendees we attracted, most would be curiosity seekers, and that few would probably own turntables. So when it was my turn to speak, I asked how many in the large audience spun vinyl. Almost every hand went up. The enthusiastic questions after the formal presentation told us yet again that vinyl is back and here to stay. (Listen to the audio of the panel at http://schedule.sxsw.com/events/event_MP5680—the media player button is at the top of the page.)

I attended another vinyl seminar the next day. Not so many showed up for that one, probably because it was the last day of SXSW, and most attendees were more interested in partying and checking out new bands than in hearing about requirements for album-cover art, or how to prep their tapes or files for lacquer cutting. This panel included folks involved in LP artwork and jacket manufacturing, as well as two mastering engineers, one of whom was JJ Golden, son of veteran mastering engineer John Golden. Also present were vinyl-pressing veteran Steve Sheldon, owner of Rainbo Records, in my opinion America's most-improved pressing plant; and a representative of Nashville's United Records, the plant audiophiles love to hate for the mediocre quality of its pressings. But to be fair, United's CEO had come up to me after my panel the previous day, as he had after the seminar at the AES Convention, to express his commitment to producing world-class LPs. A representative of Cleveland's Gotta Groove Records, America's second-newest pressing plant, was also on the panel. (For a report on our newest plant, see this column's final section.)

The panel was valuable in going beyond the mastering and cutting stages in an attempt to inform attendees of everything they'd need to provide to get finished LPs, beginning with the artwork and packaging requirements—two elements that many inexperienced bands sometimes leave to the last minute. When one attendee asked if 180gm discs sounded better, one disc-cutting engineer made what I felt was a gratuitous remark about reading, "on one of those audiophile websites," an assertion that thicker vinyl allowed mastering engineers to cut deeper grooves. I was next up at the microphone, and I let him have it: "I challenge you to show me where anyone at any audiophile website said something that foolish. I'm so tired of the mindless audiophile bashing that's now so fashionable."

Backtracking, he said that he'd read it somewhere. "I'm sure you did," I said, "but don't use it as an excuse to bash audiophiles."

This Side of the Atlantic

Not long after returning home from SXSW, in the conference room of Atlantic Records, I participated in a transatlantic video conference with Atlantic CEO Craig Kallman (a vinyl connoisseur whose collection makes my +15,000 LPs seem insignificant) and audio retailer Innovative Audio's Elliot Fishkin. Wilson Audio Specialties' Peter McGrath participated by phone, while Linn Products' Gilad Tiefenbrun appeared on our big screen from Glasgow, Scotland, as we did on his. The meeting had been called to plan a May listening event that would be the dress rehearsal for a series of events designed to tout the value of good sound to mainstream journalists.

Kallman has leased the apartment adjacent to his, and in it has built an event-oriented listening room that opens onto a spacious terrace. The plan calls for an Atlantic artist to perform live in the space, with McGrath recording the performance. (McGrath is an award-winning recording engineer whose credits include numerous productions for Harmonia Mundi, among

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Michael Fremer, Stereophile, March 2011
ANALOG CORNER

others.) Following the performance, guests will move to the listening space, where Linn will demonstrate their high-resolution music server and I will espouse the vinyl line. Guests will then hear the recording on a system set up by Innovative Audio.

Listeners will hear Linn’s full-resolution Studio Master version, the lower-resolution CD equivalent, and, finally, a low-resolution MP3 version. We hope that listeners will experience how much music and pleasure are lost when high-resolution masters are downsampled.

It’s sad that this sort of outreach is needed in a world in which people take for granted HDTV and many other technological and aesthetic lifestyle enhancements, but the constant choruses of “it all sounds the same” and “only golden ears can hear the difference” has made it mandatory.

Monster Cable’s Noel Lee, Interscope Records’ Jimmy Iovine, and Warner-Elektra-Asylum are also beating the drum for high-resolution downloads and/or vinyl. We will be heard.

The Other Side of the Atlantic

The night of the Atlantic Records conference, I, my wife, and some friends saw Jeff Beck’s tribute to Les Paul in New Brunswick, New Jersey. On our way to our restaurant seats before the show, two Stereophile readers spotted me. “Fremer!” they blurted. “I swear! We were just talking about you this second! That’s so weird.” Once I’d convinced her I hadn’t set up the meeting myself; my wife was impressed.

At 8am the next morning I was off to the UK to participate in yet more audiophile outreach. Colleen Murphy, an American expatriate living in London and a well-known part of the city’s DJ scene, has lately been running a series of popular Sunday-evening listening parties at which people must turn off their cell phones, remain silent, and listen to an entire LP played on a good system that includes Klipschorn speakers and a turntable fitted with a Koetsu cartridge. Not your usual DJ gear.

These novel events have attracted significant press coverage, including an online BBC story that caught the attention of Ricardo Franassovici, whose Absolute Sounds imports to the UK products by Wilson Audio, Magico, Audio Research, daTZeel, Continuum Audio Labs, and other brands. He teamed up with Murphy to host a listening party at an art gallery that was exhibiting photos of and artwork by the late Syd Barrett, a founding member of Pink Floyd.

I had been invited to expound on the value and greatness of you’ll-never-guess-what. Murphy spoke about Syd Barrett, and a writer for Time Out London talked of why albums, in whatever recording medium, are still relevant in an increasingly singles world. At £10 a pop, the 100-seat event sold out quickly.

Franassovici’s team had hauled in a system comprising Wilson Audio MAXX 3s, an Audio Research Reference 2 phono preamp and Reference preamp, daTZeel monoblocks, and a Continuum Audio Labs Criterion turntable fitted with a Cobra tonearm and Koetsu cartridge. Wilson’s John Giolas flew in from Utah to set up the speakers. All that work, just to play Barrett’s The Madcap Laughs (1970).

The crowd arrived, had some wine and beer, and, after the three of us spoke, heard the best audio system they’d ever experienced. And don’t think, 38 minutes later, they didn’t know it! Incredibly, audible at every seat in the house was a reasonably well-constructed soundstage, and the sensation of “live in the studio” was well communicated.

Wondrous applause and profuse thanks followed, and the energy level in the room remained high for more than an hour afterward. It was well worth the flight across the ocean to meet and greet these music fans, and to see the looks of wonder on their faces. Most had no idea recorded music could sound this good. One teenage girl came up to tell me she agreed with everything I’d said about vinyl, then added, “I appreciate the instrumental textures you get from vinyl
that you don’t from digital.”

The next day, I went record shopping (of course) with Ricardo. At an obscure record fair in a church near Wimbledon, we ran into a woman who’d attended the previous evening’s event. On seeing us, she began to gush as if the Koetsu’s stylus had just been lifted from the LP. London is a city of over 10 million. What are the odds?

**Birth of a Pressing Plant**

A week after returning from the UK, I was off to Salina, Kansas, to witness the very first LP pressed at Quality Record Pressing, Acoustic Sounds’ Chad Kassem’s new plant.

Kassem has made a major investment in the pressing of vinyl, including buying and outfitting a building with the required electrical and mechanical infrastructure: a huge gas-powered boiler, a high-tech outdoor water chiller, and the many other accessories needed to get the best results from six completely restored and extensively upgraded record presses. The work has been overseen by Gary Salstrom and Mark Huggit, industry veterans who worked for years at Wakefield Pressing, in Phoenix, Arizona. Salstrom was recruited directly from Record Technology Incorporated (RTI), in Camarillo, California. Salstrom will also oversee QRP’s Europa plating room, which Kassem hopes will become the gold standard of American record plating.

Kassem has made provisions for both the plating room and the plant’s infrastructure to add more presses, already on hand, as soon as they can be restored. For now, QRP has two Finebuilt hand-operated presses outfitted to stamp UHQR discs, two SMT presses similar to the ones used at RTI, and two Alpha-Toolex presses similar to the ones used at Schallplattenfabrik Pallas, in Germany.

The opening of QRP is a major development in the vinyl world; the plant will feature some heretofore unseen pressing techniques, and enhancements deserving of far more space—but space is what I’m out of here, and QRP’s opening day, within days of deadline, means that full, world-exclusive coverage will have to wait till next month. Still, I can say here that I pushed one of the two buttons required to start a Finebuilt’s pressing of QRP’s first official LP: Cat Stevens’ *Tea for the Tillerman*, mastered at Sterling Sound—as was the original in 1970—using the original analog master tapes.
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As metaphors go, the silver bullet is somewhat ambiguous, given that it's used to represent both the reliably destructive and the reliably beneficial. (Who would have guessed that an idea from a Lon Cheney Jr. film would prove too subtle and complex for people in the 21st century?) Nevertheless, at Montreal's Salon Son et Image on April 2, those of us who comprised Stereophile's reliably responsive "Ask the Editors" panel—John Atkinson, Robert Deutsch, and I—volleyed it with the sort of sprightly, vernal abandon that is the sole province of men with gray hair. To wit: We agreed that no materials, technologies, or design decisions can either guarantee or prevent good sound. Not vinyl. Not star grounding. Not class-A circuits. Neither tubes nor transistors. Neither belt nor idler nor electrostats nor multiway nor single-driver nor copper nor silver nor silk nor beryllium. Not even harmonic distortion. Each of those ideas may mean something to someone, in the short term, in the narrow view, but that's all. There are no silver bullets.

Except in the very literal world of digital audio, which is crawling with silver bullets. First, consider that word-clock jitter is always musically destructive: There is no such thing as an acceptably musical digital source with high levels of jitter. Second is the fact that it's always easier to listen to a cached, solid-state digital file than one that's undergoing the messy process of being pulled from a CD like a rat from its hole. Third is... well, I'll get to the third one in a minute.

Digital terrier
If I owned such a number of CDs that my servants and I couldn't rip them all ourselves, I'd consider buying another CD player to replace my 12-year-old Sony SCD-777, which itself replaced a perfectly nice Naim CD3—a move of questionable wisdom, now that I think about it. But today, thanks to breakage, loss, and generosity, my CD collection is contracting, even as my vinyl and shellac collections expand. (The universe is expanding, too, but not fast enough.)

Computer audio is not only the right choice for me: It's a happy choice. The genre is still fun—especially if you avoid upturning the rocks beneath which the Internet's computer-audio "experts," who belch condemnation at every approach that isn't their own, lie in wait. And it's still affordable: The audio perfectionist who already has a free copy of Apple's iTunes on his or her computer is able to get up and running for just a few hundred dollars, with USB-to-S/PDIF converters and USB digital-to-analog converters from HRT, Musical Fidelity, Stello, and a growing list of others. Computer audio is the road to freedom from obsolescence, extortionate prices, and those glorified kitchen-table manufacturers who thanked their best customers—the people who bought the first multi-thousand-dollar CD players of the late 1980s and early 1990s—by neglecting to stock enough spare parts to keep their overpriced goods running for more than five years. Throw in freedom from ugly, splintered, useless CD jewel cases and the matter is settled.

By the same token, there exist more expensive options that promise more than just CD-quality sound. Consider the successful QB-9 USB D-to-A converter, which Ayre Acoustics introduced two years ago for the moderate sum of $2500. Ayre kindly loaned me a sample—and then, toward the end of last year, called it back for what I assumed would be improvements. Charles Hansen, Ayre's CEO, was quick to set me straight: "The new version doesn't sound any better. It just has an extra feature: It can go to 192kHz instead of just 96kHz." Fair enough. But because it might sound better when it does that, I asked to re-borrow the same QB-9. (Hansen saw no reason to alter the model name: "We knew when we started it would have to change eventually").

Ayre endeavors to make all their product upgrades retrofittable, and so it goes with the 192kHz version of the QB-9: The retail price was bumped to $2750, and people who invested in the early QB-9 can have theirs upgraded at the factory for the price difference alone: $250. Charles Hansen says he would've done it for less if he could have. "The part that would go to 192 was only a little more expensive, but then we had to add another board and change the power supply, too." The new chip—an XMOS XS-1 from Bristol, UK—is simply a microprocessor, and thus requires a separate receiver chip.

There remains a lack of controls on the Ayre's front panel, but the DIP switches on the back have taken on a new shine: One of them controls...
whether the QB-9 is connected at Class-1 USB or Class-2 USB data-transfer speed, the latter required for sampling frequencies higher than 96kHz. The choice is also determined by the owner's computer operating system: Although Class-2 USB capabilities have existed on Macs for a number of years, it wasn't until OS 10.6.4 that sample rates beyond 96kHz were supported. Windows users may require an extra driver, but Charles Hansen says that the prep work isn't daunting: "For Class-2 you do need to have your computer pretty current, but we spell it all out on our website."

Reconnecting the review sample to my Apple iMac (OS 10.6.5 at present) was, as they say in Bristol, a doddle. And I prepared for the experience by loading up on high-resolution music files, including some of the great 24-bit/176kHz Rolling Stones offerings on HDtracks.com. But therein was the hoop through which I still needed to jump: Before changing from one music-file sampling rate to another, Mac users must exit iTunes entirely, pull up the Apple Midi utility, manually select the new rate, then launch iTunes—every time. (Good heavens: Next they'll have us flipping our records and plucking the dust from our needles!) For that reason, and to investigate the claims of better sound from hi-rez files, the time had come for me to try some alternatives to Apple iTunes.

Rip it all hairier
When talk turns to Mac-specific playback software, Pure Music, Decibel, and Amarra are the names that come up most often. All three are designed to work with rather than replace iTunes, which retains the job of cataloguing your music; Pure Music, Decibel, and Amarra take over the front-end playback chores.

I began with Pure Music (v.1.74), which sells for $129 and can be downloaded for a no-charge 15-day trial period from Channel D Software's website. Features include Memory Play (a term synonymous with cache or solid-state play, meaning that the file is loaded into memory from the disk before playback begins), and the ability to automatically change sampling rate on the fly, from one file to the next. Pure Music allows sampling rates of up to twice the 192kHz limit of the other two playback programs, and even includes a reverse-play feature for those

2 Pure Music offers a subset of the functionality of Channel D’s Pure Vinyl program, which Michael Fremer enthusiastically reviewed in August 2010: http://tinyurl.com/658wga5 — Ed.
of you who wish to be reminded that Paul is, in fact, dead.

As with the other two aftermarket programs, downloading and installing Pure Music created its own onscreen icon, which assumed a position on my Mac's application dock; clicking that icon launched iTunes first, after which the Pure Music user interface was added to the left side of the screen. Going from iTunes to Pure Music, the sonic improvement was modest but worthwhile, the most immediately obvious change being a general cleaning-up of the treble range. Cymbals in particular sounded less hashy, and well-made recordings seemed more open and "airy." The piano sound in Jorge Bolet's recording of Liszt's crazy piano transcription of Wagner's overture to Tannhäuser—from Rediscovered: Liszt Recital (CD, RCA Red Seal 63748-2)—was more naturally "stringy" and colorful, and each note seemed to have more acoustic space in which to unfold and die. By contrast, iTunes had a grayish sound—although Apple's free software delivered a satisfying degree of musical momentum and pitch certainty. But before long, Pure Music proved that the latter, too, could be bettered. With live recordings, such as Hot Rize's So Long of a Journey: Live at the Boulder Theater (CD, Sugar Hill 3943), the subtle pitch variations that signal the spontaneous and altogether human sound of live singing were clearer than through iTunes.

Pure Music was easy to use, if not perfectly quirkless. Whereas iTunes changes the central control-button symbol from Play to Pause during playback, Pure Music did not. (To stop a track in Pure Music, one presses Play yet again, upon which the Pause symbol flashes into view for a fraction of a second.) In Memory Play mode there were slight pauses before files began playing—sampling-rate changes were also occasioned by brief pauses—but this was equally true of the other two aftermarket programs, and seemed reasonable enough.

Stephen F. Booth's Decibel (v.1.0.2) sells for $33, and can also be downloaded free of charge for a limited-time demo. Unlike Pure Music and Amarra, Decibel didn't need iTunes to be launched at all: Booth's software has its own graphical user interface—plain, simple, unburdened with luxuries—and the Decibel playback engine found the music in my iTunes library without a hitch. (The main Decibel screen is like a blank sheet of ledger paper, to which I could add playlists and individual songs, as desired.) Memory play and other options were selected from pull-down menus, FLAC files were decoded natively, and sampling-rate changes were handled automatically—although in one isolated incident I clicked on a file of higher resolution than the ones I'd been playing and Decibel sulked in silence, requiring me to quit and relaunch the program. On subsequent attempts it worked flawlessly.

In my system, Decibel sounded even clearer and more open than Pure Music. Again: The step up in sound quality from iTunes to Pure Music wasn't enormous, and going from Pure Music to Decibel was a similarly modest move. But when I went back and compared Decibel with iTunes, the difference seemed considerable—and surprisingly so. Compared with Decibel, music...
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World Radio History
played by iTunes sounded smoky and gray, with more artifice and haze attached to the highest treble sounds. Indeed, music files sounded a bit clearer and more open when played with Pure Music, but Decibel opened up them up even further, like an audio prybar. When I first heard Gary Brooker's familiar voice singing "Fires Which Burnt Brightly," from Procol Harum's *Grand Hotel*, I was astounded by the degree of sonic obfuscation I had subconsciously trained myself to accept and listen through: Decibel scooped away the gray sonic dust filling the spaces that should have been empty, so that pitches and timbral colors alike were clearer and more distinct.

I was so impressed with this crazy-cheap software that I asked its developer, Stephen F. Booth, to explain what makes Decibel so special. Booth replied that his design goal was simple: "Perform as little processing on the audio as possible, and provide the shortest path from the file on disk to the DAC while preserving the file's bits." He continued: "I knew I needed to avoid software sample-rate conversion. This implied that I would need to automatically set the DAC's sample rate for each file. I'm not scared of conversions to and from floating point, but I knew they would need to be accurate, so I decided to use doubles (64-bit floating-point numbers). While all sample sizes up to 24-bit can be converted to and from 32-bit floating-point numbers without loss of accuracy, I decided to use 64-bit for two reasons: they can be faster on 64-bit processors, and future-proofing. Who knows if or when 48-bit PCM will become the norm?" Not me, that's for darn sure.

Which brings us to Amarra (v.2.1.1), from the pro-audio company Sonic Studio. It's perhaps the best known of these aftermarket music players, and the one that's gained the most ground with the high-end audio industry. (At Salon Son et Image, for example, the vast majority of exhibitors who demonstrated their gear with computer-music files did so using Amarra.) Amarra is also, by far, the most expensive of the three: $695 for the full version. (Amarra Mini, a stripped-down version with a 96kHz limit, is available for $295.) A trial version of Amarra can be downloaded at no charge; it will work for 14 days, although, after a certain amount of playback time, it punctuates the music with occasional silences.

Amarra was the most luxurious of the three, with memory play, user-adjustable equalization, a Playlist Mode that lets users bypass the iTunes song-selection interface altogether, full compatibility with native FLAC files, and a handy switch for comparing Amarra playback with iTunes playback. Downloading the Amarra demo was a more complex task than for the other two aftermarket players, with security procedures that left it considerably higher price—but Amarra's user interface is itself no less sophisticated and confidence-inspiring, and its user manual, supplied as a .pdf file, is superb.

Unsurprisingly, Amarra sounded wonderful—at least the equal of Decibel, and with strengths that were categorically the same. The speed with which the Amarra playback engine could be disabled in favor of iTunes made for easy comparisons and distinct contrasts. Again, I wondered how I could have listened to my favorite recordings—happily!—with all that gray sonic dust scattered in and among the notes. Amarra cleaned up the sound, smoothed out and extended the trebles, and presented my music files in a manner that sounded naturally detailed and consistently involving. Interestingly, Amarra had a somewhat different spatial presentation from the other two playback programs, with music seeming to emanate from a point farther from the listener. With some recordings that had the added effect of making the soundfield appear larger, as with DCC Compact Classics' excellent (and historically interesting) 1994 reissue of the Band's *Stage Fright* (gold CD, DCC GZS-1061). With that and other files, the Amarra spread the musicians out over a somewhat larger space, and presented the "air" surrounding them in a more gently realistic manner.

In fact, listening to Amarra play 176 and 192kHz music files through the updated Ayre Q1-9, having applied to my computer-music system some recently offered tweaks (more on that in a moment), it appeared that I had reached the same performance heights as with the high-resolution, Ethernet-powered Linn Majik DS-1 digital player. The NAS (Network Attached Storage) that I used for that review (published in the March 2011 issue) is no longer here in Cherry Valley, but in the weeks ahead I hope to purchase and download some of Linn's own hi-rez WAV files, which I hope will offer the basis for an enduringly interesting comparison...

In recent days, while I was in touch with Sonic Studio's Jon Reichbach on a different matter, I asked if he could explain why Amarra works so well. He said the answer could be broken into two areas: "how the computer is being..."
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users: Charles Hansen, Alex Brinkman (also of Ayre), Steve Silberman (AudioQuest), and, most of all, Gordon Rankin (Wavelength), whose game-changing asynchronous USB controller software is one of the keys to the performance of his own and Ayre’s D/A converters. Their advice could easily fill another column, but for now I’ll pass on a couple of quick tips:

1) Don’t plug your D/A into just any old USB socket and expect optimal performance. The sockets at the ends of your Mac keyboard are second-rate at best . . . but you’d probably guessed that already. More obscure is the fact that you can use your Apple’s System Profiler utility to choose the best socket on your computer. With your USB D/A connected, open the Profiler, click on USB (under the Hardware heading), and look to see where your converter is listed. Ideally, it should have a high-speed USB bus all to itself; if not, swap around your other USB devices until it does. (If you have an external drive that’s connected via USB, you may want to switch it to a FireWire port, if possible.)

2) Do whatever you can—rearrange furniture, move your computer, whatever—to keep USB cable lengths as short as possible. At more or less the time I received that advice, Joe Reynolds of Nordost called to tell me about his new Blue Heaven cable line. Sensing an opportunity, I asked to borrow the following: a 1m USB cable, a 5m USB cable, a 1m audio interconnect pair, and a 5m interconnect pair. You can see where I’m going with this, I’m sure: I compared the sound of my computer-music system with the long USB cable and short interconnects (with the Ayre D/A next to my preamp) against that with the short USB cable and the long interconnects (with the Ayre on a sturdy wooden table next to my iMac). The difference was subtle but audible, and clearly favored the setup with the short USB cable. By the way, I now have six different high-end USB cables in-house, all between 1m and 1.5m long; the Nordost Blue Heaven ($250/1m) is in the top three for clarity, musicality, and value.

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Now I have my own copy of Decibel, and I have the Ayre QB-9 back in my system for at least a little while. That’s all nice. But maybe there’s more to be had.

I’m fortunate inasmuch as I can, almost at will, pick the brains of some key designers and experienced end-
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Every great performance deserves an audience.
round midnight, Natalie decided to move the party from her and Nicole's apartment (see last month's column) to our favorite local dive, Lucky 7, just a few blocks away on the corner of Second and Coles, in Jersey City. We threw wide the old red door and stepped into the stench of stale beer, the sound of cheap speaker cones tearing at the seams. I love Lucky's as much as anyone, but the music there on a Saturday night is always too goddamned loud.

Luckily, I'd brought along my Hearos Xtreme Protection earplugs—the best earplugs I've tried. They have a noise-reduction rating of 33dB, and their supersoft foam is light and comfortable in my ears. More important, they manage to preserve enough of the music's tonal color and dynamics, lowering the perceived volume without destroying the sound. A pack of 14 earplugs with a small carrying case costs about $6. Every audiophile (and anyone concerned about their hearing) should keep a pair of earplugs on hand at all times—you never know when you'll find yourself in a dangerously loud environment. Being the only one wearing earplugs in a crowded bar made me feel like a dork, but whatever. My career, and my love of listening, are far more important to me than looking cool. The DJ was spinning a mix of familiar 1980s pop and more recent indie rock, and, after a few $5 vodkas, we were all moving to the music.

At one point during the set, Nicole noticed that, instead of using an iPod or laptop, the DJ was actually spinning vinyl.

"Is his turntable better than yours, Stephen?"

"What?"

"Is the DJ's turntable better than yours?"

Sometimes I wonder about Nicole. Her sweet exterior camouflages a devilishly pointed wit and cunning. She's always leading me somewhere. I smiled and considered my response. How do I answer this question without sounding like an elitist audiophile? Luckily for me, I didn't have to answer at all. Natalie jumped in and rescued me, as she so often does. Moving to the beat of the music, she shouted, "I love the Music Hall turntable!"

Natalie was talking about the Music Hall USB-1 (discussed in the May issue), which had done an admirable job at her party as the dedicated music source. I was extremely happy—and relieved—to hear that she loved it. I smiled and gave her a hug. What else could I do?

We laughed, drank, and danced until 3am, when the music was replaced by the muscle-bound bouncer's awful nightly alarm, a strangely high-pitched wail: "Let's go, let's go, let's go! Let's go, let's go, let's go!"—my least favorite sound in the world. So we went.

It always happens just like this: I walk Natalie and Nicole back to their apartment. Along the way, we laugh about the time we had, and maybe make plans for later in the week—promises and reassurances for more good times in the future. There, at the steps of their building, we hug and say goodnight.

But there's nothing satisfying about saying goodbye—my farewells always feel awkward, rushed, incomplete. Knowing that the girls are safe inside, I turn and walk away. Somewhere along the way, I'm reminded of my loneliness. I wish I had somewhere else to go, I wish there were someone there for me. (Sometimes, you don't realize how thirsty you are till you've had a sip of water—or, in my case, five vodka tonics.)

In the middle of these dim reflections, usually around Hollywood Fried Chicken, my mind is flooded by the last song we heard at Lucky's: Sir Mix-a-Lot's "Baby Got Back," which will surely corrupt my thoughts for days. I walk again past the bar, weaving through tousled partiers as they're spit out onto the neon-puddled street. "Let's go, let's go, let's go! Let's go, let's go, let's go!" I turn left, onto Third, make my way to the old glass door of my apartment building, walk into the putrid green light and gingerly up two flights of stairs, and into my empty home. Maybe I'm sober enough to play a record and scribble some notes before I surrender to sleep. Maybe I'm not. It always happens like this.

It happened like that just a few hours ago. It's now 8am and I shouldn't be awake. I'm sitting on the orange couch, staring into this gray Sunday morning, hoping I didn't say anything stupid last night. I'm extremely tired, but at least my ears aren't ringing.

Nicole had sent me a text message a few nights earlier, I remember now.

NICOLE: Are your ears ringing, Stephen?

ME: No.

NICOLE: They should be.

I didn't know what she was talking about and I didn't know how to ask, so I decided not to respond. Sometimes, not knowing is fun; it's good to be surprised every now and then. And now it's time to listen to two very different integrated amplifiers—one cubical and tubed, the other rectangular and solid-state. I'll be at least three hours before Natalie and Nicole are awake, I hope they'll call and ask me to brunch.

JoLida FX 10 integrated amplifier

With its heat-resistant glass enclosure in place, the adorable JoLida FX 10 ($450; available in black, silver, or blue) measures just 8" W by 7" D by 7" H and weighs a hefty 12 lbs. On removing the amp from its sturdy packaging, I was impressed by its solid feel and fine build quality. This is an extremely huggable amplifier.
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Claimed to deliver a modest 10Wpc into 8 ohms, the auto-biasing FX 10 uses two matched pairs of Electro-Harmonix EL84 output tubes and two 12AX7 input tubes, all secured for travel by a block of Styrofoam. To remove the foam and prepare the FX 10 for play, simply turn the amp on its side and unscrew its four aluminum feet. Next, pull the feet out from the bottom of the amp to release the glass enclosure from the amp’s chassis. Smart and simple. After setting aside the glass enclosure, I gently lifted the foam block from the tubes and found that each tube was already secure in its socket. I returned the glass enclosure to the chassis, screwed the feet back in, attached the included AC cord to its rear-panel inlet, and placed the FX 10 on the top shelf of my Polycrystal equipment rack. This is an amplifier that wants to be displayed.

On the FX 10’s rear panel are a rocker switch, the AC input, inputs for CD and Aux, and smartly arranged gold-plated output terminals for speaker loads of 8 and 4 ohms. On the front, from left to right, are a small Standby button and blue LED, a remote sensor, a tastefully discreet gold logo, a cute volume knob, three small input buttons, and a convenient 1/8” jack for connecting an iPod. Press the rear-panel rocker switch and the FX 10’s front-panel LED glows bright red, signaling that the amp is in Standby mode; press the Standby button and the tubes are suddenly illuminated from below by stunning blue LEDs, and the front-panel LED blinks slowly 10 times before steadily glowing the same pretty blue—a little opening ceremony that was always seductive and impressive. The FX 10 functioned flawlessly while in my system, and I loved every minute of using it and looking at it.

I used a Rega P1 record player with an Ortofon 2M Red cartridge, an NAD PP 3 USB phono preamp, and cheap RadioShack cables. At the start, with the PSB Alpha B1 speakers connected to the JoLida’s 8 ohm taps, the FX 10 made music—always a good sign—but while its midrange clarity was respectable, the amp sounded restricted and lean, lacking body and tonal color. After a side of John Fahey’s Old Fashioned Love (LP, Takoma 6511), the amp seemed to open up a bit, offering a wider soundstage, slightly more weight, and more fully developed tonal color—but I wanted still more. Switching to the 4 ohm taps seemed to deliver a better top-to-bottom balance with slightly more body and color, resulting in a better grip on the music, but did little for soundstage depth. The Klipsch Synergy B-20 speakers added a dose of vibrancy and certainty to the JoLida’s lean sound, and performed best from the amp’s 8 ohm taps. I stuck with this more synergistic pairing and listened to some music. Fahey’s beautiful “Marilyn,” with its intertwining guitars, phase effects, and moments of insistent high-frequency ringing, will challenge most affordable components; the track’s most ravishing, emotionally compelling movements can sound utterly careless and annoying if a component can’t distinguish between guitar tones and feedback. Unable to fully separate Woodrow Mann’s ruddy tone from Fahey’s more burnished sound, the JoLida FX 10 struggled to make sense of the composition, and while I could see where the music was supposed to go, my emotions weren’t swayed. Mann’s guitar seemed some-

what lost in the background, while the brighter ring of Fahey’s steel-string guitar was brought to the fore. Listening to the album’s title track, however, I sensed that the JoLida had a fine way with cymbals and horns, allowing the latter to bloom effortlessly into my listening room, the former to sizzle gently into darkness—surprisingly, the tube JoLida seemed quieter than any of the solid-state integrated amps I’ve recently used, including the Cambridge Audio Azur 340A, NAD C 316BEE, and my own Exposure 2010S.

Hoping I’d discovered the JoLida’s strong suit, I cued up “Lonely Woman,” from Ornette Coleman’s The Shape of Jazz to Come (LP, Atlantic SD 1317). Percussion was quick and purposeful; horns were clearly delineated and capable of sounding appropriately sexy, languorous, and brawny; and detail retrieval was impressive. The sound was just as good when I switched back to the Cambridge Audio Azur 340A, but with added weight and rhythmic certainty. Finally, I thought back to the 2008 Rocky Mountain Audio Fest, where I met JoLida’s president, Michael Allen, and enjoyed my first experience with an early version of the FX 10. Allen seemed especially proud of the amp’s ability to play hard rock at loud levels; he turned up the volume on a Linkin Park track and the amp filled the room with clean sound. With this in mind, I reached for Earthly Delights (LP, Lost 126) by Lightning Bolt, a vicious noise-rock duo from Providence, Rhode Island, and turned the FX 10’s volume knob to 3pm.

“Sound Guardians” is a heavily distorted, dense arrangement of loud guitars and raging drums. Played through the Klipsch Synergy B-20 speakers and JoLida FX 10, there wasn’t much of what could be called nuance or inner detail, but there was music: Violent, relentless cymbal bursts bled from the speakers, distorted power chords were produced with shape and meaning, and blistering leads sent me into a fit of air-guitar theorizing. The JoLida-Klipsch combo could certainly rock. The music nearly matched the brute force and impact of what we’d heard the night before at Lucky 7, but was so much more satisfying. However, this was not the rich, romantic sound so often associated with tubes; it was something far more literal and direct.

**CONTACTS**


I asked JoLida's Michael Allen to tell me more about what had gone into the design of the FX 10. "We were trying to hit a number of objectives," he said: "low cost, small size, and decent sound. I think the most difficult part of the project was the small size. Low cost had its own challenges as well, in terms of selecting parts that were quality and met specification. In addition, since the unit had to be a lock-and-load, we put in [tube] auto-bias, which we do not particularly like since it reduces power and increases distortion."

In my small listening room (10.5' W by 13.1' L by 8' H), I never felt that the JoLida FX 10 lacked power—not with the PSB Alpha B1s, and certainly not with the vibrant-sounding, high-sensitivity (92.5dB) Klipsch B-20s—but I did get the sense that music wasn't fully articulated. The highs lacked air, the mids some delicacy and voluptuousness, the bottom impact. That said, I always enjoyed music while the FX 10 was in my system. It was only in comparing it directly with other amplifiers that I remembered what I was missing. Such is life.

**NAD C 316BEE integrated amplifier**

And life is good. Smaller and sleeker than the Cambridge Audio Azur 340A, and with a more modest, more attractive front panel, the NAD C 316BEE integrated amplifier ($349) measures about 17" W by 3" H by 11" D and, like the JoLida FX 10, weighs 12 lbs. I love the size and shape of this little BEE. The rear panel is cleanly arranged, with five inputs, Tape Ins and Outs, a rocker switch for power, and a single set of user-friendly binding posts for easy connections. On the front panel there's a small Standby button, input-selector buttons, a headphone jack, an iPod minijack, and a large Volume knob. Smaller knobs for Balance, Bass, and Treble are also offered, the tone controls defeatable via pushbutton. The included remote control is small, light, and contoured to fit comfortably in the hand. The C 316BEE is named for Bjorn Erik Edvardsen, NAD's director of advanced development, and descends from Edvardsen's famed 3020 integrated amplifier, which is ranked No.19 in Stereophile's list of The Hot 100 Products: the most important hi-fi components of all time. (See www.stereophile.com/content/40-years-iste-reophile-hot-100-products.) The 3020 sold well over a million units in its time, and still demands good money on auction sites.

Several years ago, long before anyone had ever conceived of "The Entry Level," I sat quietly at a dinner table along the back wall of Peacock Alley, in the grand Waldorf=Astoria Hotel. To my left was Kal Rubinson, across from me were Sam Tellig and John Atkinson, to my right were members of NAD's engineering and marketing teams, and all around were history, knowledge, and decades of dedication to music and sound. From above, however, tuneless piano music poured down over our table from surprisingly bad ceiling speakers. In this respect, Peacock Alley was only slightly better than Lucky 7. Someone asked, firmly, for the music to be turned down so that we could enjoy our conversation. I didn't have much to add to the evening's discussion, but soaked up as much information and history as possible. Someone brought up the old NAD 3020 integrated amplifier, and the voices lowered to hushed reverence. "You should listen to the latest model and write about it on your blog, Stephen," JA advised. That never happened, but here we are.

Sticking with the Klipsch Synergy B-20 speakers, I replaced the JoLida FX 10 with the NAD C 316BEE and immediately heard what I'd been missing. Music was presented on a wider, deeper soundstage, with more detail and better delineation of images. Voices and instruments were given more space to breathe, and the overall sound was clearer and more open, allowing sounds to bloom into my listening room with greater intensity, and vanish from it with delicacy, style, and grace—through the NAD, sounds knew how to say hello and goodbye.

I returned to John Fahey's Old Fashioned Love and cue'd up "Mariline." The C 316BEE's harmonic integrity and enhanced delineation of inner detail freed Woodrow Mann's full-bottomed guitar from Fahey's burnished strings, while the amp's greater weight and body seemed to anchor all of the musical elements for a more coherent and emotionally compelling listening experience.

The NAD seemed to have a stronger grip on the music, and an equally strong grip on me. Was this due to its greater output power? I don't know. Maybe. The C 316BEE uses a new variant of the PowerDrive technology found in NAD's Master Series components, which is said to maximize the short-term dynamic power sent to the loudspeakers. While the C 316BEE's continuous power output is a claimed 40Wpc into 8 ohms, NAD says that its dynamic power—measured on 5ms peaks—is around 100Wpc into 8 ohms.

Power's great, but I also value grace. The NAD C 316BEE had that, too. I again played Ornette Coleman's "Lonesome Woman"; the NAD's rounder, more fully expressed bass and heftier, fleshier overall sound resulted in a forceful, authoritative performance. But I was more impressed by the NAD's ability to follow complex musical passages and make clear, truthful distinctions among musical instruments. While the JoLida FX 10 did a fine job of separating instruments in space, the NAD excelled at imparting the natural colors of Coleman's alto sax and Don Cherry's cornet, pulling the instruments apart and bringing them together beautifully, as if in fluid dance or warm embrace, as the song twisted, unraveled, turned, and walked away.

So I was again surprised: I didn't love the JoLida FX 10 as much as I'd hoped I would, but I loved the NAD C 316BEE more than I'd expected to. It's now 11am, and the gray Sunday sky is beginning to clear. A moment ago I stepped away from the computer, wondering if Nicole or Natalie had been in touch. Just as I reached for my cell phone, it gave its little whirring signal, alerting me to a new text message.

NATALIE: Brunch? EXACTLY what I was hoping for.

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— Stephen Mejias, Stereophile / April 2011

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The best hi-fi components are just like any other thoroughbreds – you need to house and feed them properly if they’re going to perform. Ignore the basics and they’re just another collection of overpriced separates, rather than a well-oiled machine, greater than the sum of its parts.

But keeping everything working together really is as easy as one, two, three: proper support, proper power cords and a matching set of signal leads – interconnects and speaker cables. Consistency is the key, which is why Nordost’s new Blue Heaven family (and the rest of the Leif Series) uses the same materials and technology to provide cable solutions from your wall socket, via dedicated digital and source designs, right through to your speaker terminals.

Now add the Sort Kone into the mix, a sophisticated support solution that is based on the same principles of mechanical tuning incorporated into the Leif Series cables and you’ve extended that coherent approach still further, building the perfect base for your system. It’s this solid foundation and only this foundation, that will bind your carefully chosen components into a single whole – a whole that really is greater than the sum of its parts, finally delivering on the potential performance; performance – and performances – that so often remain elusive.

So remember...

great cables are much more than just icing on the cake.
Things move fast in multichannel.

No, I'm not referring to the speed of sound effects as they whip around a room—let's leave that for the home-theater mags. I'm talking about audio technology. Since I began writing this column in 2003, we've seen serious technological changes almost annually, some driven by real needs, some imposed by marketing considerations. To me, the rate of change seems strikingly rapid, compared to that of the products I review for the main portion of Stereophile, based, as they are, in the two-channel world.

Practical stereo for the home began in the late 1950s, when the basic paradigm, which still reigns, was established: source component, two-channel integrated amplifier or separate preamp and power amp, and two speakers. Of course, the sources changed with the appearance of CDs in the 1980s, and with streaming audio files in this century. I don't regard the difference between separates and integrated amps as being anything more than a redistribution of the same parts, and I feel the same about the trend to externalize digital-to-analog converters from a disc player or USB DACs from a streaming source. High-definition sound is an obvious and inevitable evolution made possible by the advances made in digital delivery systems.

Fundamentally, I see two big changes over the last five decades. What most of the high-end manufacturers seem to feed on is the constant reworking and optimization of the basic paradigm from the 1950s. That's not a bad thing. We're good. There are always new areas for us to work in to improve our products. We're not trying to create a completely new product, but to improve what we already have. There are always new areas for us to work in to improve our products. We're not trying to create a completely new product, but to improve what we already have.

The Ill part is the implementation of advanced digital technologies in our products. The costs of the research into and development of digital technology, and the subsequent development of digital products, are very high. It's not something that most of us can afford to do on our own. But it's not a bad thing. We're good. We're not trying to create a completely new product, but to improve what we already have. There are always new areas for us to work in to improve our products. We're not trying to create a completely new product, but to improve what we already have.

My original multichannel system was an analog two-channel rig with a hodgepodge of additional analog components arranged to accept the analog outputs from the then-new DVD-Audio and SACD players. I had no master volume control until I got my first multichannel analog preamplifier, Sony's TA-P9000ES (which Larry Greenhill and I respectively wrote about in the November 2001 and July 2002 issues of Stereophile, www.stereophile.com/solidpreamps/700/index.html); no bass management and room equalization to content music playback in the home. As I said then, "Its appearance is timely and exciting for music lovers because it: 1) decodes and processes all current digital music formats, including DSD, Dolby True-HD, and DTS-HD Master Audio; 2) can apply bass and channel management; 3) has a 9-channel analog pass-through with volume control; 4) has both RCA and XLR outputs; and 5) even has a phono input." Even today, some pre-pros can't claim all of those features.

Since then, Integra has offered the DTC-9.9 and DHC-80.1, and a parallel series of pre-pros has appeared under the Onkyo brand. (There are only minor functional differences between the Integra and Onkyo lines.) While there are some improvements in the newer models, they are not on the same scale as the changes we've seen in the past five decades. It's not a bad thing. We're good. We're not trying to create a completely new product, but to improve what we already have. There are always new areas for us to work in to improve our products. We're not trying to create a completely new product, but to improve what we already have.
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have been incremental improvements along the way, the new DHC-80.2 seems so much more advanced and sophisticated as to warrant a detailed examination.

The DHC-80.2 bears a family resemblance to the DTC-9.8 in the layout of its controls and display. Integra has managed to add a few more front-panel buttons and jacks to accommodate new features without complicating the model's operation. The rear panel fairly bristles with jacks and connectors, but, thanks to the ubiquity of HDMI, and the neat row of XLR jacks across the bottom of the panel, basic connections are a breeze. Given my experience with setting up systems, it's hard for me to appreciate the uncertainty and frustration of first-time users, but while the DHC-80.2 has even more features and options than its predecessor, I found that setup was greatly accelerated by a far more coherent organization of the menus.

All of the features listed above for the DTC-9.8 have been retained and enhanced. Add to them HDMI v1.4 (eight inputs and two outputs, with Audio Return Channel and 3D), Dolby Pro-Logic IIz (for front-high channels), Audyssey DSX (for front-wide and/or front-high channels), two USB inputs, two subwoofer outputs, a Universal Port for an iPod dock or HDRadio tuner module, and network connectivity that accommodates Internet radio as well as the streaming of audio files from your local devices.

But that's more a view of the trees than of the forest. All of the DHC-80.2's basic and advanced functions have been improved over the DTC-9.8 originals, from video processing using the HQV-Reon-VX processor, to audio processing with the latest versions of Audyssey MultEQ XT32, Dynamic EQ, and Dynamic Volume. Is anything missing? Not that I can tell.

To assess the DHC-80.2's basic audio quality, I did my initial auditions via its multichannel analog inputs and, for digital sources, prior to EQ with Audyssey. Regular readers of this column may recall that the DTC-9.8's sound through its analog inputs, direct or processed, was its Achilles' heel. I'm happy to report that the DHC-80.2 is significantly superior in this regard although it was limited by the range of channel distance setting in my Oppo BDP-83 universal Blu-ray player. Two-channel signals from the Oppo and the Sony XA-5400ES players, the latter via balanced XLR connection, were also satisfying. Gone was the abidingly thin sound that characterized the '9.8, though I still preferred to use HDMI with the DHC-80.2 any time that option existed, in order to take advantage of the pre-pro's own processing. (See my September 2010 column, www.stereophile.com/musicintheround/music_in_the_round_44/index.html.)

**THE DHC-80.2 INCLUDES THE LATEST AND MOST ADVANCED VERSION OF AUDYSSEY'S EQ SOFTWARE, MULTEQ XT32.**

Transparency, too, was excellent, though it didn't reach the levels heard through such analog preamps as the old Sony TA-P9000ES, or the Classé CT-800 pre-pro. Still, this is a significant improvement; unlike with its predecessor, the DHC-80.2's analog input option is now a valid option.

Digital sources, too, were dynamic and well balanced. Balance, of course, depends on the source components, the speakers, and the room acoustics, but given the physical constancy of my moderately treated room, the DHC-80.2 was thrillingly good as a stereo DAC-preamp (no bass management, no Audyssey) with my resident Paradigm Studio 60v3 speakers or a visiting pair of KEF Q900s. Streamed Internet radio was as good as the source materials would allow, and while sometimes blunted in the highs, with good channels like LinnRadio or RCOlive, the sound approached CD quality.

I had similar feelings about music streamed from my PC or from a USB-connected portable drive. The Integra was almost always as good as the source permitted. It couldn't handle DTS tracks in a WAV file, but it did handle hi-def PCM tracks with resolutions up to 24-bit/96kHz. While the sound of the HD tracks from my PC sounded spectacular, they seemed a bit less open when taken from the one USB drive I tried—but I hesitate to generalize about that. Overall, this performance confirmed the fundamental quality of the DHC-80.2's DACs and analog output stages.
compromises represent efforts to cram as many functions as marketability requires into a DSP section that is constrained by cost. Bravo, Audyssey.

MultEQ XT32's basic calibration procedure should be familiar. The user puts the provided microphone in the preferred listening position and plugs it into its own front-panel jack. When two subwoofers are used, however, the software requests that the user set the output of each sub to 75dB with the sub's own level control; the DHC-80.2 then provides test tones and level readouts. Following that, Audyssey pings each speaker to determine level, distance to the listening position, and frequency response. When MultEQ XT32 gets to the subs, it pings each separately, then both together. Audyssey thus sets levels and distances independently for each sub, then equalizes them as a pair. MultEQ XT32 can accept up to seven additional mike positions. For more information and guidance, interested readers are advised to consult the Audyssey Set-Up Guide developed by AVS Forum users (www.aysforum.com/aysvb/attachment.php?attachmentid=154361&d=1254667534), as well as the official Audyssey website (www.audyssey.com/technology/multeq.html).

The calibration results were unsurprising, and the sound was glorious. Even using heterogeneous speakers—the KEFs as the L/R mains and the Paradigms as the center and surrounds—tonal consistency across and around the soundstage after calibration was impressive. One of my favorite reference multichannel discs is Willie Nelson's Night and Day (DVD-A, Surrounded By SBE-1001-9), which has a very immersive mix in which the instruments surround the listener. With the Integra DHC-80.2 and my mash-up of speakers, each instrument sounded tonally true and balanced, regardless of where it came from. Even more than that, the channels blended so well that the soundstage was continuous all around the listening position. I wasn't so aware of individual instruments as of an uninterrupted soundspace within which the instruments were arrayed.

A significant part of that seamless recreation of the recorded stage was bass management and the integration of the dual subwoofers. Audyssey measurements determined, by Integra's set of rules, that all of the speakers were full-range, but, as usual, I changed those settings. In this case, because I planned to run MultEQ Pro on the Integra, I changed all of their bass-frequency cutoffs to 80Hz. Nonetheless, the subs were aurally undetectable with music signals, and low bass seemed unusually directional; that is, I could closely associate low-bass sounds with the soundstage placements of the instruments that I assumed had produced them. For example, in Dmitri Kitajenko and the Gürzenich-Orchester Köln's recording of Tchaikovsky's Symphony 6 (SACD, Oehms Classics OC666), the frontal soundstage is deep and wide, perhaps at times a bit too wide. But the bass drum seemed to be just right of center and deep in the back of the orchestra, even though my subs are placed one right up front and the other behind me! The fact that this is a 5.0-channel recording in which all the bass information is in the main channels demonstrates the generally excellent sonic characteristics of the DHC-80.2, and the cutting-edge
channel management and EQ of MultiEQ XT32.

I have little to tell you about Dolby IIz, or Audyssey's DSX or Dynamic Volume, because they added little to my musical enjoyment when I tried them or heard them in demo with this product. They work, and I encourage you to sample them for yourself. I'm somewhat undecided about Dolby Volume and Audyssey Dynamic EQ. Both will adjust tonal and channel balance to compensate for the changes in auditory perception associated with changing sound levels. While they work pretty well, I tend to listen to music at comfortably high levels. As a result, neither is really necessary for my serious listening, and with either of them engaged, I was amazed that anyone would make such a big deal about them. Perhaps it's a sign of my age that I find the sound of relays reassuring, especially when they make ticks as soft as these. But don't let me tell you what to like. Go to a showroom and hear them for yourself.

When I compare the Integra DH-80.2 to the Marantz AV7005, which was featured in my March 2011 column (see www.stereophile.com/content/music-round-47), I have to admit that both are similarly good-sounding with both analog and digital sources. The Marantz has the more stylish appearance and easy Web control access. On the other hand, I'm happier without the trap door behind which the Marantz's controls are hidden—I like to have all information displayed at all times. Also, if you want remote Web-based control for the Integra, there's an app for that called oRemote (http://itunes.apple.com/us/app/oremote/id393837174?mt=8). However, the Integra's $800 higher price gets you direct DSD decoding (if that floats your boat), as well as MultiEQ XT32, which enjoys a distinct advantage over the MultiEQ XT included in the Marantz. In fact, I think MultiEQ XT32 is so effective that it negates the need for Audyssey's expensive standalone processor boxes.

Like the DTC-9.8, the Integra DH-80.2, at $2300, redefines value in a multichannel preamplifier-processor for the serious music lover or home-theater fan (though I've discussed none of its video capabilities). It incorporates the current state of the art in features and applications, and would not be out of place in any system. I can hardly wait to see what...
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Integra comes up with next.

**MulEQ Pro and Con**

I'd hoped to conclude my review of the Integra DHC-80.2 with my experiences in applying MulEQ Pro to this already very capable device. However, I was frustrated at nearly every turn. After obtaining the requisite “key” code for the DHC-80.2, I discovered that the old RS-232 connection was no longer effective, and that the only communication access for Audyssey was network-based. Okay, I was game for that—I have both wired and wireless options. After clicking on “Integra AVR Interface 2” in my laptop computer’s Pro application, I was asked to enter the Integra’s IP address. I entered the one that enabled this same laptop to access the Integra directly, but it failed. Using either my laptop or my main PC, I tried fiddling with the DHCP protocol, I tried rebooting every device that could be booted. No joy. Either I was told there had been a communications time-out or I got no response at all.

Through Web forums I learned that while others have had success, my failure was hardly unique. Audyssey and Integra were pinged, and the suggestion was to run an ALL-CLEAR, which wipes out any previous Audyssey data in the Integra as well as everything else. After I’d applied this electroconvulsive therapy to the Integra, I could access it from MulEQ Pro and was able to sail through a 13-point setup routine. The recommended crossover frequencies were 50Hz (L/R) and 40Hz (center and surrounds).

The results were audibly inferior. There was no bass. I could feel the subwoofer cones moving, and MulEQ Pro graphs assured me that the subs’ frequency response was flat down to 16Hz. Interestingly, if I bypassed MulEQ Pro, the bass still sucked. On the Web I learned that Mark Seaton, of Seaton Sound, described using a system that included two or more properly EQ’d subs, but there was a significant phase difference between the subs and the main speakers. Result: a big suckout centered on the crossover point. Cause: Audyssey never pings both the sub(s) with the main speakers. Solution: Seaton suggested changing the distance setting for the sub(s), as that’s the acoustical equivalent of varying the relative phase of the subs vs the main speakers.

Unfortunately that didn’t work for me, but I did confirm the lack of bass by measuring every speaker’s frequency response—and, indeed, there was plenty of bass when every speaker was identified as Large.

It seemed obvious that my next step should be to try to change the crossover frequencies in MulEQ Pro, but again, I couldn’t access the Integra from the MulEQ Pro app. After another ALL-CLEAR purge, the results, with all crossovers set to 80Hz, were strange. MulEQ Pro had set both subwoofer distances to 12’, the default distance for unmetered speakers, when it had earlier set them to 22.6’ and 12’. The sound was not improved.

After a third ALL-CLEAR and another complete calibration, MulEQ Pro recommended different crossover frequencies: 60Hz (L/R), 20Hz (center) and 80Hz (surrounds). The sub distances were slightly different, 19.6’ and 8’, but now the subwoofer frequency response, as asserted by MulEQ Pro and confirmed by the XTZ analyzer, was flat from 45 to 115Hz, but elevated by 10dB from 20 to 30Hz. Even worse, when the subwoofers were measured along with the L/R speakers, there was a 20dB suckout centered at 60Hz. Unacceptable, technically and sonically.

All things considered, I cannot know whether these issues are a consequence of lingering communications problems or something else. I wish I had measured the results of the original MulEQ XT32 calibration I’d done with the Integra DHC-80.2, which I found satisfying, but I’d expected even better results with MulEQ Pro. I’m still a big fan of MulEQ, as these disappointing results are uncharacteristic. Surely, something has gone awry and we should expect timely action from Integra and/or Audyssey.

More on MulEQ Pro next time.
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Seventy years after the devil (or the poison) took him, Robert Johnson and his music remain timeless.

“Sometimes I can evoke the breathless rush of feeling that I experienced the first time that I ever really heard Robert Johnson’s music. Sometimes a note will suggest just a hint of the realms of emotion that opened up to me in that moment, the sense of utter wonder, the shattering revelation.”


It’s an experience that all true blues fans need to savor. Fly into Memphis, drive south on US 61, into Coahoma County, Mississippi, down to the Delta, down to Robert Johnson country. There, on one of those steamy nights when the moon is full and fog, or maybe restless spirits, rise from the cotton fields, you can drive down to his two graves, in two churchyards nearly within sight of each other. You can sit in the dark and listen to the trains that were his constant mode of transportation. And on the way back to Clarksdale, the Delta burgh where Bessie Smith passed, you can go down to the crossroads and judge for yourself. Romantics say you can feel, smell, and even hear Robert Johnson’s music, if not his desperate deal, still hanging in the humid Mississippi air.

That music is nothing fancy. Most of his songs begin the same way. The guitar hits you first: those spidery fingers picking their way up the frets, then bursting into a nearly unlimbed frenzy of masterful actions—bass parts, rhythm parts, solo fills, and, most distinctly, doubling his vocal lines with a slide on a Kalamazoo or Stella guitar. Next comes that high, spooky, otherworldly voice with its unforgettable crying tone, the “whooooo” falsetto leaps and
tormented moans in the higher registers, and those nasal asides to himself, more spoken than sung, all in a deep Mississippi Delta accent. Finally, when “Sweet Home Chicago,” “Hellhound On My Trail,” or “Come On In My Kitchen” ends, there comes the realization—at least to those who read liner notes—that this luminous singer and player, who was what his contemporary David “Honeyboy” Edwards called a “one-man band”—also wrote his own material.

To those for whom music is the most soulful art form, this white-hot triple threat, this solitary cipher, is America’s answer to Mozart: freakishly talented, short-lived, and yet, while alive, a rake. For the more expansively minded, those with an eye toward pinpointing America’s most profound contribution to world culture, Johnson’s slim oeuvre equals those of Gershwin, Pollock, Whitman—or the collection of personalities and artists that collectively make up Hollywood. In a highly imitative and often repetitive genre of music, he remains the most transcendent and imposing player, singer, and writer of the blues. His music, much of it covered after his death by such latter-day admirers as the Rolling Stones and Eric Clapton, inspired rock ‘n’ roll, which in turn became the cornerstone of rock. Finally, there is something fitting and cosmetically true about the fact that America’s greatest musical genius—the details of his everyday life as unknown as Shakespeare’s, his body of work as small as da Vinci’s, his grave as unknown as Mozart’s—spent his short life broke, illiterate, itinerant, and the grandson of slaves.

And, oh yeah—in song (“Cross Road Blues”) and in legend, he is the American Faust.

“The guy on a farm, doesn’t want to be a farmer, goes into town to play [guitar], they laugh at him,” says Steve Berkowitz, co-producer of the new edition of Johnson’s recordings, The Complete Original Masters: Centennial Edition. “He leaves, he allegedly sells his soul to the devil at the crossroads, to be able to play [so amazingly]. He comes back, ‘Oh my God! He must have sold his soul to the devil to be able to play like this.’ A jealous lover, maybe male, maybe female, [poisons him]. He’s in the street, foam coming out of his mouth, crawling like a snake down the road. He dies.”

Perhaps most mysterious and improbable of all is the fact that, since the advent of the CD—and a growing number of celebrity endorsements from the likes of such Johnson admirers as guitarists Eric Clapton (who has recorded two albums of Johnson’s music), Keith Richards, and Jimmy Page—the enigmatic bluesman has also achieved record-business legitimacy: his records sell. The 1990 Columbia boxed set The Complete Recordings has sold over a million copies. In 1986, Johnson was inducted into the Rock and Roll Hall of Fame; Robert Johnson, The Man, The Myth, a theatrical production based on Johnson’s life and music, is touring major American cities; and even a performer as stylistically disconnected from the blues as Big Head Todd Park Mohr and his band, the Monsters (who have needed a fresh idea for years), have recorded Big Head Blues Club: 100 Years of Robert Johnson, with guests B.B. King and “Honeyboy” Edwards.

Johnson’s recordings are owned by Columbia Records, itself a division of Sony BMG, which in the 1990s paid for the production of three different digital remasterings of Johnson’s collected works, each using 78rpm pressings or ever higher quality. The centennial of Johnson’s birth has convinced the label to pay for two more fresh remasterings, both of which use a mix of new and previously released source material. Two different collections of Johnson’s works have come from these efforts. The first, The Complete Recordings: The Centennial Collection, produced by Johnson expert Stephen Laverue and engineered by famed reissue producer Steven Lasker, is a bargain-priced ($14.99), two-CD set that includes the 29 issued master takes of Johnson’s material, as well as the 15 known alternate takes, all taken from a new collection of 78s sourced from Lasker and collectors around the world.

The second Johnson anthology, The Complete Original Masters: Centennial Edition, available only at www.thecompleteroberjohnson.com, is a far more ornate affair—“deluxe” is the word Sony’s marketing department uses—whose centerpiece is a dozen vinyl replicas of 10” 78rpm shellac discs, to be played at 45rpm, on which are pressed the 12 singles released on 78s in Johnson’s lifetime. Also included in this package, which is limited to 1000 copies and retails for $349, is the above-mentioned two-CD set of Johnson’s music, as well as two intriguing collections on CD of related recordings. The first, a treasure for early blues collectors, is Blues from the Past Violin (BMG and Sony merged in 2004), and features two dozen A and B sides of 78s by Furry Lewis, Sleepy John Estes, Memphis Minnie, and others, all recorded between 1928 and 1932, and which might have been familiar to or influenced a young Robert Johnson. The other non-Johnson disc is the fascinating Also Playing, which collects performances of music of all types, from Mexican to country, cut direct to disc, on the same days in the same makeshift studios in San Antonio (1936) and Dallas (1937), by the same American Record Company crew that recorded Johnson—in other words, these folks were recorded just before and just after Johnson. Lastly, this luxury package contains a DVD of director Peter Meyer’s 1998 documentary Can’t You Hear the Wind Howl? The Life & Music of Robert Johnson, narrated by Danny Glover and featuring classic interviews with a number of Johnson’s boyhood friends and musical contemporaries, such as Johnny Shines and Son House.

Yes, it’s Johnson’s centennial; but why the remastering and release of two separate reissue sets in the same year by the same label? “There’s a lot of sonic archeology that’s gone on here,” co-producer Michael Brooks explains. “As the understanding of the digital format and its tools and the ears to work within it has improved, we find ourselves at a point where a better set of masters can be made. And there’s always someone coming out of the woodwork saying, ‘I’ve got a better track, a better condition track than x or y.’ We’re always trying to upgrade.”

For those unfamiliar with Johnson or his music, the new collections are windows on the utter genius of his vision and performances. For collectors and those who own any or all of the three previous digital remasters (from 1990, 1992, and 1997, all of which share some source material), the sound quality of the vinyl records in the deluxe set is the biggest draw, especially those made from four metal parts recently uncovered in the Sony archives.

In an early draft of his liner note for the vinyl set, Brooks gave this: “Before tape, recording masters were cut onto wax, which was electro-plated. The metal was stripped away to form a perfect mirror image of the grooves; ie, the grooves projected
upwards. Then, this negative was again plated to form a positive; this served as the 'mother' and was used to produce one or more negatives or stampers for production runs. When these wore out, more stampers were plated from the mother.

"Unfortunately, for the purposes of this project, most of these masters consisted of takes unreleased on 78 rpm. The only relevant parts existing were: '32-20 Blues,' 'Ramble On My Mind,' 'Little Queen of Spades,' and 'Preaching Blues.' These negative stampers proved impossible to track; the San Antonio sessions were heavily modulated, causing the stylus to jump from the grooves, while the Dallas parts had apparently been cut with a worn cutting head, also causing tracking problems. Glenn Korman, head of Sony Archives, authorized the parts to be shipped to sound engineer Harry Coster in Hilversum, Holland, who made test pressings from the negatives and transferred them digitally. Those transfers were then used to cut new 45 rpm masters."

In an interview at the Sony offices on Madison Avenue, in New York, Berkowitz and Brooks elaborate on Coster's unusual methods: "He has a hand-operated press," Brooks says. "He does it in a barn behind his house. He'll press maybe five or six copies, and he'll look at them, and five of them he'll throw out." (Berkowitz: "Or he keeps a few for himself because he's a fan as well!") "He can only press in the summer, because in the winter the horses go in the barn. He can't use vinyl because of the regulations in the Netherlands—you have to have incredible safety measures—so he gets polystyrene, and he can only buy 50 bags at a time, which he says will last him for 20 years."

Berkowitz jumps in: "If the metal part exists, even if it's really warped, in the past, with an acetylene torch, we've literally moved blacksmith work and moved these metal parts, cooled them, and pressed or played them. The idea was, if you press it in vinyl, which is a quieter surface than steel, when a needle hits it, if the metal in the stamper has the information and it's not rusty or corroded or something else... Sure enough, when you hear the master of '32-20' from the deluxe set, there's no noise there! There's no noise! There's no gaaaaaaa. [Imitates sound of 78 rpm disc playing] You're no longer playing a reclaimed, remastered old record. You are pressing a new master, and it sounds like the guy's in the room. It's getting back to the moment of creation. It's a deeper dig to where it really is."

The hunt for clean copies and/or better sources of Johnson's recorded legacy—and the legacies of many pre-WWII musicians—is an alluring yet maddening detective story that continues to this day; liner notes from all Johnson reissues are lacking hard information. Three cuts on the deluxe set's 45 rpm vinyls were mastered from metal parts. One 78 came from Oregon; four from Bruce Basist of Interstate Music, in England; and one each from collectors in Canada and Denmark. Eight sides came from the Library of Congress, and the rest were taken from flat transfer tapes made by producer Frank Driggs in 1960 from 78s borrowed from various collectors, for the 1961 Robert Johnson compilation King of the Delta Blues Singers.

As mind-boggling as it now sounds, the first obstacle Johnson's recordings had to clear just to survive were the pressures of capitalism and fascism run amok.

"There were two big bloodbaths in the vault at RCA, and probably Decca and Columbia," Brooks says. "In the Depression, they melted stuff down just to get some money in. And then WWII, for the scrap drive. What they did in WWII, they looked at sales figures—so blues, country, and a lot of jazz, it only sold 500 copies, who the hell's gonna want these? Out. How some of these survived, I don't know. It's arbitrary. I think what happened is that both John Hammond and George Avakian, who's still with us, came back on leave more or less at the same time, saw what was going on, and said, 'Oh no, you can't scrap these.' But by that time, an awful lot of stuff was gone. In the case of RCA, I've found over the years [that], very often, the alternate is there and the issued take isn't, even of something that was a big seller. So the alternate may have been on another shelf or another warehouse."

Another longstanding issue related to Robert Johnson's storied catalog that has ebbed and flowed over the years and recently flared anew, thanks to a very dodgy May 2010 article in the UK newspaper The Guardian, is the conspiracy theory that Johnson's recordings were deliberately cut and issued at a speed five to twenty percent faster than he actually played.

Berkowitz and Brooks, who expected this line of questioning that both are anxious to dismiss, smile and shake their heads. "What's cut is done, and everything after that is a mechanical process," Berkowitz says. "You don't alter that. Make a mold, then you plate, then you press it. Nothing changes. Nothing moves, nothing happens."

"This is nonsense," Brooks says with a wave of the hand. "When we decided to do the Also Playing disc, we said, Let's get in stuff that was done the same day. So we got stuff in; it was Mexican, it was country, it was gospel. The speed is constant throughout, on every session."

"Mobile recording in 1936 was not a very advanced science," explains the excitable and occasionally eloquent Berkowitz. "The idea that the record company or someone would speed it up for the purpose of a hit record is some kind of made-up, revisionist, anti-record-company rap. First of all, I don't think Uncle Art Satherly or Don Law in 1936 thought they were having a big hit record here" Berkowitz says. "I think they were both fans of music and big music aficionados, and they wanted to record all kinds of music and sell all kinds of music for Columbia Records. That was the goal."

"The idea that you would make it faster and it would be a hit? Do you really think someone was thinking of that with a record that they pressed 300 copies of? Since it's a guitar and voice only, there's no other way to check the pitch. He [Johnson] may have been tuned up, he may have been tuned down, you don't know. And was the late running a little bit slow or a little bit fast? Maybe, but I would say that about every record made in the '20s, '30s, and '40s.

"If it is sped up, what are we going to do? Discredit the artist, that he couldn't really play this great? That he really couldn't throw down in this manner? That the devil didn't do a good enough job? I mean, what's the story here? Isn't the art the piece that's made? The pitch of what's being reissued now is the same as the original 78s. And the original 78s and the original metal parts are the documents. After that, it's all conjecture."

One thing that all agree on is the odd timelessness of Johnson's music, what Peter Guralnick described, in his Searching for Robert Johnson, as "the unabashedly apocalyptic effect of the music, the still startling and contemporary vision, the selective artistry of the work."

Berkowitz and Brooks have their own words. "He's bluesy and soulful in a way that no one else is," Berkowitz enthuses. "His voice is accusing, direct, so completely full of what seems to be passion at that moment, his expression of the lyrics. And the lyrics, it's not typical blues lyrics, he had a whole other use of language. Love in 'Vain' is a beautiful poem. And he sings it like that. It has that swing and drag, to it that's completely unique. He's as great as the Beatles. He's as great as Beethoven. He's as great as Led Zeppelin."

"It was out of its time," Brooks says. "It's something like Citizen Kane, which didn't do anything when it came out. Or a couple of books, maybe The Great Gatsby. Suddenly, it moves into its other time. The time frame was wrong when it happened. He was ahead of his genre."
Sony
SS-AR1
LOUDSPEAKER

very few years, it seems, Sony offers a statement product. Sometimes they do it to define a new product category—the SCD-1 introduced to the world the SACD/CD player. Sometimes they do it because they can, as with the outstanding ES SS-M9 and ES SS-M9ED loudspeakers, enthusiastically reviewed by John Atkinson in Stereophile in September 1996 and August 2001, respectively. So when I heard that Sony would introduce a special new speaker at a “by invitation only” event at the 2011 Consumer Electronics Show last January, my interest was piqued. I’ve always kicked myself for not buying a pair of ES SS-M9s ($3500) when I could have. The ES SS-M9EDs were even better, said JA—and, at $16,000/pair, a lot more expensive. Now, a decade later, Sony has decided to make another “statement.”

At the CES unveiling, an unfinished speaker cabinet stood before us as we were presented with some Sony history. Then Motoyuki Sugiura, the SS-AR1’s product manager stepped up to explain the philosophy behind and the construction of the new Sony loudspeaker. The empty cabinet was there to demonstrate the SS-AR1’s 2”-thick front panel, which is made of laminations of maple felled on Japan’s northern island in November, when growth is slow and the grain is tight. Sugiura told us that using this wood for the entire cabinet would result in an excessively hard, rigid sound, so the rest of the enclosure is made of Finnish birch, a somewhat softer cold-climate wood. The various pieces and panels of the display cabinet had been so precisely machined and joined that it could be held together by only the tight fitting of its parts, without glue or screws.

Then came encomia: from Ray Kimber, who had already used prototype SS-AR1s in demonstrations at two Rocky Mountain Audio Fests; and from Chad Kassem, who has utilized the SS-AR1 speakers to demonstrate some of the latest recordings from his Analogue Productions label. There followed a relatively brief demonstration of a pair of finished SS-AR1s. JA noted in his CES report (www.stereophile.com/content/sony-reenters-high-end-speaker-market) that, “Driven by Pass Labsamps and an EMM SACD player, the SS-AR1s were demmed in too small and crowded a room for me to pronounce on their sound quality, other than to note that the midrange seemed exceptionally clean and uncolored.”

Amen. Offered the opportunity to review a pair, I jumped on it.

Arrival and setup
Each SS-AR1 arrived in a large, wheeled transit case. I found it relatively easy to unpack and set them up—yes, I can still heft a 125-lb speaker, so long as it has a port to grab it by. I walked them into position and snapped on their fabric grilles.

The finish is an exquisitely dark, nearly black gloss, but in the right light, one can see the wood’s rich grain glowing deeply within. The two woofers of this three-

I chose not to abbreviate to “AR1” my references to the SS-AR1, out of respect for Acoustic Research’s classic AR-1 loudspeaker, introduced in 1954 and a pivotal product in the success of domestic hi-fi and stereo.
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way system are mounted on the front of a lower ported chamber, the midrange and tweeter on an upper one; each chamber has a rear port; the upper port is centered, the lower one displaced a bit to the left to minimize panel resonances. The chambers are isolated from each other by two rigid panels that themselves are separated by an air cavity. Because of the upper port, the 5" ScanSpeak midrange drive-unit doesn’t suffer from excessive pressure on the back of its cone, despite covering an extremely wide range of 400–4000Hz. Though this represents only one decade, it’s probably the most important one. The 1" silk-dome tweeter that shares that chamber represents only one decade, it’s probably the most important one. The upper port loads the midrange unit.

I connected the Sonys to the 4 ohm output taps of my 300Wpc McIntosh MC-303 three-channel power amplifier. The SS-AR1 has only one pair of terminals, so I replaced my normal Audio-Quest biwire speaker cables with a pair of Straight Wire Maestro IIs. I didn’t fine-tune the speaker’s positions or toe-in angles, as Motoyuki Sugiura would visit within a day or two, I planned to let him set up the Sonys “properly” before I began personalizing the setup to my taste.

Sugiura’s visit was a delight. After an exchange of greetings and cards, he gave me a less formal, more detailed presentation of the SS-AR1’s construction and the design philosophy behind it than he had at CES, and answered all of my questions about design issues and choices. Then, using his own musical selections and my laser level, he spent an hour or so reorienting the speakers. His results turned out to be just 1" forward of, and 4" farther from the sidewalls and toed-in a bit more sharply, than my own guesstimates—but the audible difference was marked. He then took his leave.

**Listening**

I first ran through all the usual suspects among my reference discs; later in the week, I began to listen to whatever recording, the SS-AR1 sounded clean and authoritative. The bass was tight, but noticeably more full than with the B&W 800 Diamonds that the SS-AR1s had displaced. Upper bass, too, was powerful and well articulated, and while the midrange and treble were smooth and unaggressive, the overall impression was of a warm, rich, powerful sound. Transients could be startlingly dynamic, but there was a lack of snap and sparkle unless I really turned up the volume. Although rated for a maximum of 200W input, the SS-AR1 was never taxed by >100dB levels as the McIntosh’s meters flicked up to almost 300W. The lateral sound-
stage was detailed and stable, but didn't extend wider than the speakers until I moved 4-5' behind my normal 9' listening distance. The depth of soundstage, too, seemed limited at my regular seat.

I thoroughly enjoyed listening to the SS-AR1s over the next few weeks, but I was troubled by the soundstage limitations and, increasingly, by the abiding warmth of the speaker's tonal balance. Some might describe the SS-AR1's sound as smooth, unaggressive, and rich; it certainly was all of that, but those characteristics were also constant, in that they were imposed on all sources. It seemed hard to believe that such a sound, however much it might appeal to some tastes, could be acceptable for a recording-studio monitor. Clearly, some experimentation was called for in amplification, cabling, and, perhaps, subtle repositioning.

**Da capo**

Here's what worked. I replaced the MC-303, a lovely amp to be sure, with a pair of Bel Canto REF1000 Mk.II monoblocks, and connected the latter to the SS-AR1's terminals with QED Silver Anniversary XT banana-terminated cables. Most of my listening was done with Sony's own XA-5400ES SACD player feeding the XLR inputs of a Parasound Halo JC 2 BP preamplifier. Each REF1000 Mk.II is rated at 1000W output into 4 ohms, so power was not an issue.

Wow. With the Bel Cantos, the SS-AR1's sound was still recognizable, but the speakers sounded as if they'd been cured of head colds. The other thing that occurred to me was that, while Sugiura had laser-aimed the speaker axes at my seat on the sofa, he'd done his own listening while standing behind me—and when I stood back where he had, the soundstage was wider. It really helped the apparent soundstage width to move the SS-AR1s a little farther apart and, using the laser, re-aim them at my usual listening spot. Now to reconsider...

It didn't take special effort to recognize that the SS-AR1's wonderfully articulate bass and lower midrange were well proportioned to a cleanly detailed upper midrange and extended treble. I hadn't gotten around to measuring the SS-AR1s before (maybe I just didn't want to), but now they measured quite flat from 16Hz to over 20kHz in my room, and, with ½-octave smoothing, the in-room response remained within ±5dB limits over that range. This new musical balance made listening no longer an obligation but a pleasure.

The SS-AR1 had remarkably full, extended bass quite disproportionate to its size, yet that bass was clean and precise all the way up to the midrange. For relishing the intricacies of the scoring for lower strings and brass in Bartók's *The Miraculous Mandarin*, with Antal Dorati and the Detroit Symphony (CD, London 411 894-2), I have not heard the Sony's equal. Sure, it may not have gone as low as some bigger speakers or subwoofers, but it conveyed all the requisite weight of Bartók's percussion without obscuring any detail. The epitome of the SS-AR1's quality was that, in the midst of all the orchestral tumult, I could hear the con-
up the melody and she croons along.

So I could no longer delay the expected gratification of hearing Robert Silverman's complete set of Mozart's piano sonatas (SACD, IsoMike 5602), for which Ray Kimber used the SS-AR1s, among other speakers, as monitors. No disappointment. This was truly wonderful, and probably the best reproduction of an acoustic piano and the ASO, and Dawn Upshaw (CD, Deutsche Grammophon B0006429-02), were piquant, and present in reasonable balance. But the acid test, for me, was "Yulunga (Spirit Dancer)," from Dead Can Dance's Into the Labyrinth (CD, AAD 45384-2). After the melismatic introduction, a single maraca is shaken and, past listening experience has told me, should

THE SS-AR1 HAD REMARKABLY FULL, EXTENDED BASS QUITE DISPROPORTIONATE TO ITS SIZE, YET THAT BASS WAS CLEAN AND PRECISE ALL THE WAY UP TO THE MIDRANGE.

in my living room that I've heard. How much of my enjoyment—aside from Bob's artistry—was due to Ray Kimber's IsoMike team and how much to hearing these recordings through the speakers that were used to vet those recordings, I cannot say just yet. Nonetheless, my admiration goes out to all, but especially to Bob.

I had anticipated that I would still find the Sony's extreme treble muted, but that bias was easily dispelled. The exotic percussion and sound effects that Golijov uses in Ainadamar, again with Spano

the port is on the rear of the cabinet will ameliorate any coloration that might result from this behavior.

The black trace below 300Hz in fig.3 shows the complex sum of the nearfield midrange, woofer, and port responses, taking into account acoustic phase and the different distances of each radiator from a nominal farfield microphone position. The 2pi acoustic environment that is assumed by the nearfield technique does give rise to a peak in the upper bass, but that peak for the Sony is more extreme than usual. This correlates with Kal Rubinson's finding the SS-AR1 to have "remarkably full, extended bass," if on the rich side overall. Taking into account the upper-bass, measurement-related boost, the lows are down by 6dB at 32Hz, which will result in true 20Hz extension in all but very large rooms.

I measured the Sony SS-AR1's frequency response in the farfield with DRA Labs' MLSSA system and a calibrated DPA 4006 microphone. Higher in frequency, the Sony speaker is remarkably flat throughout the midrange and mid-treble, its farfield response averaged across a 30° horizontal window meeting superb ±1.5dB limits from 300Hz to 9.9kHz. The top octave is slightly elevated, but if you look at the plot of the SS-AR1's horizontal dispersion (fig.4), you can see that the tweeter does become more directional in this region. This will result in a correctly balanced top octave in rooms of small to moderate size. The dispersion is commendably wide and even throughout the midrange, but the midrange unit itself does become directional just below the crossover frequency of 4kHz, which results in a slight off-axis flare between 5 and 7kHz. It may be possible that this slight lack of low-treble energy off-axis would result in KR's initial reaction that the SS-AR1 lacked "snap and sparkle" and led to his needing to experiment with set-up. In the vertical plane (fig.5), a suckout at the upper crossover frequency develops immediately above the tweeter axis, which is 39" from the floor. Below that

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let me know when the volume setting for the music I was playing was not just right. If I set it too high, I got a punch in the face. If I set it too low, the sparkle and presence noticeably dimmed.

Set-up for soundstaging and imaging was critical with the SS-AR 1 s. They provided punctate placements of voices and instruments, both between the speakers and way, way back behind them. The left and right boundaries of the soundstage, however, were marked by the speaker cabinets themselves, unless I listened from much farther back than my usual 10'. From 15' back the soundstage was considerably wider, though at the cost of precise lateral localization between the speakers. When I listened to the Cowboy Junkies' classic The Trinity Session (RCA 8568-2-R), the SS-AR 1 s revealed all those little ambient noises that audiophiles have relished hearing from this recording for over 20 years now, and conveyed an immensely realistic sense of ambience and space—but with less width than I have experienced before in two channels.

Compared to the Revel Ultima2 Studio and B&W 800 Diamond, the SS-AR 1 s distinguished itself with its strong, explicit low end and the soft, silky smoothness of its treble. Each of these three models has a detailed midrange, but the Revels seemed to have less heft, even though they lacked none when heft was demanded. Dynamics were great with all three, but the Revels and B&Ws were capable of throwing bigger soundstages that seemed to nearly wrap around me. Apparent stage width and the related sense of immersion in the soundfield depend as much on the room acoustics and speaker placements as on the speakers themselves. It is thus impossible to say which of these three speakers offered a more accurate depiction of the original recorded event. Despite my preference for greater immersion, the Sony SS-AR 1 s may have been the most truthful.

Conclusions

The Sony SS-AR 1 is an impressive loudspeaker. Mated to suitable amplification, it offers honest, detailed sound without significant dynamic or spectral limitations. Not only does it join a select group of accurate and enjoyable speakers, it brings the analytical capabilities of studio monitoring to the listening room. It is best enjoyed aimed on-axis at the main listening position, from a generous listening distance, and, if possible, in a large room. A price of $27,000/pair is not out of line with the SS-AR 1's quality of its performance and appearance. Sony has made another statement product.

measurements, continued

axis the response changes only slightly, which is optimal design for seated listeners.

In the time domain, the Sony's step response on the tweeter axis (fig.6) indicates that the tweeter and midrange are connected in inverted acoustic polarity, the woofers in positive polarity. I confirmed this by looking at the step responses of the individual drive-units (not shown); the important point to note is that the decay of each unit's step in this graph blends smoothly with the start of the unit next lower in frequency. This implies optimal crossover design and correlates with the excellent integration of the drive-units' outputs in the frequency domain. The SS-AR 1's cumulative spectral-decay plot (fig.7) demonstrates superbly clean decay through the region covered by the tweeter. (Ignore the dark ridge just below 16kHz, which is the usual pickup of the computer monitor's line-scan radiation.)

The Sony SS-AR 1's measured performance indicates almost textbook design, and that beautifully constructed enclosure is as acoustically effective as it is drop-dead gorgeous to look at. I am not surprised that KR considers it a "statement" product.

—John Atkinson

Fig.6 Sony SS-AR 1, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

Fig.7 Sony SS-AR 1, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).
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sometimes, the words of the prophets are written on the subway walls and tenement halls. Other times, their words and ideas are made manifest through a lifetime of diligent and thoughtful work. As an audio prophet, the late Jim Thiel was one of the latter type. For decades he stood in his pulpit, quietly preaching to the audio world the importance of time and phase coherence in loudspeakers. His commitment to these ideas led to speaker designs that exclusively used first-order crossover networks, and driver designs and layouts that made possible time- and phase-coherent response. The speakers he created in turn built his company, Thiel Audio, into one of the more recognizable fixtures of high-end audio.

Jim Thiel succumbed to lung cancer in fall 2009, but his influence is still felt in how much he improved our understanding of loudspeaker design. And his ideas live on in the newly released SCS4T, one of the last speaker designs he worked on. When John Atkinson asked me to review the SCS4T, I was happy for the chance to spend some time with a speaker that embodied the ideas and ideals of a High End prophet.
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The SCS4T
The SCS4T is the tower version of the SCS4 monitor ($2380/pair), which has been around since 2007. Like its little brother, the SCS4T features a coaxially mounted tweeter and woofer, this arrangement designed, in conjunction with the first-order crossover, set at 2.5kHz, to maintain coherence in the time domain. The 1" metal-dome tweeter is a slightly modified version of the one used in Thiel’s flagship speaker, the CS3.7. The 6.5" driver is the same one used in Thiel’s on-wall PowerPoint and PowerPlane models. 
Coaxially mounted drivers, while easier to make time-coherent, can present the designer with other challenges. Mounting a tweeter in the throat of a mid/woofer can easily become an afterthought. According to Gary Dayton, Thiel’s technical support manager, great care has been taken in the design of this mid/woofer to avoid the pitfalls of coaxial design. “The visible aluminum cone of the midbass driver is unusually shallow, and therefore not inherently rigid. We’ve designed this driver with a shallow diaphragm because it interferes with the tweeter very little and permits a wide dispersion characteristic relatively free from diffraction. The midbass driver is made of aluminum and is more rigid than one might expect, but we reinforce the diaphragm by laminating a polystyrene cone with a deeper profile onto the back of the aluminum cone. The result is a moving system that is very rigid and nonresonant, and therefore remains pistonic over a very wide bandwidth.”

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The coaxial drive-unit is mounted on a handsome aluminum baffle that covers roughly the top third of the speaker’s face. Above and below the drive-unit are forward-firing ports that Thiel says are each tuned to the same frequency. The baffle meets the nicely veneered cabinet (available in Black Ash, Dark Cherry, or Natural Cherry) with tight tolerances, the same as that of the stand-mounted SCS4. In essence, the bottom third of the SCS4T’s enclosure is not used to increase the speaker’s low-frequency extension, but instead is a hollow, integrated stand. As Sheveloff said, “The bottom of the SCS4T is a very heavily reinforced pedestal, and many hours were spent evaluating numerous design variations. However, it came down to two choices: use the same cabinet

![Image of Thiel SCS4T](https://www.stereophile.com/)

**Fig.1 Thiel SCS4T, electrical impedance (solid) and phase (dashed).**

**Fig.2 Thiel SCS4T, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of side panel adjacent to drive-unit (MLS driving voltage to speaker, 7.5V; measurement bandwidth, 2kHz).**

<table>
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<th>Measurements</th>
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<td>measured Thiel SCS4T’s frequency response in the farfield with DRA Labs’ MLSSA system and a calibrated DPA 4006 microphone. For the nearfield and room responses I used an Earthworks QTC-40, which has a small enough diameter not to interfere with the flow of air in the speaker’s reflex ports.</td>
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<td>The SCS4T’s sensitivity was slightly above average, at an estimated 89dB(8)/2.83V/m, which is higher than the specified 87dB. Its electrical impedance is shown in fig.1. As is typical for a Thiel design, the impedance is relatively low, ranging between 3 and 5.8 ohms for almost the entire audioband. The electrical phase angle is low, however; the SCS4T won’t give a good 4 ohm—rated amplifier any difficulty.</td>
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| There is a wrinkle in the impedance traces around 1500Hz, which usually indicates some kind of resonance at that frequency. However, when I examined the vibrational behavior of the enclosure’s panels, I found a series of strong resonances at lower frequencies on all surfaces. Fig.2, for example, is a cumulative spectral-decay plot taken from the output of an accelerometer fastened to a sidewall adjacent to the coaxial drive-unit. Strong modes are present at 664, 683, and 1027Hz, with some lower-level modes present between 1 and 2kHz. While only the higher-frequency modes were present on the front baffle, and then lower in level, the 664Hz mode was very high in level on the plastic service panel on the SCS4T’s rear. However, the lower half of the enclosure, which basically serves as a stand, was much less resonant. In general, the higher the frequency of resonant modes and the higher their Quality Factor (Q), the more subtle will be their effect on music. But the behavior of the SCS4T’s cabinet does alarm me, and I suspect it had something
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volume as the SCS4 to achieve the responsiveness we were seeking, or completely redesign the woofer—which we could not do and deliver the SCS4T at its current price point.” Consequently, Thiel claims for both the SCS4 and the SCS4T exactly the same bass extension and frequency response.

On the rear, attached to a rather large plastic service panel, is a single pair of robustly built five-way binding posts (the SCS4T can’t be biwired or biamped). A second plastic service panel is directly behind the coaxial driver. The speaker rests on beautifully designed and made outriggers—aluminum extensions that screw into the bottom of the cabinet. Attached to the outriggers are four handsome spiked feet of aluminum finished in a gun-metal sheen, which let you easily level the speakers if your floor, like Stephen Mejias’s, is a little uneven. The Thiel would appear to have an overdamped bass alignment, which ties in with EL’s finding its balance to be somewhat leaning in the upper midrange, and rich piano chords took on a somewhat congested character.

The saddle centered on 48Hz in the impedance-magnitude graph, however, is the 6dB boost in the upper bass that results from the nearfield measurement technique, which assumes that the drive-unit is fixed in the center of a true infinite baffle; ie, one that extends to infinity in all directions. The black trace in fig.3, the woofer’s minimum-motion frequency—ie, the frequency at which the cone is held stationary by the back pressure from the port resonance—is a little lower, at 42Hz. The output of the ports (red trace) peaks between 40 and 60Hz, with a smooth rolloff above that region. The black trace below 300Hz in fig.3 shows the SCS4T’s farfield response averaged across a 30° horizontal window centered on the tweeter axis, without the grille. The overall trend is flat, with small response dips balanced by small

Set-up
I let the SCS4T’s run in with music for around 150 hours before any critical listening. During that time the bass extension improved, the midrange opened up, and the treble lost its initial edge and bite. Break-in concluded, I began moving the speakers around the room, trying to find the best place for them. As I did, it became clear to me that the SCS4T sounded in no way boomy or lumpy. In fact, its upper bass, midbass, and low bass all sounded relatively lean. This lack of boom gave me the option of placing the SCS4Ts closer to my front wall than most speakers I’ve used. In fact, I conjecture that, in a large room, the SCS4T might be able to be placed very near a front wall without becoming too overbearing in the bass—which can be useful when trying to keep the domestic decorative peace with your spouse, or when you’re trying to maximize what little feng shui you’ve got going for yourself.

Because my room is a bit narrow (I get some bass reinforcement from the sidewalls), I couldn’t get a good low-frequency balance with the SCS4Ts right up against the front wall. Instead, I settled on positioning them 16° from the front wall, which is about 8° closer to that wall than I’ve put any other speaker in this room. This gave me the best low-bass reinforcement, without too much room overhang or sluggishness. Yet even in these locations—the best I could find for the Thiel—low bass was present but not powerful, extending to do with the indistinct quality Erick Lichte noted. In my own listening, I found that piano notes sounded uneven in the upper midrange, and rich piano chords took on a somewhat congested character.

The saddle centered on 48Hz in the impedance-magnitude trace suggests that this is the tuning frequency of the twin reflex ports. However, as shown by the blue trace in fig.3, the woofer’s minimum-motion frequency—ie, the frequency at which the cone is held stationary by the back pressure from the port resonance—is a little lower, at 42Hz. The output of the ports (red trace) peaks between 40 and 60Hz, with a smooth rolloff above that region. The black trace below 300Hz in fig.3 shows the complex sum of the woofer and port outputs, taking acoustic phase into account, and rolls off with the usual 24dB/octave slope below the port tuning frequency. What is not seen in this graph, however, is the 6dB boost in the upper bass that results from the nearfield measurement technique, which assumes that the drive-unit is fixed in the center of a true infinite baffle; ie, one that extends to infinity in all directions. The Thiel would appear to have an overdamped bass alignment, which ties in with EL’s finding its balance to be on the lean side. However, this will optimize the SCS4T’s integration with a subwoofer.

The black trace above 300Hz in fig.3 shows the SCS4T’s farfield response averaged across a 30° horizontal window centered on the tweeter axis, without the grille. The overall trend is flat, with small response dips balanced by small

![Fig.3 Thiel SCS4T, anechoic response on tweeter axis at 50°, averaged across 30° horizontal window and corrected for microphone response, with nearfield woofer (blue trace) and port (red) responses and their complex sum (black), plotted below 300, 400, and 300Hz, respectively.](image-url)

![Fig.4 Thiel SCS4T, 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.](image-url)
down to only about 45Hz in my room, while the upper and midbass remained slightly shelved down.

Throughout my listening I experimented a lot with toe-in and got the most immediate sound with the tweeters pointing directly at my ears—but this tended to narrow the soundstage and decrease image depth. Toeing out the Thiels widened and deepened the soundstage but with reductions in clarity, articulation, and transient snap. I settled on toeing out the SCS4Ts about 10°, so that their tweeter axes were directed just past my ears; this gave me the best balance of articulation and soundstage immersion and clarity.

The SCS4T is a 4 ohm load with a minimum impedance of 3 ohms. Initially, the only amps I had on hand to drive them were Rogue Audio's M180 tube monoblocks. Though the Rogers aren't shrinking-violet, milquetoast tube amps, I was concerned that they wouldn't be a good match for the Thiels' low impedance. Halfway through my listening, Plinius's SA-103, which I raved about for these speakers. I was happy to report that that solid-state amp sounded much like the Rogers. The Plinius and Rogers sounded more similar through

THE THIELS SEEMED EQUALLY HAPPY

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peaks. This response is that of the sample with serial no.42. The other sample of the pair, no.41, was about 1dB less sensitive in the region covered by the tweeter, with a slightly deeper suckout between 5 and 6kHz (not shown).

Whether or not the SCS4T's treble balance will be perceived as flat will also depend on its horizontal dispersion, which is shown in fig.4. The pattern below 2kHz is wide and even, but the woofer's output does narrow a little before it crosses over to the tweeter, which has a wide dispersion up to 10kHz or so. Though there is a ridge of off-axis energy between 5 and 6kHz, which will give rise to an excess of energy in the reverberant field in this region, this is where the on-axis response has a slight suckout; it's possible that the perceived balance will be neutral, at least in rooms of normal size. The tweeter's off-axis behavior in the top two octaves is complex, due presumably to the drive-unit being sited in the center of the woofer cone. In the vertical plane (fig.5), the dispersion is not as symmetrical as I was expecting, given the symmetrical nature of the coaxial array. Again, the on-axis suckout between 5 and 6kHz fills in as the listener moves above the tweeter axis.

I set up the Thiels in my own room, driving them with Musical Fidelity's AMS-100 class-A amplifier. The red trace in fig.6 shows the spatially averaged, ¼-octave response of the SCS4Ts in my listening room, the blue trace the response of the Rogers LS3/5A measured in identical circumstances. Both speakers have flat, neutrally balanced high frequencies, although, as I've written before, the LS3/5A's treble is a little too hot in absolute terms. Each speaker has a small peak in its response around

Fig.5 Thiel SCS4T, vertical response family at 50°, normalized to response on tweeter axis, from back to front: differences in response 15°-5° above axis, reference response, differences in response 5°-10° below axis.

Fig.6 Thiel SCS4T, spatially averaged, ¼-octave response in JA's listening room (red trace); and of BBC LS3/5a (blue).
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This had the effect of helping the individual voices blend, and of making this chamber choir sound like a larger chorus. On finely drawn music such as Hauschka's *Ferndorf* (CD, *Fat Cat* CD1308), the effect was of large but somewhat vaguely drawn instruments sitting in the stereo image. The large soundstage was certainly pleasant, but didn't tell me enough about what was on the record or how it was recorded, or help me connect with the individual instruments or musicians.

Though I felt the tweeter's handoff to the mid/woofer was quite seamless, I heard a slight emphasis or flare above the crossover frequency, in the upper presence region, perhaps around 3.5-5kHz. With some music this added a little excitement, as in the pizzicato sections of the Tokyo String Quartet's recording of Ravel's String Quartet (CD, *RCA Victor Red Seal* 62552-2). With more complicated music, such as Cornelius's "Fit Song," the slight emphasis in the upper presence region could sometimes overwhelm the rest of the music with a slightly shouty quality, especially at high volumes.

The SCS4T's midrange was on the laid-back, relaxed side of things. The upper and middle midrange were in good balance with each other, while the lower midrange, from about 500Hz down, was slightly shelved down. Almost all of the fundamentals of male voices and cellos lie below 500Hz, and it is in this area that music takes on its body and, in my view, its soul. While the SCS4T's polite balance in this region gave the speaker a somewhat lithe character with rock music, it also rendered some instruments with less body. Male voices, such as those on Veljo Tormis's *Muistse Mere Laulud*, from *There Lies the Home*, lacked their normal fullness and richness, emphasizing instead the choir's overtones. Close-miked cellos—such as on "Freibad," from Hauschka's lovely *Ferndorf*—came across with a slightly nasal quality, making the cello sound as if it were getting in touch with its inner viola.

The speaker's lean middle and upper bass meant that the SCS4T exhibited nice rhythmic pacing with all the music I played. Bass came through very tautly and tunefully, but with less body than with some other speakers I've auditioned in my home. In the Beatles' stereo mix of *Sgt Pepper's Lonely Hearts Club Band* (CD, Apple 28419), Paul McCartney's melodic bass lines were easy to follow, but the lowest notes seemed a bit organically disconnected from the rest of the music. The texture of the bass guitar also seemed a bit more homogenous and indistinct than through other speakers I've heard.

I wondered if my reaction to the SCS4T's balance was because I was...
missing the last octave of bass. My ears are very used to my reference Revel Perfor ma F30s ($3500/pair when last available), which go down to about 25Hz in my room. I wondered if I was perceiving the SCS4T's entire bass region as sounding lean because of its lack of output below 45Hz. Knowing that Thiel makes a number of subwoofers designed to work with the SCS4T, I asked Micah Sheveloff for one. He sent along their SS1 subwoofer ($2900)\(^1\) with PX05, the latter a passive crossover that takes speaker-level inputs from up to five channels and crosses the sub over at precisely the right rolloff point and slope to integrate with the main speakers. The SS1 did a nice job of adding that last octave of bass, and did so with fine integration of its output with that of the SCS4Ts, and very little interference with the main speakers' musical qualities. But even then, the upper and midbass remained lean-sounding, leading me to believe that this was due not to a lack of low bass, but was an inherent characteristic of the speaker's balance.

My main concern involved the SCS4T's ultimate resolution, however. With every album I tried, and all of the music I listened to through the SCS4Ts, there was a veiled, indistinct quality that I found it hard to put a finger on. At first I thought this quality might be a result of the speaker's tonal balance, but as I kept trying to coax the best from the SCS4T, I came to the hypothesis that it didn't convey articulation at the micro and macro levels—and that this, in turn, limited the speaker's ultimate powers of resolution. When I drove the speakers hard, something obscured the music's stopping and starting, and gave the upper midrange a hard quality that didn't allow loud music to breathe.

**Summing Up**

The SCS4T is a handsomely designed speaker capable of throwing a large soundstage, and can be placed near a wall with very little detriment to its sound. This may make it ideal for some audiophile's rooms. However, the SCS4T's lack of body in the upper and midbass, and its lack of clarity and articulation from the bass through the midrange, make me pause before giving it a full recommendation at its price of $3690/pair.

---

\(^1\) The SmartSub SS1 subwoofer will be replaced later this year by a new model called the USS, which will be almost identical. Wes Phillips reviewed the SS1 in November 2005; see [http://www.stereophile.com/subwoofers/1105smartsub/index.html](http://www.stereophile.com/subwoofers/1105smartsub/index.html).—Ed.

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### ASSOCIATED EQUIPMENT

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- Theta Miles CD player via S/PDIF output; Benchmark DAC1 & DAC1 HDR D/A converters; Bel Canto DAC3.5VB D/A converter and Bel Canto CD2 CD player with Bel Canto VB-1 power supply; Sony Vaio laptop computer running J-River audio file player.

**POWER AMPLIFIERS**
- Rogue Audio M180, Plinius SA-103.

**LOUDSPEAKERS**
- Revel Performa F30, Atlantic Technology AT-1, Thiel SmartSub SS1 subwoofer with PX05 passive crossover.

**CABLES**
- Digital: Stereovox HDVX coaxial, Silver Sonic D-110 AES/EBU.

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WHARFEDALE
DIAMOND 10.1

ROBERT J. REINA

DESCRIPTION
Two-way, magnetically shielded, reflex-loaded, stand-mounted loudspeaker. Drive-units: 1" (25mm) soft-dome tweeter, 4.9" (125mm) Kevlar-cone woofer. Crossover frequency: 1.8kHz. Nominal frequency range: 48–24kHz. HF limit: 44kHz, –10dB. Nominal impedance: 6 ohms. Sensitivity: 86dB/W/m. Recommended amplification: 20–100W.

DIMENSIONS
11.5" (296mm) H by 7.6" (194mm) W by 10.8" (278mm) D. Weight: 11.4 lbs (5.2kg).

FINISHES
Blackwood, Cinnamon Cherry, Rosewood Quilted.

SERIAL NUMBER OF UNITS REVIEWED
DX1002242.

PRICE
$350/pair. Approximate number of dealers: 32.

MANUFACTURER

A while back, I received an e-mail from The Kid (Stephen Mejias): “I've been listening to and enjoying the Wharfedale 10.1 loudspeakers ($350/pair) for a couple of months. I wrote about them for my March and April issue columns, but they are good enough for a complete review. Are you interested?”

Hmm . . . so The Kid is now assigning me equipment reviews? “Sure, why not?”

The day after the Wharfedales arrived, The Kid sent me another e-mail: “Have you unpacked them yet? They are so pretty!”

That they are, Kid.

DESCRIPTION
Normally, you'd expect cosmetic compromises in a bookshelf speaker costing only $350/pair. Not with the Diamond 10.1—its curved cabinet is made from lamina-
tions of MDF that are bonded using an adhesive that's cured (ie, hardened) using radio-frequency energy. Wharfedale also claims that the 10.1 is constructed with fairly elaborate bracing, to increase its rigidity and thus reduce resonances; a front baffle of composite material, finished in piano black, further controls resonances. The looks of this sexy little beast suggest a price much higher than $350/pair. It blended quite nicely with my décor, and, as I recall, is far more attractive than its predecessor, the Diamond 9.1, which I reviewed in November 2005—see http://www.stereophile.com/stanloudspeakers/1105wharfedale/index.html—and which also cost $350/pair.

Both of the Diamond 9.1's drivers have been replaced for the Diamond 10.1. The new mid/woofer has a 4.9" (125mm) cone of woven Kevlar, a nylon-filled homopolymer chassis with an oversized flange, and, in the cone surround, diamond-pattern ribs intended to smooth the acoustic rolloff. The 1" (25mm) soft-dome tweeter has a metal phase corrector and is claimed to offer smooth, clear reproduction of the high frequencies. The two reflex ports on the 10.1's rear panel (in the 9.1, they were on the front) are intended to reduce the effects of distortion. Electrical connection is via two offset pairs of terminals to allow bi-wiring and easy cable dressing.

Wharfedale USA's Walter Schofield told me that one of the keys to the 10.1's design is the company's vertically integrated manufacturing facility [in China]. Middle vendors are eliminated—each component of the speaker is made from raw materials in-house. The intended result is a cohesive, organic sound quality and performance, and an appearance well above the speaker's price point. The Diamond 10.1 is the first Wharfedale speaker to be voiced by European speaker designer and one-time reviewer Peter Comeau.

I mounted the Diamond 10.1s on my Celestion SStands, which are loaded with lead shot and sand. Although Wharfedale makes no specific recommendations about listening with the speakers' grilles on or off, I slightly preferred their sound with the grilles in place. Although I heard a hair more detail without the grilles, the sound was more natural and coherent with them on.

Listening

The Wharfedale's rich, uncolored midrange reproduced all vocal recordings with a sense of holographic verisimilitude. The title track of Joan La Barbara's Shamansong (CD, New World 80545-2) features some shimmering overtone chanting. Through the Diamond 10.1s, the balance...
of each overtone of LaBarbara's glistening fundamentals was pure, pristine, and silky. In a more conventional singing style, No-rah Jones' cover of Joni Mitchell's "Court and Spark," from Herbie Hancock's River: The Joni Letters (CD, Verve 00009791-02), was rich and vibrant—the smoky, chesty quality of this alto's lower ranges had a presence and weight that I'm used to hearing only from much larger speakers. And Anat Cohen's voice-like clarinet, on her Poetica (CD, Anzic 1301), had a silky, woody quality, with every low-level dynamic articulation intact.

The ability of the Wharfedale to unravel midrange detail gave an extra layer of realism to well-recorded acoustic pianos. In "Free Above Sea," from Jack DeJohnette's Oneness (CD, ECM 1637), Michael Cain's warm, airy piano had a noticeably long decay in a recording in which a lot of space is used as a textural tool. I got a believable sense of various recording venues with the Diamonds. Listening to "Salt Peanuts," from Miles Davis's Steamin' (CD, JVC VICJ-60128), I found myself focusing on the air in Rudy Van Gelder's studio in the short, silent passages between Pinny Joe Jones's solo drum fills.

With every recording I played, the Wharfedale's high frequencies sounded clean, extended, detailed, and pristine. Speaking of Miles Davis, the 10.1's ability to perfectly integrate the high frequencies with the midrange with no trace of alteration in the harmonic structure of instruments made me want to listen to lots of trumpets. Every well-recorded trumpet I heard—from Davis's solo in "Surrey with the Fringe on Top," also from Steamin', to Ron Miles's herky-jerky cornet fills in "Moe Hawk," from Jenny Scheinman's 12 Songs (CD, Cryptogramophone CG125), to Liam Sillery's angular melodic head in "Prana," from his Outskirts (CD, OA2 22050)—sounded rich and metallic, with perfect overtones and transient bite.

With every recording I played, the Wharfedale's high frequencies sounded clean, extended, detailed, and pristine. The entire range of Scheinman's violin in "Moe Hawk" was silky, with a perfect balance of bite and sweetness. Following and understanding the music on Derek Bailey's Carpal Tunnel (CD, Tzadik TZ7612)—particularly his unorthodox phrasings on acoustic and electric guitar, which involve unusual plucking, picking, and harmonics—requires a very revealing high-frequency transducer. Through the 10.1, Bailey was as revealing of detail and intoxicating as I've heard him in concert.

The Diamond 10.1's reproduction of the highs went hand in hand with its ability to render all transients with lightning speed and no trace of sharpness, blurring, or compression. My acid test for percussive transients is Orphée, from John Zorn's Mysterium (CD, Tzadik TZ8018). David Shively's panoply of rapid-fire percussion was rendered with

it's possible that the affected areas are too small, and the quality factor (Q) of the resonances too high, for them to add any coloration.

The saddle at 50Hz in the impedance-magnitude trace indicates that this is the tuning frequency of the twin ports on the cabinet's rear, and the woofer's nearfield response does indeed feature a minimum-motion notch at 49Hz (fig.3, blue trace). The back pressure from the port resonance holds the woofer cone still at this frequency, all the speaker's output coming from the ports (red trace). The output of the ports rolls off smoothly above 50Hz (fig.3, blue trace). The output of the ports rolls off smoothly above 500Hz (fig.3, blue trace). The output of the ports rolls off smoothly above 500Hz (fig.3, blue trace).

The entire range of Scheinman's violin in "Moe Hawk" was silky, with a perfect balance of bite and sweetness. Following and understanding the music on Derek Bailey's Carpal Tunnel (CD, Tzadik TZ7612)—particularly his unorthodox phrasings on acoustic and electric guitar, which involve unusual plucking, picking, and harmonics—requires a very revealing high-frequency transducer. Through the 10.1, Bailey was as revealing of detail and intoxicating as I've heard him in concert.

The Diamond 10.1's reproduction of the highs went hand in hand with its ability to render all transients with lightning speed and no trace of sharpness, blurring, or compression. My acid test for percussive transients is Orphée, from John Zorn's Mysterium (CD, Tzadik TZ8018). David Shively's panoply of rapid-fire percussion was rendered with

it's possible that the affected areas are too small, and the quality factor (Q) of the resonances too high, for them to add any coloration.

The saddle at 50Hz in the impedance-magnitude trace indicates that this is the tuning frequency of the twin ports on the cabinet's rear, and the woofer's nearfield response does indeed feature a minimum-motion notch at 49Hz (fig.3, blue trace). The back pressure from the port resonance holds the woofer cone still at this frequency, all the speaker's output coming from the ports (red trace). The output of the ports rolls off smoothly above
perfect clarity, every attack and overtone intact. And with less complex percussion recordings, such as Max Roach’s chugging in “Terpsichore,” from Herbie Nichols’ The Complete Blue Note Recordings (CD, Blue Note CDP 8 59352 2), Roach’s drum kit blended in perfect, toe-tapping tunefulness with the rest of the trio.

On the acoustic-bass front, Chuck Israels’ solo in “Round Midnight,” from the Bill Evans Trio’s At Shelly’s Manne Hole, Hollywood, California (CD, JVC JVCXR-0036-2), sounded woody and rich. Similarly, Reginald Veal’s bass in Bob Dylan’s “Closer to You,” from Cassandra Wilson’s Thunderbird (CD, Blue Note 63598 2), was open, airy, and forceful. The Diamond 10.1 was able to reproduce dramatically realistic electric-bass timbres as well. The timbres of Fred Frith’s bass guitar in “Dig,” from his Speechless (CD, ESD 81542), were crisp and clean. And in Eberhard Weber’s Endless Days (CD, ECM 1748), Rainer Brüninghaus lays down a big, blowsy, spacious bass-synth continuo as a backdrop to Weber’s melodic noocilings on fretless bass guitar. Through the 10.1, the two were integrated perfectly—both instruments were clean, their individual timbres easily discernible.

However, the acid test for bass definition speed and clarity are the descending and ascending bass-synth lines in Spaceship, from Philip Glass’s Einstein on the Beach (CD, Nonesuch 79323-2). These rapidly pulsing lines sounded perfectly linear through the Wharfedales, with no strain or coloration, and nary a trace of sluggishness or lack of bottom-end definition.

In short, I’m surprised to have so many good things to say about how much bass so small a speaker could reproduce in a room as large as mine. The Wharfedale was also able to kick ass with loud rock music. With “Swing Shift,” the first track of Meridian Voice’s debut CD, Atypical Symmetry (available from cdbaby.com), this jazz-rock quartet filled my large listening room with 95dB kicks and blasts without any compression or strain. On the orchestral front, David Chesky’s Concerto for Electric Guitar and Orchestra (CD, Chesky HQCD351), Chesky relies quite heavily on percussive blasts with wide dynamic range as a backdrop for Bryan Baker’s performance of the angular, through-composed shred-guitar melodies. The 10.1s reproduced this work’s fortissimos with a good sense of drama and ease—again, much more than I expected from a bookshelf speaker of this size.

The piece that showed off all the Wharfedale’s strengths at once was Messiaen’s Méditations sur le mystère de la Sainte Trinité (CD, ECM New Series 1494). For this work for pipe organ, which demands a slight excess of energy between 4.5 and 11kHz, it is impressively flat. However, BJR preferred listening to the Diamond 10.1s with their grilles in place. The red trace in fig.4 shows the response averaged across a 30° horizontal window on the tweeter axis at 50° with the grille in place. The entire treble region is flatter, though there is now a sharp suckout on axis at 3.6kHz. Fig.5 shows the Wharfedale’s lateral dispersion; the apparent off-axis peak at 3.6kHz is due to the on-axis suckout filling in to the speaker’s sides, as can be seen in fig.6, which shows the actual responses rather than the differences between the off- and on-axis responses. The tweeter maintains its radiation pattern up to 12kHz or so.

In the vertical plane (fig.7), the Wharfedale offers pretty much the same balance over a wide ±10° window centered on the tweeter axis. The choice of speaker-stand height will not be quite so critical with this speaker as with some other models, though if you listen while standing, you’ll hear a suckout in the crossover region.

The Diamond 10.1’s step response (fig.8) indicates that the drive-units are connected with the same positive acoustic polarity. The smooth blending of the tweeter’s...
much of both performer and speakers, organist Christopher Bowers-Broadbent puts his instrument through the greatest variety of timbral and textural sonorities: from subtle, airy whistles, to brash dissonant clusters, to thundering fortissimos. With the 10.1s there was never a sense of definition lost, even in the most densely written passages, and the pedal notes were reproduced with clarity and consistency. I never felt that any lower-register notes had gone missing in action, or had been timbrally altered in the slightest.

**Comparisons**

I compared the Wharfedale Diamond 10.1 ($350/pair) with Paradigm's Atom v5 ($250/pair) and Epos's ELS3 ($350/pair when last offered).

Although the well-balanced Paradigm Atom v5 had a similarly gorgeous midrange, it resolved significantly less detail than the Diamond 10.1. The Atom's midbass was a bit richer, and not quite as clean or as extended as the Diamond's, and its high frequencies seemed less extended and somewhat less clear.

The Epos ELS3 resolved as much detail as the Diamond 10.1, but while its highs were as extended as the Wharfedale's, the latter's upper register sounded more delicate and refined. The Epos's bass was as extended as the Wharfedale's, and just a touch cleaner. As for high-level dynamics, the Epos wasn't quite as good as the Wharfedale, but was better than the Paradigm.

**Payoff**

Wharfedale has a winner in the Diamond 10.1. In today's market of stiff competition among affordable loudspeakers, the 10.1 presents extraordinary value for money, with many strengths that suggest a considerably higher price, and no meaningful weaknesses. And while it's been many years since I heard the Diamond 9.1, my memory and review comments indicate that the Diamond 10.1 is a considerable improvement.

Finally, I thank Stephen Mejias for steering me toward the many enjoyable hours I've spent with the Diamond 10.1. Kid, you can assign me an equipment review any time.
TURNTABLES

MUSIC HALL MMF-9.1 $199

MUSIC HALL MMF-5.1 $875

MUSIC HALL MMF-2.2 $449

MUSIC HALL MMF-5.1SE $1095

MUSIC HALL MMF-2.2LE $499

MUSIC HALL MMF-7.1 $1295

MUSIC HALL MMF-2.2WH $499

PHONO PREAMPS / DAC / ACCESSORIES

WHEST TWO PHONOSTAGE $1395

BELLARI VP130 TUBE PHONO PREAMP $250

MUSIC HALL PA1.2 PHONO PREAMP $150

MUSIC HALL DAC 25.3 $595

MUSIC HALL CRUISE CONTROL 2.0 $299

INTEGRATED AMPS / CD PLAYERS

CREEK DESTINY 2 INTEGRATED AMP $2795

CREEK DESTINY 2 CD PLAYER $2495

MUSIC HALL A15.2 INTEGRATED AMP $499

MUSIC HALL CD15.2 CD PLAYER $499

SPEAKERS

EPOS EPIC 1 BOOKSHELF SPEAKERS $599 PAIR

EPOS M5i SPEAKERS $899 pair

EPOS M16i $1999 pair

EPOS CD15.2 CD PLAYER $499

www.needledoctor.com
Audience
ClairAudient 2+2

BRIAN DAMKROGER
LOUDSPEAKER

It seems the obvious way to build a loudspeaker: one driver, no crossover, full range.

Instead, most speakers work this way: Complicated electronics split the audio signal into pieces, adding various colorations and phase shifts along the way. The pieces are distributed to different drivers, each of which adds another unique set of characteristics. We then expect these fragments of electronic signal to be brought together again in a continuous, coherent reproduction of music. We agonize over different cable routings or which contact cleaner to use, and yet we calmly accept this grotesque sausage-making way of building speakers. It's ludicrous.

The problem, of course, is that the sciences of physics, electronics, and materials conspire to make it difficult to create a driver that effectively covers the entire audio band with a satisfyingly wide dynamic range. Tweeters need to move quickly, which requires that their drivers be small and light. Woofers need to move a lot of air, which means large elements moving considerable distances. Even so, two of the best-sounding speakers I have heard—the Acoustat 2+2, and the MartinLogan CLS—were crossoverless designs.

It's not surprising that both of those classic full-rangers used electrostatic drivers. Electrostatic membranes are nearly massless, which means they're light enough to
reproduce high frequencies, and large enough to move the air necessary for low frequencies and realistic volume levels.

Audience’s John McDonald and the late Richard Smith approached the challenges of crossoverless design in a different way. Rather than an electrostatic element, Audience developed a novel moving-coil driver with the performance characteristics they wanted. The Audience A3S is a 3” metal-cone driver unlike any other. It starts with a patented dual-gap motor assembly that includes an oversize neodymium magnet structure and cooling gaps similar to those seen in high-powered subwoofers. The cone itself is made of a proprietary aluminum-magnesium alloy chosen for its stiffness and low mass, and anodized for a more consistent surface finish. Even the designs of the basket and driver surround are unique, and the subjects of additional patent applications.

With a full-range driver, however, there’s the issue of its increasing directivity as the frequency increases. Once the size of the diaphragm becomes comparable to the wavelength of the sound it emits, its radiation pattern narrows. MartinLogan addressed this problem by using a novel, curved electrostatic panel to simulate a line source: the Curvilinear Line Source (CLS). Acoustus used two tall, narrow panels, angled them away round are unique, and the subjects of additional patent applications.

Rather than an electrostatic element, Audience developed a novel moving-coil driver with the performance characteristics they wanted. From each other, then stacked another two on top of them to reinforce the line-source behavior—hence the model’s name, 2+2. [In the Quad ESL-63, Peter Walker’s follow-up design to the original Quad electrostatic, he used electronically delayed wavefronts to simulate a point source and thus sidestep the problem altogether.—Ed.]

Here, too, Audience’s approach is a little different. Even a driver 3” in diameter will become very directional above 4kHz or so, so Audience decoupled the drive-unit’s dustcap with a compliant so that it acts as a pseudotweeter, with an appropriately small radiating diameter. The concept is similar to the “mechanical crossover” the late Jim Thiel used to create a com-

Rather than an electrostatic element, Audience developed a novel moving-coil driver with the performance characteristics they wanted.
of air. Audience claims that the driver has exceptional power handling, with less than 1dB of compression at 95dB. The A3S’s native impedance is also said to be fairly high, which means that multiple units can be combined and still present an amplifier with a manageable load.

\[2+2 = $5000\]

The size, shape, and radiating characteristics of the A3S driver allow several of them to be stacked and the arrays mounted back to back. The ClairAudient 2+2 is a bipole speaker, however, not a dipole; its rear- and forward-firing drivers are in phase with each other. The 2+2 has four A3S drivers—hence the model name— and a price of $5000/pair. Other Audience models have as many as 32 drivers. The 2+2 augments the low-frequency output of the four A3S drivers with a 6" passive radiator, mounted on one of the enclosure’s sidewalls. Each pair is supplied as mirror-imaged samples, and the 2+2s are intended to be set-up with the two passive radiators facing each other.

The cabinet is constructed of a 13-layer Baltic birch ply, with heavy internal bracing and shaping that ensure that there are no parallel surfaces inside the speaker. The front and rear baffles are stouter yet, each CNC-machined from a \(\frac{3}{8}\)"-thick slab of aircraft-grade aluminum, then damped using a proprietary combination of surface finish and coating. Heavy Cardas speaker lugs provide connections, and all internal wiring is the oxygen-free, monocrystal copper used in Audience’s own Au24 e speaker cables. Each completed wiring harness is cryogenically treated just prior to installation in the speaker itself.

ASSOCIATED EQUIPMENT

ANALOG SOURCES
- Spiral Groove SG-2 turntable & Centroid tonearm;
- Triplanar Precision Mk VII tonearm; VPI HR-X turntable & tonearm; Lyra Titan i, Grado Signature Reference cartridges.

DIGITAL SOURCES
- Primare CD31, Vincent C-60 CD players.

PREAMPLIFICATION
- Sutherland PhD, Phono Block phono preamplifiers; Sutherland Direct, Placette Active line stages.

POWER AMPLIFIERS
- VTL MB750 Signature, Mark Levinson No.20.1.

LOUDSPEAKERS
- Wilson Audio Specialties Sophia 2, Castle Severn, Harbeth P3ESR.

INTERCONNECTS & SPEAKER CABLES
- Audience Au-24e, Stereovox, Nordost Valhalla, Nirvana SL. AC: Audience Au24, PowerChord-e.

ACCESSORIES
- Audience aR-12TS & aR-2TS power conditioners; Finite Elemente Reference equipment stand, MusicTools CD rack; Audience Auric Illuminator, Disk Dr., Nordost Eco-3 CD cleaning & treatment systems; VPI HW-16.5 record-cleaning machine; VPI, Disk Dr. record-cleaning fluids; Wally Tools turntable-setup tools; Echo Busters room treatments. —Brian Damkroger

The cabinet is constructed of a 13-layer Baltic birch ply, with heavy internal bracing and shaping that ensure that there are no parallel surfaces inside the speaker. The front and rear baffles are stouter yet, each CNC-machined from a \(\frac{3}{8}\)"-thick slab of aircraft-grade aluminum, then damped using a proprietary combination of surface finish and coating. Heavy Cardas speaker lugs provide connections, and all internal wiring is the oxygen-free, monocrystal copper used in Audience’s own Au24 e speaker cables. Each completed wiring harness is cryogenically treated just prior to installation in the speaker itself.
**Setup—no surprises**

Per Audience’s instructions, I positioned the ClairAudient 2+2s in my shoebox-shaped room (23' 4" L by 10' 3" W by 9' 8" H). This put the speakers 64.5" from the front wall, 34.1" from the sidewalls, and toed in to point directly at the listening position, which was (again, per Audience) 64.5" from the wall behind it. Audience supplied a set of sturdy, sand-filled stands that put the center of each speaker 36" above the floor—about the height of my ears when I sit in my listening chair. (The stands were generic loaners, not custom-made or designed to mate with the 2+2s.) These positions were good starting points, but after a bit of experimentation I was able to achieve significantly better focus and imaging by moving the speakers another 6" away from the front wall. The bass radiators faced toward each other and I mostly auditioned the ClairAudients with the grilles in place.

**Listening 1: Is it just me, or is something weird going on?**

My first response to the ClairAudient 2+2 was a phrase that popped into my head, and was expressed aloud by a visiting, non-audiophile friend: *Where did the rest of the music go?* Admittedly, the speakers the 2+2s replaced in my system were the Wilson Sophia 2s—honest-to-god full-range speakers that not only cost three times as much as the Audiences, but are some of the best speakers made at any price. But even setting that aside, there was something going on with the Audiences; they sounded fundamentally different from most speakers I’ve heard in my system, in a way that was, well, *weird*.

Beginning with the obvious: The 2+2 didn’t have the Sophia 2’s extension and power—no surprise there. In my room, I’d guess the 2+2s were pretty flat from 80-90Hz up to about 10-12kHz. Compared to the Wilson, the Audience sounded a bit warmer and more forward—again, without the former’s high-end air and deep-bass impact—but there was nothing about the 2+2’s tonal balance that drew undue attention to it, and nothing weird about it. On the contrary, the 2+2 did a good job of balancing its high- and midrange.

![Two A3S drivers are used on the speaker's rear, operating in phase with those on the front.](image)

The blue trace in fig.3 shows the response of one of the four identical drive-units, measured in the nearfield. There is no midrange suckout, confirming that the suckout in the black trace must be due to interference in the farfield between the front- and rear-firing units. The output rolls off smoothly below 150Hz, with a sharp notch evident at 57Hz, the tuning frequency of the side-mounted passive radiator. The output of this radiator (red trace) peaks at its tuning frequency, with sharp rolloffs above and below. The summed low-frequency response rolls off steeply below 50Hz, implying modest bass extension.

Figs. 4 and 5 show how the ClairAudient 2+2’s response changes to the sides of the listening axis, with the responses measured on the speaker’s passive-radiator side presented at the rear of the graph. Fig.4 shows the actual responses, fig.5 just the changes in response. The interference suckout in the midrange does fill in to the speaker’s sides, but there is a rather complicated pattern of peaks and dips off axis in the midrange and low treble. As might be expected from its use of a drive-unit with a larger diameter than the usual 1" tweeter, the 2+2’s dispersion narrows significantly in the
low-frequency rolloffs: the speaker sounded tonally correct, not bass-heavy or bright.

I also quickly compared the ClairAudients and the pair of Castle Severns I use in a smaller system. The Severn is a small, British-made, two-way floorstander that retailed for about $1500/pair a decade ago, and does a pretty good job of balancing all the critical sonic attributes. At this point I’d been listening to the ClairAudients for a while and had downgraded—or maybe upgraded—my impression of them from “weird” to “just different,” and this comparison helped me zero in on their unique character. The two models’ tonal balances were similar, but the 2+2 sounded slightly warmer, with better extension and impact at the bottom end. The biggest difference between the Severn and ClairAudient, however, was in the inherent character of the sound between the frequency extremes, from the upper bass to the lower treble.

The Audience’s sound had a lazy feel that at first sounded flat and dull, but that I grew to think of as natural and unforced. In comparison, the Castle Severn felt busy, as if it had a lot more going on. And with the Castles, it at first seemed as if images were smaller and more sharply bounded, and were more obviously layered from front to back of the soundstage. The Severn at first sounded quicker and more powerful, but it wasn’t—it seemed to be working a lot harder to produce what was there. I often jotted down phrases like “more energy” when listening to the Castle Severns early on, but as time went on, the mental image conjured by the Severns was increasingly one of churning eddy currents—the speakers seemed to be producing a lot of “sound and fury” to do what the ClairAudients did with a yawn.

The Audience did a good job of balancing its high- and low-frequency rolloffs: the speaker sounded tonally correct, not bass-heavy or bright.

I also compared the ClairAudient with Harbeth’s P3ESR minitmoni, which had so impressed John Atkins in the August 2010 Stereophile (http://tinyurl.com/6h9v7we). The two models were well balanced and sounded pretty similar in regard to vocal and instrumental timbres. With a lot of re-
and crisper with the Harbeths. As with the Castles, however, the little Harbeths seemed to be working a lot harder than the 2+2s. Switching from the 2+2s to the Harbeths did several good things, but it always created a slight sense of tension and stress.

The conclusion I eventually reached, was that the tension I felt with speakers other than the ClairAudient 2+2 arose from subtle distortions caused by the crossovers and dissimilar drivers. This shouldn't have been a huge revelation for me; after all, eliminating these distortions was Goal No.1 for the Audience design team—as well as Goals No.2 and No.3—but it's significant for several reasons. Distortions created by a crossover and dissimilar drivers may be subtle, but they're insidious; we've gotten so used to hearing and accepting them that we now seem part of the music. When we've gotten used to the ClairAudient 2+2s, our first reaction is that something sounds weird. Switching from the 2+2s to the Harbeths evoked in me that mild but unmistakable feeling of stress, and that there was a level of churning within the music that wasn't there before. However, after only a few minutes of listening to the Harbeth P3ESRs, that churning would disappear into the music as (I suspect) my brain learned to listen around and through it. And at that point, the little P3ESR did exactly what JA said it did: It got out of the way of the music. (See my "Follow-Up" elsewhere in this issue.)

**Listening 2: Maybe not so weird after all**

Once I'd gotten used to the ClairAudient 2+2's unusually relaxed presentation, I was quite taken with them. It was like taking off my glasses after reading a few pages, realizing that they're smudged, and cleaning them. I was hearing organic details in and being swept along by the music in an addictive way.

This was most noticeable with voices. I cued up Ike & Tina Turner's cover of John Fogerty's "Proud Mary," from Greatest Hits (LP, United Artists UA-LA592-G), and was stunned. Far from sounding flat or the least bit dull, voices seemed to practically jump out of the soundstage. I heard levels of detail and inflection that had obviously been masked by the churning of other speakers. This track has always been cool, but never this stunningly so.

The 2+2's magic extended well past voices. I was particularly taken by the woodwinds' sound in Charlie Munch and the Orchestre de Paris's recording of Ravel's Boléro (LP, Angel 36584). Everything about them—the reediness, the hollow sound of wind echoing in the wooden bodies, the buzz of the double reeds—was perfect. The way they interacted and drove the space around them was also perfect, and another example of the ClairAudients' sounding significantly more natural and organic than other speakers I've heard.

Sometimes, though, I longed for more bass from the little 2+2. The ominous, subterranean power of the double basses in works such as Holst's The Planets (LP, LAPO/Melita, London Stereo CS6734), with Zubin Mehta conducting the Los Angeles Philharmonic Orchestra, just wasn't there. The 2+2 went low enough, but didn't have the weight of the Harbeth's woofer is tuned no higher than that of the ClairAudient's full-range drivers, but the slower, sealed-box rolloff of the Harbeth gives it significantly more audible midbass energy in my room. The P3ESR is also very much more neutrally balanced in the midrange and treble than the ClairAudient 2+2, so I am at somewhat of a loss to explain why BD found that the Audience "seemed to go a bit lower, and sounded warmer and more harmonically rich throughout the midrange," than the Harbeth.

As BD discussed, the glory of using a single full-range drive-unit is that the power-sucking and possibly detail-destroying crossover can be eliminated. The result is that the speaker is inherently time-coincident, and has the potential for superb time-domain behavior. The ClairAudient 2+2's step response on the listening axis is shown in fig.8.

What could have been a good, right-angle-triangle shape to the step is disturbed by a another pulse of energy arriving about 1.3 milliseconds after the initial, well-defined start of the step. It is the interference between these two arrivals that gives rise to the midrange suckout in the quasi-anechoic response on this axis seen in fig.3.

Finally, fig.9 shows the ClairAudient 2+2's cumulative spectral-decay plot on the listening axis. The midrange cancellation suckout makes its presence known, but in some ways this graph reveals excellent performance—for example, the very quick die-away of the sound through much of the treble. However, ridges of resonant energy can be seen at 1.8, 3.6, and 8.8kHz (the cursor position), and above 20kHz. The ultrasonic peaks are subjectively inconsequential, but those lower in frequency are of some concern, I feel.

The Audience ClairAudient 2+2's measured performance is difficult to sum up. I fully understand and appreciate the appeal of using a single full-range drive-unit, and Audience's engineers have done what might have been thought impossible: designed a drive-unit that can be used to cover the range from 100Hz to 30kHz and above. But as much as BD liked the ClairAudient's sound, I felt it had too much upper-midrange energy in absolute terms—although this undoubtedly contributed to its superb presentation of recorded detail—as well as some hardness to its balance that could well be laid at the feet of the resonant behavior of both the drive-unit and the enclosure.

Given the disparity between Brian Damkroger's and my feelings about the sound quality of the Audience ClairAudient 2+2, I feel that a careful audition before purchase will be essential.

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John Atkinson
and power to make these passages really work. It was as if I could hear into the low-frequency passages, get the pitches, and follow the line, but somehow the bass wasn't really there. Nor could the low-frequency passages, get the pitches, and power to make these passages really work. It was as if I could hear into the bass wasn't really there. Nor could the low-frequency passages, get the pitches, and power to make these passages really work. It was as if I could hear into the trailing skin tones, but there just wasn't the feeling of deep foreboding that I get with other speakers, or in a live performance.

Conversely, with other, typically smaller recordings—such as "Talk of the Town," from Buddy Tate's The Texas Twister (CD, New World NW 352)—it seemed as if the 2+2's bottom-end performance was entirely credible. Another great example in which the double bass was right on the money was Schubert's "Trout" Piano Quintet. I listened to several recordings of this work, and the one that proved a showcase for the 2+2 was a version by Menahem Pressler, Philip Sklar, and members of the Guilet String Quartet (mono LP, MGM E3128).

The other area in which the ClairAudient seemed to lack a bit of energy was the very top. The shimmer of the cymbals in The Texas Twister didn't spread out and fill the space the way it does live—or as it does, to a lesser extent, through the Harbeth or Castle. Triangles in classical works were another good example, and illustrated the 2+2's strengths and weaknesses in the treble. Triangles rang sweetly, in a way that sounded very natural, but didn't have the impact or edge that cuts through the air above an orchestra. I recently attended a wonderful performance by the American Philharmonic Symphony of Sonoma County, the nation's premier all-volunteer orchestra. It provided a great and immediate reference that told me that the ClairAudient lacked enough energy at the very top to give triangles the bite they have in a live performance.

But the 2+2 never sounded dull, and most percussion transients did have the power and impact they should. One evening, I popped on Military Fanfares, Marches & Choruses from the Time of Napoleon, a collection of works performed by the Brass and Percussion Ensembles of Gardiens de la Paix de Paris, directed by Desire Dondeyne (LP, Nonesuch H71015). The percussion, especially the snare drums, were reproduced with as much power and panache as I've ever heard from my system, and were nothing short of spectacular. It was mostly with instruments whose sounds have both a hard transient and a rich, resonant ringing tone—triangles, cymbals, celesta, bells, etc.—that I longed for more impact and edge.

Summing Up
The Audience ClairAudient 2+2 is an ambitious undertaking. Its designers have tried to bend the laws of physics along two different axes, and have largely succeeded. The speaker is a unique and thoroughly modern take on a full-range, crossoverless design. The Audience ClairAudient 2+2 sounds dramatically different from a "normal" dynamic loudspeaker, with a purity, a freedom from distortion, and an organic ease that are addictive. The 2+2 makes it hard to accept the tension and internal "churning" that we're used to hearing multiway speakers weave into the music.

But the road less traveled is often avoided for good reason, and it's no accident that the technology of music reproduction has evolved in the direction of speakers with multiple drivers and crossovers. The 2+2 doesn't go as low or as high, or play as loudly and dynamically as a well-designed multiway speaker such as my Wilson Sophia 2. I thoroughly enjoyed my time with the Audience ClairAudient 2+2. I was taken aback at first by how different it sounded from the other speakers I'd been listening to, enough so that I wondered if there were actually something wrong with my review samples. As time went on, however, I grew more and more convinced that the 2+2s were doing something very right, and that it was the other speakers that were erring. I was sad to see them leave.

It's important to remember, however, that the 2+2 is the smallest and least expensive of Audience's ClairAudient line, which brings up the other area in which the clever folks at Audience are trying to bend the rules. No matter how many drivers and crossovers you have, it's difficult to fill a room with full-range sound from a speaker as small as the 2+2. Harbeth's wonderful little P3ESR is the latest incarnation of the hallowed BBC LS3/5a minimonito4 a lineage that represents the gold standard in this regard. But as good as the Harbeth is, it's nowhere near as good, or as full-range, or as room-filling as the ClairAudient 2+2. Admittedly, the 2+2 costs more than twice as much; nonetheless, it's an impressive achievement.

$5000 is a lot of money for a pair of small, not-quite-full-range speakers. But it's not a lot to spend for a loudspeaker that makes listening to music as enjoyable as does the ClairAudient 2+2. Plus, it's small enough for even the tiniest spaces, and an easy load for even modest amplifiers. Don't seriously audition it unless you're equally serious about buying new speakers. Once you've gotten used to not hearing the distortions created by crossovers and multiple, different drivers, it's awfully hard to go back. Very highly recommended.
“I’m...amazed that humans can create such beauty.”

Stephen Mejias, www.stereophile.com
Micromega AS-400
WIFI CONNECTED D/A INTEGRATED AMPLIFIER

ART DUDLEY

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and though I am to the allure of blind testing, I can appreciate some degree of review-sample anonymity: Distinctive products elicit distinctive responses, but a plain black box encourages us to leave our prejudices at the door. It asks of us a certain objectivity.

So it was with the Micromega AS-400 digital source/integrated amplifier ($4495), the anonymity of which was compounded, in my case, by a generous helping of forgetfulness: I suppose I was told, ahead of time, that this was a class-D amplifier but at some point in time before my first at-home audition I apparently killed the brain cells responsible for remembering that fact. So I was innocent of conscious prejudice when I listened to this elegant cipher of a box and wrote, in my notes: “Dynamic, dramatic, and almost relentlessly exciting with some recordings. Imbued pianos with almost too much dynamism for the room—too much being very good!—but lacked some ‘purrr’ in the die-away. Basically fine and fun. Wish it had a little more color and spatial depth.”

All enduringly true. And you could stop there if you wanted. But the thing is, there’s a lot more to the Micromega AS-400 than just that.

Description
Rather like the Linn Majik DS-I before it, the Micromega AS-400 combines a solid-state preamplifier and power amplifier with a custom digital-to-analog converter, the latter tailored specifically to computer-music files (more on that in a moment). Also like the Linn, the AS-400 comes complete with its own phono preamp: a lovely trend, and one that would seem to allow the buyer to take advantage of both the new and the old in terms of cutting-edge music media.

Yet one could argue that the AS-400’s real calling card is its implementation of...
something that Micromega calls their AirStream module—essentially, an Apple AirPort Express WiFi receiver that has been reworked as a perfectionist audio component. Micromega uses three different feeds from an R-core transformer to supply its main module, master clock, and D/A analog section. The incoming digital stream is referenced to the AirStream's own custom-made timing clock, then fed to a 24-bit/192kHz Cirrus Logic CS4351 chip, supported with various perfectionist-quality parts. (The D/A in the AirPort Express is not used.)

First seen in Micromega's WM-10 standalone digital source, the AirStream module is intended to allow the owner of an AirPort-equipped Apple Mac or similar computer to wirelessly stream his or her music files to a perfectionist playback system, thus making an end-run around the whole USB thing.

Not only is the AirStream module in this new product said to be more advanced than those in Micromega's past, but computer-music technology in general has progressed in such a way that a new frontier is available to the prospective AS-400 owner: At the end of 2010, Apple released v.4.3 of their iPod operating system, which incorporates a new wireless-transmission protocol called AirPlay.¹ The long and short of it: One can now wirelessly stream full-resolution 16-bit/44.1kHz, iTunes-compatible music files from an iPod to a Micromega AS-400. Compare that with the Chordette Gem D/A converter (reviewed in the January 2011 issue), which uses Bluetooth wireless technology and a necessarily lossy codec to accomplish the same thing.

The Micromega's phono section deserves special mention: Its sensitivity is appropriate for moving-magnet cartridges, but moving-coil types will require additional gain (and, for most users, a load impedance considerably lower than the AS-400's MM-appropriate 47k ohms).

¹ A modern ailment: One can see just so many compound words with capitalized second syllables before Up-Clocking.

For me, that's no hindrance, as I prefer loading my MC cartridges with an outboard step-up transformer. Additionally, Micromega has engineered the AS-400 so that, when its phono inputs are selected, power to the AirStream module is interrupted, so that the latter's own power-supply feeds won't add noise to the delicate phono signal. Nice.

Finally, no discussion of the Micromega AS-400 would be complete without mentioning its amplifier output section, which is class-D—perhaps the most misunderstood of the classes, second only to the working poor. The D doesn't stand for digital—although there is, coincidentally, a digital-like concept behind this 60-year-old design: Its output devices are always switched either on or off. The resultant wave is shaped via pulse-width modulation (which is not nearly as digital as it sounds) in an effort to mimic the original signal.

All of the above is housed in a metal enclosure of average proportions and with an above-average level of finish.

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**MEASUREMENTS**

To perform the measurements on the Micromega AS-400, I mostly used Stereophile's loan sample of the top-of-the-line Audio Precision SYS2722 system (see the January 2008 "As We See It" and www.ap.com); for some tests, I also used my vintage Audio Precision System One Dual Domain and the Miller Audio Research Jitter Analyzer. Before I did any testing of the Micromega AS-400 I ran it at one-third power into 8 ohms for an hour, which imposes the maximum heat stress on an amplifier with a class-AB output stage. As the AS-400 is a class-D design, one of the benefits of which is very high efficiency, I wasn’t expecting the amplifier to be hot at the end of that time. However, the chassis was warm, particularly on the left-hand side, where the top cover measured 108.5°F.

The Micromega's MM-compatible phono input offered a maximum gain of 50.1dB at 1kHz, measured at the variable Preampl Out jacks, which is a little on the high side. However, it is fair to note that this includes the gain of the line-preamplifier section, estimated at 10.9dB. The unweighted, wideband signal/noise ratio ref. 5mV input at 1kHz with the input shorted was an excellent 71.2dB in the left channel and 72.7dB in the right. A-weighting improved these figures to 80 and 89dB, respectively. The phono input preserved absolute polarity (ie, non-inverting), and the input impedance varied from 45k ohms at low and middle frequencies to 11k ohms at the top of the audioband. The RIAA-equalized response is shown in fig.1; there is a 0.2dB mismatch between the channels at some frequencies, and the RIAA correction suffers from a slight lack of midrange energy and a little too much treble energy. Though the errors are small in absolute terms, the frequency regions affected are wide enough for the change in response to be just audible. When Art Dudley described the sound of the phono section's top end as "light and detailed but not bright," this is what I would have expected from the measurement.

Channel separation via the phono input was excellent, as was distortion, which lay below 0.1% at typical recorded levels. However, the overload margin was not as large as I would have wished, being just 12dB at 20Hz, 9.2dB at 1kHz, and 7.5dB at 20kHz. High-output moving-magnet cartridges are best avoided.

I tested the AirStream feature using Apple Lossless files played with iTunes on my Intel-based MacBook. Setting iTunes to stream audio to the AS-400 was as straightforward as AD described, and, as with the phono input, I assessed performance at the variable Preampl Outs. AirStream data were restricted to a 16-bit word length and sample rates of 48kHz and below. A full-scale digital signal at 1kHz clipped the AS-400's preamplifier at volume-control settings greater than "7," at which setting the THD+noise was 0.1% and

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![Fig.1 Micromega AS-400, MM input, RIAA response at 5mV (left channel blue, right red), measured at Preampl Out jacks (0.25dB/vertical div.).](image-url)
**Perfect** is not too strong a word to describe the fit of the casework, the powder-coat finish is uncannily smooth, and the front panel is the very model of understated elegance. Above all other adjectives, the AS-400 looks mature.

**Setup and installation**

When I open the carton of a new review sample and see that it contains a software disc, the first words out of my mouth are usually “Oh, shit.” The Micromega came packaged with a set of discs, but I needn’t have panicked: It turned out to be the software and documentation Apple supplies with every AirPort Express they sell; chances are, the AS-400 user will never have to break the seal on their packaging.

The setup procedure for the AS-400 was nonetheless more involved than that for a step-up transformer or a cable riser—more, even, than for most integrated amps, assuming they don’t contain wireless music streamers of their own. But as someone who has, in recent months alone, worn on his sleeve a bilious disdain for needlessly difficult setup regimens, you can take my word: The Micromega AS-400 was relatively easy.

Approximately 65 seconds later, that word changed from red to blue, suggesting that the AirStream module was ready to go. And it was: When I clicked on my iMac’s Wi-Fi icon, in the upper-right portion of its display, I saw that Music was now an available network selection. I duly accepted it.

Distortion via AirStream was higher at high signal levels than at low. This can be seen in fig.4, which compares the spectra of a full-scale 1kHz tone (red trace) with that of a 1kHz tone at −10dBFS (blue trace). (Both were measured at the preamp outputs with the volume control set to −20, which is equivalent to a level of 730mV at the preamp outputs, in order to be sure that the distortion products are due to the digital decoder rather than the preamplifier circuit.) A regular series of harmonics can be seen with the 0dBFS tone, with the highest in level, the second harmonic, reaching −54dB (0.6%). At the lower recorded level, the distortion decreased dramatically, the second harmonic now lying at −83dB (0.001%). The picture was similar with intermodulation distortion, the 1kHz difference product from a full-scale mixture of 19 and 20kHz tones reaching −66dB (0.05%, not shown).

Jitter via the AirStream feed was moderately high, and estimated by the Miller Analyzer software to be 887

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The DAC’s linearity error (not shown) was less than 1dB down to −107dBFS, and in the spectrum of a dithered 1kHz tone at −90dBFS (fig.2) the peak representing the tone just touched the −90dBFS line. The noise floor in this graph was a little higher than usual with 16-bit data, and there were some power-supply–related spuriae evident, though at low levels. Both observations were confirmed by FFT analysis (fig.3).

However, the waveform of an undithered tone at exactly −90.31dBFS was perfectly symmetrical, with the three DC voltage levels described by the data clearly resolved (not shown.)
streaming music to it. Contrast that with every other wireless digital source that's come my way...

I wanted to try streaming music files from three software alternatives to iTunes that arrived at more or less the same time as the Micromega AS-400: Pure Music, Decibel, and Amarra (see my "Listening" column on p.39). Because the Micromega AirStream module is optimized for iTunes, that wasn't possible without jumping through one more hoop: downloading and installing a $25 utility called AirFoil, from Rogue Amoeba Software. Once AirFoil is in place, virtually any music file can be streamed to an AirPort Express base station, including the FLAC codec, which iTunes doesn't otherwise support.

If anything, getting my iPod Touch to stream music files to the AS-400 was even easier: I chose WiFi from the Settings page of my iPod (which I'd already updated with OS 4.3), selected Music, and there it was: When I went to play music, I saw that the behatted planaria wasn't trying to hog the same airwaves, everything was cool.

A final, miscellaneous setup note: The AS-400 ran warm but not scarily hot. Still, I was surprised that it didn't run cooler, given that class-D output sections tend toward the very efficient.

Listening

It seemed to me that the whole of the Micromega AS-400—the sound of its preamp and power amp taken together—was designed to accommodate and complement the build-in digital source that is its raison d'être. That's wise: Although $4495 is no longer regarded as a terribly high price for a traditional (sourceless) integrated amplifier, there's no reason to buy something like that unless some-thing like that is what you want.

Micromega AS-400

Measurements, continued

picoseconds p-p, left, and 911 ps p-p, right. As shown by the spectrum (fig.5), the main sidebands lay at the power-supply–related frequencies of ±120, ±180, and ±240 Hz, but what can also be seen in this graph is a significant widening of the base of the peak that represents the high-level 11.025 kHz tone. This suggests the presence of fairly high levels of random low-frequency jitter that are not included in the Miller Analyzer's estimated figure.

Turning to the Micromega AS-400's line-level analog inputs, these preserved absolute polarity at both the preamp and speaker outputs, and offered an input impedance of 24k ohms across the band. This is lower than the specified 100k ohms, but should have no practical consequences. The maximum gain from the preamp section was 10.9 dB. Driving the amplifier section directly gave a voltage gain of 32.3 dB into 8 ohms, meaning that the maximum gain for the AS-400 assessed as an integrated amplifier was 43.2 dB. The subwoofer output, which appears to be available from just the lower of the two RCA jacks labeled "Sub," rolled off by 0.8 dB at 200 Hz, 5 dB at 300 Hz, which is a lower crossover point than the −3 dB at 400 Hz point that is specified.

The source impedance for the preamp outputs was a low 100 ohms at all frequencies. The input impedance for the AS-400's power amplifier input was 45k ohms. The source impedance for the speaker outputs was a low 0.07 ohm at 20 Hz and 1 kHz, rising inconsequentially to 0.1 ohm at 20 kHz. As a result, the variation in response with our standard simulated loudspeaker was minimal (fig.6, gray trace). While the Micromega's preamplifier-section response was flat to 20 kHz, the response at the speaker outputs rolled off above 10 kHz, reaching −0.5 dB at 20 kHz and −3 dB at 50 kHz, which slightly reduced the risetimes of harmonics.

Fig.4 Micromega AS-400, FFT-derived spectrum with noise and spurious of dithered 1 kHz tone at 0 dBFS (right channel red) and −10 dBFS (right blue) with 16-bit AirStream data, measured at Preamp Out jacks with volume control set to "−20."

Fig.5 Micromega AS-400, high-resolution jitter spectrum of analog output signal, 11.025 kHz at −6 dBFS, sampled at 44.1 kHz with LSB toggled at 229 Hz, 16-bit AirStream data. Center frequency of trace, 11.025 kHz; frequency range, ±3.5 kHz (left channel blue, right red).
one selection to another. (I used only 44.1kHz AIFF files for these comparisons.) Even after compensating for the different output levels of the two devices, music streamed to the Micromega from the iMac generally had greater scale and more apparent channel separation. Music streamed from the iPod tended to be sonically a bit grayer and musically a bit fussier, with less certain momentum and flow. But the latter wasn’t nearly enough to impede my enjoyment or ability to respond to the music. I recall in particular one dark, rainy morning in early April when I streamed the Byrds’ “Here Without You” from my iPod to the AS-400, and the sound and music were utterly enchanting.

Driven by whichever music-file source, the sound of the Micromega AirStream module didn’t match that of the best (Ayre and Wavelength) USB D/A converters I’ve heard so far, nor that of the Linn Majik DS-I at its own best (with hi-rez files). Those alternatives all made music sound a little more present and colorful than did the AS-400: a little more flesh and blood. But it wasn’t far enough from the mark to disappoint, especially in light of both the AS-400’s price and its viability as a one-box, just-add-speakers solution.

Auditioned as an integrated amplifier, and setting aside for a moment its digital source capabilities, the AS-400 was enjoyable but not entirely to my taste, especially with line-level sources. On the plus side, the AS-400’s ability to retrieve extremely subtle detail was nothing short of astounding. Drummer B.J. Wilson’s very soft floor-tom roll near the beginning of Procol Harum’s “Strangers in Space,” from the recently reissued Something Magic (CD, Salvo CD029), was uncovered as never before, each little tap having its own distinct sound. And throughout Levon Helm’s Dirt Farmer (CD, Vanguard 79844-2), the amp uncovered nuances in the performances that were otherwise lost to me—the fluttery background voices in “Calvary” were especially delightful. On the down side, the Micromega amp was spatially a bit flat—except for the most prominent lead vocals and solo instruments, few sounds stood proud of the mix—with insufficient timbral color compared with my reference amps, and a very slight trace of artificial texture in the trebles.

But the Micromega’s phono section sounded like more than just an afterthought: Isolated from the rest of the AS-400 and driven with the Honmage T1 and Silvercore One-to-Ten transformers, it was slightly leaner than the phono section of my Shinoh Masseto, but not at all shamed by the comparison. In phono mode the Micromega’s top end was light and detailed but not bright, though it jelled better with the meaty Ortofon SPU pickup heads than with any of the alternatives on hand. A great new 45rpm reissue of Rachmaninoff’s Symphonic Dances, with Donald Johanos conducting the Dallas Symphony Orchestra (45rpm LP, Turnabout/Analogue Productions AAPC 34145-45), had tremendous drama, scale, and sheer t

Fig. 6: Micromega AS-400, 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). (0.25dB/vertical div.)

Fig. 7: Micromega AS-400, small-signal 10kHz squarewave into 8 ohms.

Fig. 8: Micromega AS-400, distortion (%) vs 1kHz continuous output power into (from bottom to top at 10W): 8, 4, 2 ohms.
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through the Micromega, with convincingly good bite in the loudest brass passages. Mono LPs and 78s had good chunk, too, although the Shindo's phono section was less perturbed by the noise on some worn-out discs.

Considered as an integrated amplifier, the Micromega AS-400 sounded by far with the less sensitive Wilson and Snell loudspeakers, especially in my largest listening space. It's apparently more at ease at a gallop than a stroll.

**Conclusions**

The AS-400 didn't reach state-of-the-art heights in my system, as either an amp or a digital source—yet it was consistently engaging, musically and sonically. And the performance of its wireless digital source was so surprisingly good that I couldn't help thinking that a maxed-out, standalone AirStream unit might be just the cat to scare the USB pigeons . . .

Even as it stands, the Micromega AS-400 strikes me as a virtually perfect choice for the audio perfectionist who shares space with other listeners—and multiple iPods and/or Macs. Correct me if I'm wrong, but I don't think anyone else offers this combination of qualities—high output power, a nice preamp with adjustable balance and a healthy number of analog inputs, a phono stage, and instant, out-of-the-box wireless compatibility with the world's most popular music-playback software—for any price, let alone one that seems so reasonable for the design and workmanship on tap. The AS-400 is a unique, and uniquely recommendable, piece of gear.

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**measurements, continued**

Frequency. However, the AS-400's THD remained commendably constant with frequency (fig.9).

The spectral content of the distortion varied with signal level. At low powers, it was heavily second-harmonic in nature (fig.10). At high powers, the third harmonic rose above the second, and higher-order harmonics appeared (fig.11). The Micromega AS-400 did well on the high-frequency intermodulation test, both the 1kHz difference tone and the higher-order products at 18 and 21kHz resulting from an equal mix of 19 and 20kHz tones, appearing at ~80dB (0.01%), or just below visible waveform clipping on an oscilloscope (not shown).

Micromega's AS-400 measured well in most respects, especially considering that it has a class-D output stage. The AirStream feature was easy to use, though I was a little bothered by a higher level of distortion at high signal levels than I'd expected to see.

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**ASSOCIATED EQUIPMENT**

**ANALOG SOURCES**

- Garrard 301, Thorens TD 124, Linn LP12 turntables; EMT 997, Rega RB300, Schick tonearms; Shindo SPUs, EMT TSD 15, Ortofon SPUs & 90th Anniversary SPUs cartridges.
- Wavelength Cosecant, Furutech GT40, Ayre Acoustics QB-9 USB D/A converters; Apple iMac G5 computer running Apple iTunes V.10.1 & Decibel V1.0.2 playback software; Sony SCD-777 SACD/CD player.

**DIGITAL SOURCES**

- Wavepoint 23 Standard/SPU & Hommage T1, Silvercore 23rd-Anniversary step-up transformers; Shindo Masseto preamplifier.
- Audio Note AN-AE/SPe HE, Wilson Audio Sophia 2, Snell Type A-11.
- CARDS

**ACCESSORIES**

- Box Furniture Company D3S rack under source & amplification components; Keith Monks record-cleaning machine; OMA slate plinth for Thorens TD 124.

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**Fig.9** Micromega AS-400, distortion (%) vs frequency at 6.4V into 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green). **Fig.10** Micromega AS-400, 1kHz waveform at 10W into 4 ohms (top), 0.02% THD+N; distortion and noise waveform with fundamental notched out (bottom, not to scale). **Fig.11** Micromega AS-400, spectrum of 50Hz sinewave, DC–1kHz, at 102W into 8 ohms (left channel blue, right red; linear frequency scale).
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Ypsilon
PST-100 Mk.II
LINE PREAMPLIFIER

Michael Fremer

Though essentially a two-man operation based in Athens, Greece, Ypsilon Electronics has been, since 1995, turning ears and eyes throughout the audiophile world with purist hand-crafted electronics whose sound seems to defy characterization. Even under audio-show conditions in difficult hotel rooms, and often driving unfamiliar loudspeakers, the sound of Ypsilon electronics seems to evaporate in ways that few products manage, leaving behind less residue and more music.

That may sound like fan hyperbole, but it’s what I immediately heard a few years ago, when I first encountered Ypsilon gear at a hi-fi show. Though the company was then new to me, nothing I’ve heard since, at shows or at home, has deviated from that very first impression.

Ypsilon models look beautiful, even dramatically so, in their cases of thick, milled aluminum, and perhaps that’s what first drew to them the reviewers and civilians who attend audio shows. What kept them there was the sound, or the lack thereof.

Many listeners tempered their initial enthusiasm with caution: A sound that good must be based on sonic tricks that only time will reveal. I found myself almost wishing that to be true, given what Ypsilon products cost. But having spent a great deal of time with Ypsilon’s VPS-100 phono preamplifier ($26,000; I reviewed it in “Analog Corner” in August 2009 and March 2011), I’m convinced there are no tricks.

As is often the case in high-performance audio, less artifice comes at a high price. Ypsilon’s products are very expensive, and deceptively simple in design. The PST-100 Mk.II will set you back $37,000. If you don’t need the active stage, the completely passive
PST-100 TA can be had for $26,000. (The active tubed stage can be retrofitted at the factory.) But either way, and considering that a preamplifier’s basic job is to switch and route low-level audio signals without adding to or subtracting from any signal fed to it, these are high prices to pay for what is, essentially, nothing.

Of course, there’s more to a preamp’s job: It must also provide signal attenuation and, usually, gain, as well as an output impedance low enough to drive cables and interface with a power amplifier of high input impedance.

**A Purist Approach**

Over the past year or so, a few impressively neutral, dynamic, quiet, wide-bandwidth tube preamplifiers have passed through my listening room that rival the quiet and tonal neutrality of my reference, the solid-state darTZeel NHB-18NS. The best solid-state and tubed preamps these days are more sonically alike than different, though of course the subtle differences are the basis on which listeners who can afford such products choose.

Ypsilon’s co-owner and chief designer, electrical engineer Demetris Backlavas, believes that the key to a preamplifier’s sound is the means by which it attenuates the signal it’s fed. Instead of the more commonly used resistor attenuation, Backlavas uses what he says is a very linear, 31-tap transformer that Ypsilon winds in-house. By comparison, he says, attenuators that use even the finest-quality resistors tend to sound grainy and discontinuous because the in-series resistor converts voltage into current, while the parallel resistor turns current back into voltage.

Not that Backlavas and his partner, Andy Hassapis, didn’t try to build a better resistor-type attenuator, using a variety of materials. The problem, according to Backlavas, is that, in order to resit, a resistor must be made from a bad conductor of electricity. Copper and silver are good conductors and small-value resistors can be made from these metals that, not surprisingly, can sound very good. Unfortunately, it’s impossible to use copper and silver to make high-value, wideband resistors because of the parasitic inductance that goes along with the need to use coils of very many turns. In addition, resistor-based attenuators waste signal energy by turning the attenuated energy into heat.

Nonetheless, Backlavas admits that attenuators of reasonably high quality can be built using carefully chosen resistors. You’re probably listening to such a device...
as you read this. And, as anyone who has spent time listening to transformers (and Bacldavas has spent more time listening to them than most) knows, even those with identical specs can sound remarkably different from each other, and some can ring unpleasantly or sound bad for a variety of reasons.

In fact, transformer-attenuated pre-amplifiers—or, more precisely in this case, autoformer-attenuated preamps, in which the primary and multi-tap secondary overlap—aren’t new. Hobbyists have advocated and built them over the years, but few are commercially available. The advantage of such an attenuator over one that uses resistors is that energy is transformed and not lost as heat. Bacldavas gave an example: starting with a source impedance of 1200 ohms, attenuating the signal 10dB (or 3.16 times), produces an output with lower voltage and higher current and an impedance of 120 ohms ($\frac{1200}{3.16^2}$)—which has an easier time driving loads, unlike the less amplifier-friendly results produced by a passive-resistor attenuator.

That said, of course, transformer attenuators have their own problems that must be solved before they can produce good sound. The core material must have low hysteresis (hysteresis being like unwanted “magnetic memory”) at both low and high frequencies, and linear magnetic permeability with flux and frequency.

So, in audio as in life, execution is as important as design—and the PST-100 Mk.II is, per Bacldavas, a “fairly simple design.”

The volume control output transformer, “painstakingly designed and optimized,” is custom-wound at Ypsilon on an amorphous double-C core, itself chosen via listening tests. The impedance of the output stage, which is hardwired with fine, custom-drawn silver wire, is around 600 ohms. The active stage is essentially a small, single-ended amplifier.

However, there is more to know about this microprocessor-controlled circuit, which features both active and
In passive mode, high-quality silver-contact relays route the input directly to the transformer volume control, up to step 6. The controller then routes steps 7–37 through the active stage, to produce a maximum gain of 17dB.

When the PST-100 is set to passive mode, its active stage never kicks in. (The PST-100 is available in a less-expensive TA version that only operates in passive mode.) Instead, the signal is routed only to the transformer volume attenuator, bypassing the active stage altogether; with step 31 producing 0dB (unity) gain. In order to drive the transformer efficiently, the manual suggests not running the system in passive mode with sources whose output impedance exceeds 3k ohms.

Regardless of mode, attenuation is 3dB per step up to step 5. Between steps 5 and 10, each step is 2dB, and steps 10–28 are 1.5dB each. The final three steps (35–37) offer 1dB of attenuation each.

In addition to transformer-based attenuation, the PST-100 features 6CA4 tube rectification, choke supply filtering, and a zero-feedback active stage.

Designer Demetris Backlavas told me that, other than the silver-plated relays and transformer, the only components in the PST-100's signal path in active mode are a resistor bypassed with a Silmic2 capacitor in the cathode, and a grid stopper resistor—and, of course, the C3m tube. He also told me that he'd kept control circuitry to an "absolute minimum" in order to avoid high-frequency noise, and that, to avoid introducing noise, control signals within the preamp are static and not clocked.

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**TRANSFORMER ATTENUATORS HAVE THEIR OWN PROBLEMS THAT MUST BE SOLVED BEFORE THEY CAN PRODUCE GOOD SOUND.**

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Component reaches ~54dB (0.6%), it drops to ~60dB (0.1%) at 1V, with all other harmonics dropping by a proportional amount. With a 1kHz signal at 1V into 100k ohms (not shown), the only harmonic above ~100dB that was visible in the spectrum was the third, at ~66dB (0.05%). The PST-100 Mk.II in active mode also offered good performance on the demanding high-frequency intermodulation test (fig.6). Although the second-order difference product rose slightly above the ~60dB line, all the higher-order products are very low in level.

The Ypsilon PST-100 Mk.II offered excellent performance in passive mode, with minimal insertion loss in unbalanced mode, and its transformer-based design suffered very little changes in its operating conditions due to the impedances of the components both upstream and downstream of it. Its active mode was more problematic; while most of the measured problems in active mode will be below the threshold of audibility under normal conditions, I wasn't surprised that MF preferred the preamp's sound in passive mode. Balanced operation had higher noise than unbalanced, which suggests that this mode of operation is offered as a convenience, the PST-100's volume-control transformer and active circuitry operating in single-ended fashion.

—John Atkinson
No knobs, no switches
The PST-100 Mk.II’s chassis, milled from thick panels of satin-finished aluminum, has no jacks or knobs. The remote control handles all functions—don’t misplace it. Fortunately, it, too, is milled from a hefty chunk of aluminum. If you sit on it, you’ll know it—and if you don’t, you’d better get to the gym.

On turn-on, an LCD screen on the front panel lights up, and for 30 seconds identifies the unit as the “Ypsilon PST-100 Mk.II,” after which it changes to “Volume 00, Input 1 CD.” At that point, or whenever you set the volume to “00,” you can use the remote’s topmost button, labeled “S,” to toggle between the PST-100’s active and passive modes; your selection is indicated on the display. At any volume level other than “00,” this button acts as a Mute control. The next button down extinguishes the rather bright screen, while the center two buttons control volume, and the lower pair handle source selection. The inputs are preprogrammed with identifying labels (CD, Phono, Cinema, etc.) that can’t be changed.

On the rear panel are six pairs of chassis-mounted inputs, five of them RCA jacks. Input 6 is unbalanced XLR. Next to the inputs are RCA and unbalanced XLR outputs. A pair of Tape Out RCA jacks is located above Input 4’s RCA jacks. As on the VPS-100 phono preamp, the PST-100 Mk.II’s On/Off switch is on the rear panel—less than optimally convenient, but not a real problem.

Sublime nonsound
If the Ypsilon phono preamp is any indication, the PST-100 Mk.II requires a very long break-in period. There’s a lot of wire in those transformers. Even after the PST-100 had spent a few months in my system, I still wasn’t sure it had fully broken in by the time I had to write this review. But even raw out of the box, the PST-100 Mk.II produced that Ypsilon “nonsound” heard at audio shows throughout the world. Still, the sound continued to open up and become more dynamic as time passed, but with little change in its tonal balance or transient performance.

While I listened in both active and passive modes, the latter’s output, even with the attenuator well down from its 0dB maximum level, was more than enough to drive my Musical Fidelity Titan amp and my relatively sensitive Wilson Audio MAXX 3 speakers. In passive mode, there was literally nothing but the silver relay and the step-down transformer between the incoming signal and the interconnect to the power amplifier.

The PST-100 sounded about as close to the source as can be imagined. All sources, analog or digital, were steps more transparent, three-dimensional, and closer to sounding “live”—or at least closer to the source going directly to the amplifier—than I’ve otherwise heard in my listening room.

One of the last records I played before switching from the darTzeel to the Ypsilon was a 45rpm, single-sided, four-LP reissue of Jascha Heifetz’s recording of Bruch’s Scottish Fantasy and Vieuxtemps’s Violin Concerto 5, with Sir Malcolm Sargent conducting the New Symphony Orchestra of London (RCA Living Stereo/Classic LSC-2603-45-200G). While it’s considered to be one of RCA’s best Living Stereo recordings, it’s licensed from the UK and was originally produced by Decca—the engineer was the great Kenneth Wilkinson. The recording of Heifetz’s violin is particularly exquisite, and a good test of a preamp’s ability to convey instrumental attack, textures, and harmonic structures, not to mention precise imaging and dimensionality.

The PST-100 Mk.II managed all of those things with a purity, delicacy, and verisimilitude that surpassed the performance of any preamplifier I’ve heard—and I’ve heard and owned some very good ones. When Heifetz plays spicato (light, staccato bowing), each time his bow bounced off a string, the Ypsilon reproduced the character of that physical contact—its texture and tonality—with glistening transparency and physical dimensionality. The only word appropriate to describe my first hearing of this album through the PST-100 Mk.II is thrilling. This familiar recording sounded more “real” than I’d ever heard it, with Heifetz more clearly delineated in space in front, and the orchestra arrayed behind him.

Against the darTzeel
After the PST-100 Mk.II had been installed, two EMI Classics recordings arrived, in a recent reissue by Esoteric Remasters (SACD/CD ESSE-90048): Otto Klemperer and the New Philharmonia Orchestra performing Franck’s Symphony in D, at Abbey Road Studios in 1966 (originally EMI 5276); and Schumann’s Symphony 4, recorded at the famed King’s Hall in 1960 (EMI 2398). I was familiar with these works, though not these recordings of them, but after numerous plays I had a pretty good handle on their sounds. The King’s Hall recording was more spacious, and done from a mid-hall perspective, but...
both are very fine "vintage" symphonic recordings, and the 2010 transfer from analog tape to DSD, made at the JVC Mastering Center, was pristine.

Through the Ypsilon in passive mode, particularly the Schumann sounded moderately three-dimensional, with a wide stage perspective that was somewhat out of character for what, given the mid-hall balance. The same recording through the darTZeel NHB-108NS produced a fine but less transparent sound that was tonally cooler but equally spacious and precise. The strings were somewhat drier and the perspective slightly flatter, but the resolution of detail, particularly low-level information, was equally good. The stage width was identical, as were the dynamics. The biggest differences were in terms of harmonics and transparency: The Ypsilon produced more vivid colors, as well as a level of transparency and purity I'd never before experienced in my system.

I don't mean to exaggerate these differences—the sonic distance between the darTZeel and the Ypsilon wasn't enormous. Once my ears had settled in with either of these artifact-free sounds, I was always musically satisfied. But when I went back to the recording of Bruch's Scottish Fantasy, the Ypsilon reproducing deep synth drones and richly resonant, the deep-bass strokes near the end of the title track, and the ensemble of the first violins, as well as a level of transparency and purity I'd never before experienced in my system.

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In fact, there was no downside to the Ypsilon's sound with any genre of music. While in the UK recently, I picked up an original German pressing of Pat Metheny and Lyle Mays' intensely atmospheric As Falls Wichita, So Falls Wichita Falls (LP, ECM 1190). (A few weeks later I found myself in Wichita, on my way to Salina, Kansas, to visit Quality Record Pressing, Chad Kassem's new vinyl pressing plant—see this month's "Analog Corner.") Through the Ypsilon, the deep-bass strokes near the beginning of the title track, and the ensuing deep synth drones and richly recorded drum wallop, were reproduced with visceral intensity and their familiar full extension, while the shimmering bell trees produced fast transient shivers, and individual percussion notes rang with pristine clarity and no unnatural etch. Transformers can ring and produce a hazy aftertaste, in my experience, but the PST-100 Mk.II produced no such artifact.

And when "As Falls Wichita..." explodes about three-fourths of the way through its nearly 21 minutes, the Ypsilon did not restrain that macrodynamic thrust—there was nothing polite about this preamp's performance. But when called on to produce great delicacy, it did that as well. Active electronic stages often trade a modicum of transparency for a worthwhile increase in musical grip. In its passive mode, the PST-100 seemed to produce unprecedented transparency while exhibiting complete control and speed. Rhythm'n'pace were as honest and natural as the recording allowed.

Through the darTZeel NHB-18NS, the well-recorded Metheny-Mays LP sounded equally dynamic and wideband, but was slightly less transparent and spacious, less harmonically full-bodied, and sounded a bit grayed-out by comparison. Was that because the darTZeel doesn't pass along colors, or because the passive Ypsilon was adding them? I have no idea.

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on XX, but with that bit of added transparency and clarity already noted.

If there was any downside to the Ypsilon PST-100 Mk.II in active mode, I didn’t hear it—whatever faults JA’s measurements might show were inaudible. Ypsilon specifies no signal/noise or harmonic-distortion specs for the PST-100 Mk.II, but based purely on what I heard, the preamp was essentially free of noise in passive mode, and equally quiet in active mode. In passive mode, if output-impedance variations reached the point where frequency rolloff occurred, I didn’t hear it. In either mode, music erupted from jet-black backgrounds. If the measurements show any nonlinearities, they surely must be minor; the Ypsilon was as airy and extended and spacious on top, and as tight-fisted and extended on the bottom, as any preamplifier I’ve heard.

Conclusions

Ypsilon’s PST-100 Mk.II is a full-function preamplifier that can drive most amplifiers in its passive mode, but can add a remarkably transparent, tube-based active stage when needed. It is beautifully and simply built using custom-designed transformers wound in-house, point-to-point wiring with custom-drawn silver wire, and hand-selected tubes designed for long, quiet, trouble-free use.

The PST-100 Mk.II is, as designer Demetris Backlavas modestly claims, “a fairly simple design.” Simplicity can have definite benefits and equally definite costs—yet despite its minimalism, the Ypsilon PST-100 Mk.II is the best preamplifier I have ever heard.

AT $37,000, THE PST-100 MK.II IS VERY EXPENSIVE; BUT GIVEN HOW IT’S MADE AND HOW IT SOUNDS, AND ASSUMING YOU CAN AFFORD IT, IT’S WELL WORTH THE MONEY.

PST-100 has no sonic or functional disadvantages that I could hear or experience. It seemed to add nothing to and subtract nothing from any signal it was fed. It didn’t add noise or etch or edge, nor did it subtract transient clarity, dynamic slam, or frequency extremes. What it sounded like in passive mode was the mythical straight wire with gain.

The preamp’s six inputs should be enough for most audio enthusiasts, and its Tape Out is a useful addition for recording to any format. In the interests of sonic purity and circuit simplicity, the PST-100 Mk.II lacks a Mono switch or a Balance control—but if you’re interested in maximizing transparency and accurate-to-the-source pass-through with attenuation and no resistors in the sig-
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Harbeth P3ESR loudspeaker

My first exposure to high-end audio involved Joni Mitchell’s Court and Spark played through a pair of the original Rogers LS3/5a mini-monitors. Like many acquainting an iteration of the BBC’s LS3/5a for the first time, I was amazed that so small a speaker could sound more than $600/pair, then shocked that so small a speaker could sound as it did. Actually, I was shocked that any speaker could sound like the LS3/5a: Instead of like “a stereo,” it sounded like a performance. The very existence of the High End, and its reason for existence—to reproduce the sound of a live performance—hit me like twin lightning bolts. I was hooked.

I've heard many loudspeakers since that day, and some of them have been spectacular, but it’s likely that none has had the impact on my consciousness—my life—that those unassuming little Rogerses did. But oddly enough, I'd never owned or reviewed any version of the BBC's LS3/5a. When, in the August 2010 Stereophile, I read John Atkinson’s words about a similarly sized descendant of the LS3/5a, Harbeth's P3ESR, I decided that I had to hear it.

System and Setup: The Harbeth P3ESRs shared time in my system with a slightly larger one-way design, the Audience ClairAudient 2+2 that I reviewed elsewhere in this issue ($5000/pair), as well as with my reference Wilson Audio Sophia 2s ($16,000/pair when last available). For the bulk of their time here, the P3ESRs were driven by Mark Levinson No.20.6 monoblock amplifiers, a Placette Active line stage, and a mostly vinyl diet of recordings played on a Spiral Groove SG-2 turntable with Centroid tonearm and Lyra Titan cartridge. I used Audio-Technica cables and AdeptResponse power conditioners, and the gear rested on my Infinite Elemente Pagode rack.

I positioned the 12"-tall Harbeths 30" from the sidewalls, about 7" 6" from the front wall, and toed-in so their axes crossed at my listening position. The speakers sat on the same sturdy, sand-filled stands I use with the Audience 2+2s, with StillPoints under the stands and short Tiptoes between speakers and stands. The stands put the centerline of each speaker at about 36", which is the height of my eyes when I sit in my listening chair.

Who, What, When, Where, Why: In his August 2010 review, John introduced the P3ESR by noting that different aspects of reproduced sound are important to different people; some are willing to forgo deep bass, but can't live without the fine detail that lovingly paints a picture of the recording space. Others can live without ultimate loudness but insist on a flat tonal balance. For still others, it’s all about fast, clean dynamics, and if that’s associated with a cool tonal balance, so be it. And, as JA also noted, some are willing to give up a little bit of everything because of space and/or budgetary concerns, so long as most of it’s there and all is in balance.

Designing a sealed two-way speaker the size of a small shoebox and retailing for $2195/pair will entail some compromises. Because the LS3/5a was designed as an on-site monitor speaker for the BBC, the top priorities were small size, midrange clarity and detail, and timbral neutrality: The engineers in the broadcast booth had to hear exactly what was going on in the recording space? These goals resulted in a small sealed-box design and, as a consequence, low bass was sacrificed, as it has been in the Harbeth P3ESR. But as JA noted, other speakers may play deeper or louder, or might produce dynamics with more impact, the little Harbeths did a really great job of getting out of the way of the music.

I found this to be the case with recordings of smaller, more intimate performances. I cued up “Car on a Hill,” from Mitchell’s Court and Spark (LP, Asylum/Nautilus Superdiscs NR11), for example, and was again completely mesmerized by the realism engendered by the inner details in Mitchell’s voice and—especially—those of the backing singers. It was a refresher course in what high-end audio is about, and what it can accomplish when done well.

Another album whose reproduction by the Harbeths completely satisfied me was Yehudi Menuhin and Ravi Shankar’s West Meets East (LP, Angel 36418). The sitar, violin, and tabla all sounded tonally correct, with “in the room” presence. The Harbeths even did a credible job of reproducing Hepzibah Menuhin’s piano in Euesen’s Violin Sonata 3—although, admittedly, this work does not at all stretch the piano’s range. The P3ESR had a lighter, airier tonal balance than I remember hearing from the LS3/5a, and there wasn’t the phantom low- and midbass, but the overall balance worked well with West Meets East as it had with most of Court and Spark.

What’s Not There: With many recordings, however, I found the Harbeth’s bass shyness to be less satis

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1 For specific technical information regarding the Harbeth P3ESR, see John Atkinson’s review in the August 2010 Stereophile at http://tinyurl.com/65d57wc.
2 The P3ESR costs $2195/pair. Harbeth Audio, Ltd., 3 Enterprise Park, Lindfield, Horsham, West Sussex RH16 2LH, England, UK. Tel: (44) (0)444-484371. Fax: (44) (0)5600-756442. Web: www.harbeth.co.uk. US distributor: Fidelis AV, 14 E Broadway (Rt. 102), Derry, NH 03038. Tel: (603) 437-4790. Web: www.fidelisav.com.
3 For details of the LS3/5a’s design and evolution see John Atkinson’s 1993 review of the original Harbeth HL-13 at http://tinyurl.com/65kic69.
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Wolfgang Metzky, the man who founded MBL, has returned to the market with a new company ... Music Culture Technology, [which] brings German-made electronics and loudspeakers to moderate prices. I heard an absolutely fabulous-sounding system that included the MC 701 integrated amplifier ($4500), MC 501 CD player ($3400), and RL-2i stand-mounted speaker ($3300 a pair). These prices are a fraction of what [his previous] gear cost, but the products' look, feel and sound were decidedly upscale.

— Robert Harley, The Absolute Sound, April 2011
FOLLOW-UP

mg than more full-range designs, even ones without the P3ESR's incredible midrange clarity and detail. The arrival of Parasound's Halo JC 3 phono preamplifier, with its Stereo/Mono switch, had me pulling out some of my favorite old mono LPs. One was Holst's *The Planets* (LP, Westminster WLS235), with Sir Adrian Boult conducting the Philharmonic Promenade Orchestra and London Philharmonic Choir. The work spans a wide range of dynamics, tempo, and frequency, of course, and the power resident in this mono recording is incredible—usually. It wasn't quite so through the Harbeth. The celesta, woodwinds, and violins were all lovely, but with the double basses all but absent and even the cellos severely attenuated, much of *The Planets* just didn't work. JA admitted that the P3ESR had him playing recordings of smaller, more intimate works, as opposed to Mahler symphonies.

Nor would I recommend the P3ESR to someone whose tastes run to rock'n'roll. My beloved Johnny Rivers albums, chronicling several shows at the Whisky A Go-Go (LPs, Imperial LP-12264, -74, and -84), sounded intolerably thin through the Harbeths, and didn't have the incredible live feel that these albums normally do. Emmylou Harris, the Stray Cats, Lucinda Williams, Corey Stevens—these aren't huge, bass-driven recordings, yet all sounded thin through the Harbeths. As JA noted, "Low bass was missing in action, as was most of the midbass." And without them, none of these albums was as musically satisfying as I know it can be.

**But You Are There:** Where I found the Harbeths to be most successful, beyond the smaller sorts of works that John discussed, was with recordings in which location and ambience cues played a large role. Again and again, I found myself pulling out my favorite opera recordings, as much for the incredible ambience surrounding the singers as for the performances themselves. With perhaps my favorite—Alain Lombard and the Orchestra and Chorus of the Opéra-Comique's recording of Delibes' *Lakmé*, featuring Mady Mesplé (LP, Seraphim SIC-6082)—it seemed as if the hall was larger and more detailed than I'd heard in the past. It was like going from a stark, modern hall full of straight lines and hard surfaces to an elegant, baroque shoebox of a hall full of wood, tapestries, and ornate carvings.

The Harbeth's resolution of detail and midrange neutrality also resulted in richer, more completely assembled images. All of the singers in *Lakmé* had more body and presence than they do with most other, similarly priced speakers, and were more clearly and firmly located in the soundstage. Plus—and most important, given the Harbeth's heritage as a broadcast monitor—singers and instruments simply sounded more like themselves than like electrome-

and why the industry exists. On the other hand, the P3ESR's lack of low bass and most of the midbass disqualifies it, for me, as a speaker for a main system. With my musical tastes, I'd be better served by a more full-range, ported design—such as the Spiral Groove ($2600/pair and originally Sonics by Joachim Gerhard) Anima, reviewed by Wes Phillips in the July 2007 issue (http://tinyurl.com/6kwdxay); or, if I had the

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love & Blessings”?
“Questions for the 
Angels”? It seems that
Paul Simon, who will
turn 70 in October, has begun
to ask life’s Big Questions in
preparation for his own exit.
Yet in this case, seeming is not
reality, and at 69, Simon has re-
turned to his polyglot musical
influences (that he may or may
not have heisted...but that’s an
argument for another day) to
fashion a startlingly powerful
collection of songs that suc-
cessfully mix the jaunty near-
danceability of his world-music
adventures with serious lyrics
about impending death, the
vagaries of love, and, especially,
the many unlcnowables con-
tained in the word God.

Musically, So Beautiful or So
What leans on Simon’s wide
knowledge of and familiarity with the musics of Africa,
Brazil, and old-fashioned gospel. The rhythms of world
music in tunes like “Dazzling Blue,” dominated by the
Indian percussion of V.B. Madhusadan (tabla) and V.
Suresh-Ghatam (clay pot), are now so much a part of his
musical résumé that they sound more like archetypal Si-
mon than does “The Sound of Silence.” This incorporation
of, if not immersion in, world music has proved to be a
big latter-day influence on eclectic indie rock outfits like
Vampire Weekend. The easy world-music-lite vibe, while
breaking no new ground, still perfectly suits Simon and
these songs, which thankfully eschew the slick but ulti-
more obscure rambles of his last album, Surprise (2006),
which was anything but pleasant.

The most curious part of So Beautiful or So
What is the obsession with God. In the album’s anchor tune, “The Af-
terlife,” Simon’s wordplay is a near-perfect mix of the hu-
morous and the consequental, as he turns standing before
his maker—gettin’ right with God, as it were—into some-
thing akin to a trip to the DMV. The syncopated grooves and
hipster jive—even, near the end, the exclamations of “Be Bop
a Lula” and “Ooh Poo Papa Doo”—swing wildly between
pickup lines to a nearby corpse of the female persuasion to
more serious conclusions: “Buddha and Moses and all the
noses / From narrow to flat / had to stand in line / Just to
glimpse the divine / What’cha think about that? / Well, it
seems our fate / To suffer and wait / for the knowledge we
seek / It’s all his design / No one cuts in line / No one here
likes a sneak.”

Hints of/References to omnipotence hover behind the
strongest songs. God is named in the opening track, “Get-
ting Ready for Christmas Day,” for which Simon and copro-
derucer Phil Ramone, a longtime collaborator, brilliantly blend a
ghostly recording of a bizarre 1941 sermon in which the Rev-
erend J.M. Gates talks about Christmas in deathly terms—“I
may be layin’ in some lones-
some grave, getting ready for
Christmas”—with a pulsing mix,
and a narrative about a nephew returning to Iraq for a third tour of
duty. Cameroonian electric
guitarist Vincent Nguini lends
an African flavor to the rhyth-
mic vitality of this and several
other tunes. While the sound of
the album is passable and very
listenable, the overall dynamic
range has been reduced unnec-
essarily, the record being a little
more compressed than it ought
to be.

In the gospel rave-up “Love
Is Eternal Sacred Light”—backed
with handclaps, a pulsing flute sample from Grizzly Bear’s
Chris Bear, and a sample of a harmonica solo by Sonny
Terry (from 1956)—God even makes an amiable in-person
appearance, offering up such bluster as “Big Bang / That’s
a joke that I made up,” and a bit of timely social and artis-
tic commentary: “Check out that radio, pop music station
that don’t sound like my music to me / Talk show host,
what’s that boy’s name / Politics is ugly.” And in a flabby
and too-earnest ballad, “Love and Hard Times,” Simon slips
into love-song excess while going to the God well once too
often, in a song whose lyrical indulgences (“Just love, love,
love, love, love”) make it tired and clichéd.

Fortunately, there are moments when deities are nowhere
to be found, as in “Rewrite.” Here, Simon, virtuoso kora
player Yacouba Sissoko, and multi-instrumentalist Steve
Shehan (on tuned bass djenbe, bass talking drum, glass harp,
and other exotica) work up an acoustic groove reminiscent
of the best moments on Graceland.

For those for whom art can never truly be separated from
artifice, Paul Simon’s all-too-real portrayal of the slimy re-
cord exec Tony Lacey in Woody Allen’s Annie Hall, which
won the Academy Award for Best Picture in 1977, has be-
come his default image: shifty, shady, even a little mean. His
never-ending emotional wrestling match with Art Garfun-
kel, in which Simon somehow always seems to come off as
the bully, hasn’t helped much. It all makes for a fundamental
disconnect between art and artist that is nearly reconciled by
the still-peerless songwriting displayed here. Somehow,
that soft, friendly, lilting tenor, and these sweet songs about
love and death, paint a portrait that better fits a talent that,
along with Bob Dylan’s, has come to define the art of the singer-
songwriter.

—Robert Baird
TRIO MEDIAEVAl
A Worcester Ladymass

Anna Maria Friman, Linn Andrea Fuglseth, Torunn Ostrem Ossum, voices
DDD. TT: 51:00
Performance ******
Sonics ******

Even if the Chant phenomenon, which began in the late 1980s with the recording of some Spanish monks, was a new-agey, “Hi, I'm spiritual,” navel-gazing fad, it did pave the way for the recording of a remarkable amount of very old and simply breathtaking music. Would Anonymous 4 have been as popular without those monks showing up first? Hard to say. But I'd like to think that Trio Mediaeval—whose first disc for ECM, Words of the Angel, I reviewed in the April 2002 issue—would have been welcomed with open arms in a vacuum. There's always room for beauty.

The Abbey of St. Mary's Worcester, whence cometh The Worcester Fragments from which this mass has been assembled, was clearly a hotbed of musical activity in the 13th and 14th centuries; countless musical manuscripts were stored there. But in the 16th century, when Henry VIII wanted every last vestige of “popery” destroyed, the faithful tore them up (hence “fragments”), crammed pages into organ pipes, or used them to bind other books. What the Trio offers here is not a “complete” anything, but a reconstruction made up of individual pieces. As they explain in the all-too-brief liner note (remember, this is ECM; the listener is also expected to read Latin), they don't claim authenticity, which would be nonsensical and impossible.

One of the joys of such a pastiche is that it includes a mixture of styles: from intricate polyphony, to simple chant, to the vine-like creeping of different lines à la Machaut. And, of course, the true inauthenticity comes from the fact that the word Ladymass refers to the Virgin Mary, not the performers; save for the occasional gagle of nuns, women were not allowed to perform this music at all. Think of this, then, as a very spiritual form of heresy.

One more thing. As is their wont, the Trio Mediaeval has embraced the ethereal soundscapes created on albums produced by Daniel Lanois (Wrecking Ball) and his engineer, Malcolm Wheeler, asst. eng. AA07 TT: 53:04
Performance ******
Sonics ******

Always a great interpreter of other musicians’ songs, Emmylou Harris has now conquered the last musical barrier left to her in becoming a songwriter whose skills are audibly increasing. While Harris has written a few songs over the years, most notably her farewell to mentor Gram Parsons, “Boulder to Birmingham,” from her debut album, Pieces of the Sky (1975), her career was built on albums like Quarter Moon in a Ten Cent Town: gorgeous programs of impeccably selected covers. That pattern was broken in 2000 with the release of Red Dirt Girl, most of which Harris wrote. But where the songwriting on that album was journeyman-like, Harris has, over her past several records, honed her craft to the point where the songs on Hard Bargain have a much stronger grasp of melody, and a much sharper lyrical vision. This is displayed in “My Name Is Emmett Till,” about the horrendous killing and civil rights flashpoint, which inspired songs by, among others, Bob Dylan. As Harris sings here, “The awful desecration / And the evidence of hate / You could not recognize me / The mutilation was so great.”

Just as he inspired “Boulder to Birmingham,” Parsons is back as the shadowy presence behind this album’s opener, “The Road.” Every singer-songwriter, it seems, has to at some point write his or her paean to the almighty road, and Harris’s take, one with an electric-guitar-and-drums rock edge, is a worthy addition to the canon. The rock element returns in another strong Harris tune, “New Orleans,” which again mines the Katrina disaster, the 21st century’s most fertile songwriting vein. The clip-clop rhythms of “Big Black Dog” are a perfect fit for a song based on Harris’s well-known affection for canines.

Having grown attached to hearing her voice double-tracked, often heavy with echo, and placed at the center of the ethereal soundscapes created on albums produced by Daniel Lanois (Wrecking Ball) and his engineer, Malcolm Burn (Red Dirt Girl, Stumble into Grace), Harris, who by now is really her own producer, re-creates those quavering, multilayered settings with help from the talented duo of Nashville multi-instrumentalists Jay Joyce (listed as producer) and Giles Reaves. Despite a little too much thump on the bottom end, the sound of Hard Bargain is rich and detailed, with the standard disclaimer: for a modern rock record.

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perfect. Behind the three women's voices is silence—clear, honest, and respectful. This is a must.

—Robert Levine

.record reviews

EMMYLOU HARRIS
Hard Bargain

Performance ******
Sonics ******
Emmylou Harris's staying power as an artist is extraordinary. Not only do her creative fires continue to glow with new energies, but her drive to improve as a songwriter—a very different skill that must be learned rather than inherited, like a voice—is a hill many artists her age would never climb. And finally, there is that voice—a tad lower and with a darker timbre than in the past, but better now for the sage ways she uses its expressiveness. Long may she run! —Robert Baird

**Nine Lives: A Musical Adaptation, Volume 1**

by Colman DeKay & Paul Sanchez, based on the novel by Dan Baum

Mystery Street No catalog number listed/ (2 CDs). 2011. Paul Sanchez, prod.; Wes Fontenot, Mark Bingham, engs. DDD. TT: 89:30
Performance *****
Sonus ****

New Orleans' musical renaissance, so well documented in the HBO series *Treme,* has reached its apotheosis with this expansive project. Paul Sanchez, a versatile singer-songwriter who performs in dozens of different contexts around New Orleans with many of his cohorts, joined forces with lyricist Colman DeKay and several local musician buddies to write 40 songs based on Dan Baum's bestselling novel, *Nine Lives.* Sanchez then enlisted over 100 musicians to realize this dream, and they took this three-ring circus into Piety Street Studios, where Sanchez—abetted by engineer Wes Fontenot and resident master of mixology Mark Bingham—proved an able ringmaster.

Baum's novel is tough to boil down into a musical because it concentrates
less on narrative than on character development and point of view. The book focuses on nine disparate citizens of New Orleans as they experience life in the years framed by two hurricanes, Betsy (1968) and Katrina (2005). Nine Lives Vol 1 presents the characters singing a little more than half the songs written for this adaptation. DeKay and Sanchez, who used Baum’s own words to unify the script, wisely chose to record these songs before mounting a stage production; this allowed them to concentrate on realizing each song as fully as possible, without worrying about enforcing a narrative. The result works more as a great series of songs about New Orleans than as a souvenier cast album of show tunes.

The singing alone would make this recording a standout. John Boutté opens the proceedings with “Fine in the Lower Nine,” a slam-dunk anthem that will make history as this production’s musical brand. Along with Treme star Wendell Pierce, Boutté rolls out the sing-along R&B chorus about country life in the lower Ninth Ward in 1965. “We’re in our blue heaven,” goes the out-chorus, in reference to local resident Fats Domino, “down on Deslonde Street.” Given the devastation that was eventually visited on this neighborhood, it would be impossible to write this song today in any other context—but as a piece of theater documenting a way of life a half century ago, it makes perfect sense.

Boutté also sings on the finale, “Rebuild Renew,” and contributes two songs, “Feel Like a Lady” and “To Be Continued.” Other members of this talented family—Lillian, Tricia, Peter, and Tanya Boutté—also have key roles on Vol. 1. Sanchez, in the role of Dr. Frank Minyard, sings most of the songs and thus provides a strong continuity, Shamarr Allen, who writes, sings, and plays trumpet, also produced two of the album’s important tracks, “House of Dance and Feathers” and “We Are the Band.” He is an invaluable resource—like another group to which Wild Beasts have been compared, 1980s ambient post-rockers Talk Talk), and Smother is ultimately as maddeningly multifaceted as its subject.

And, like a torrid love affair, the album is over far too quickly. The elegiac closing track is even titled “End Come Too Soon,” a sentiment that Thorpe’s yearning, operatic falsetto appears to echo even as airbrushed guitar and a tingly piano motif push toward the inevitable denouement. On paper, this may all seem precious and grandiose, but strong emotions sometimes need to be accompanied by an equally strong soundtrack. There’s nothing over the top about Wild Beasts: they make every gesture, every nuance, every flourish count.

—Fred Mills

WILD BEASTS
Smother

Performance ****
Sonic ***

Just as Arcade Fire’s magnificent The Suburbs pried open your latent inner teenager, making you celebrate mis-spent youth even as you pined for what might have been, Wild Beasts’ third album idealizes the eroticism and sensuality of love—its memory, that is, and its resulting amplified intensity. Across 10 expansive, immaculately crafted tunes, Smother burns hotly, its protagonists lusting, coupling, whispering, challenging, screaming, lying, cheating... leaving.

The English quartet, which formed in 2004 and has since amassed an impressive résumé (2009’s Two Dancers was nominated for a Mercury Prize), plies its art-rock trade via shimmering, guitar-and-keyboard-powered melodies, undulating rhythms, and a healthy appreciation for space and dynamics in alternately widescreen and vertigo-inducing arrangements. With singer-guitarist Hayden Thorpe’s keening, soaring voice to the fore, comparisons with Arcade Fire become inevitable; there’s a similar sense of uplift and urgency at play that links these Brits to those same Canadians. Sprinkle in some subtle touches as Beach Boys–styled harmonies (prominent in the lush “Loop the Loop”), hints of motorik percussion (“Bed of Nails”), and even jazzy cabaret (“Playing” sounds unconsciously like another group to which Wild Beasts have been compared, 1980s ambient post-rockers Talk Talk), and Smother is ultimately as maddeningly multifaceted as its subject.

Jazz

COLIN STETSON
New History Warfare Vol.2: Judges

Performance ****
Sonic *****

Colin Stetson is a young horn player, and a touring member of Bell Orchestra and Arcade Fire. While his main instrument is the bass saxophone, Stetson seems just as comfortable and confident with flute, clarinet,
bass clarinet, cornet, and French horn. Onstage and in the studio, he's worked with Tom Waits, Bon Iver, David Byrne, LCD Soundsystem, Jolie Holland, and Sinead O'Connor, to name a few—evidence of his skill, versatility, and dedication. Though lines can be drawn to the gutturual wail of Peter Brötzmann, the drunken wheeze of Archie Shepp, even the incendiary guitar work of Jimi Hendrix, Stetson's technique and tone are unique, uncommonly ferocious, and often as confounding as exhilarating.

Before venturing into Judges, Stetson's second solo album, it's important (and fascinating and heartening) to know that, aside from a bit of lovely French horn on "All the Days I've Missed You," and vocals both comforting (My Brightest Diamond's Shara Worden on two tracks) and utterly unnerving (Laurie Anderson on four), each of the album's 14 pieces was recorded live, in a single take, with no overdubs or loops. Keeping that fact in mind while listening to the album only makes Stetson's achievement more admirable—and less believable. How does he make these sounds?

Twenty-four microphones were placed throughout the studio, on and inside Stetson's sax, and on his throat, to capture his every touch and breath—he cries, humming, and chants through his horn, and employs circular breathing, slap tonguing, and multiphonics with apparent ease and to thrilling effect. The listener hears an entire orchestra where there is only one musician, percussion where there should be none, electronics where there are only human muscle and breath. Stetson is something of a human beatbox, a one-man band.

The themes throughout Judges are large—questions of war, love, and home seem to flow from the album's every breath and pore. When Laurie Anderson offers spoken-word performances, as in the nerve-racking "A Dream of Water"—or in the title track, in which she asks, with startling presence and clarity, "What war is this? What town could this be?"—she is in the room with the listener, pointing out the cracks in the listening-room walls.

We have Stetson and talented multi-instrumentalist Shahzad Ismaily to thank for the album's stunning resolution and dynamic range. Revel in Shara Worden's reading of "Lord, I Just Can't Keep from Crying Sometimes," so rich in human breath and feeling it's painful. But it's the album's penultimate track, "Fear of the Unknown and the Blazing Sun," that offers the greatest joys: Listen as Anderson explains, "Of all the wires, it was the wires that were the wires for empathy that we loved beyond all the others," and as Worden sings of heartbeats, hands, and sound, and as Stetson rumbles and churns from left channel to right, seeming to pulse from the listening room's very walls.

This is in many ways a challenging record, but its rewards are great. Indeed, Colin Stetson seems most interested in defying boundaries—those of musical genre as much as those of the human body.

The album jacket, printed on 100% recycled, clay-coated newsback, houses a quiet slab of 180gm vinyl, a limited-edition poster, and a gorgeous screen-printed insert. But digital aficionados, too, should opt for the LP: It includes a CD of the complete album. Does life get any better?

—Stephen Mejias
JERRY RASKIN'S NEEDLE DOCTOR

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Bryston BDP-1 Digital Music Player

Editor:
Thank you for the thorough and insightful review of the Bryston BDP-1 Digital Music Player [in the June 2011 issue]. Although the exact future of high-resolution digital music formats is far from established for the long term, we felt that the ever-expanding library of available music and the vital interest surrounding "hi-res" downloads was compelling enough for Bryston to design and manufacture the BDP-1. Enthusiast interest in the product has been fervent and global, indicating that audiophiles are indeed exploring high-resolution digital music. Hopefully this will lead to a broadening of the audience for the entire high-performance category, and entice consumers of all ages to explore high-resolution music systems. Additionally, all of the necessary instructions for firmware upgrades are indeed now available on the Bryston website, as stated in the review. One final point: To be fair, the Music Vault 4000 actually worked pretty well—it was the soundcard causing the dropouts and crashes at CES 2009.

James Tanner
Bryston Ltd.

Ayre Acoustics K-5xeMP

Editor:
On behalf of the entire Ayre team, we would like to thank John Atkinson for his thoughtful review of the K-5xeMP [in the June 2011 issue].

John's review of the K-5xeMP is quite timely, considering his recent exposure to our KX-R preamplifier as well as another "cost-no-object" preamplifier. We are very happy that he found our "relatively affordable" K-5xeMP worthy of being placed in the same category, Class A, as the KX-R. Based on the current "Recommended Components" listing, the K-5xeMP will be the least expensive preamplifier with a Class A rating.

One of our primary design directives at Ayre is to find creative ways to improve the sound of our products rather than merely using more expensive parts. The "MP" upgrade to the K-5xe is a perfect example of how our design philosophy works, and the reason an affordable product designed

10 years ago is still able to offer world-class performance today, after only two low-cost updates. Another requirement of all Ayre products is that they be hand-assembled in Boulder, Colorado, ensuring the highest level of build quality for a lifetime of enjoyment.

All over the world, owners of the K-5—a product that has had a successful lifespan of nearly 10 years (with many more years to come)—already know how good it is. However, not everyone is aware that, for a nominal charge, any earlier version may be returned to the factory for a complete upgrade to the current-production K-5xeMP. I have a feeling we will be doing quite a few of these updates in the months ahead.

"It's the music that matters, of course ..." We couldn't have said it better ourselves! Thanks again, and keep up the important work.

Brent Helley
Ayre Acoustics

Rethm Trishna

Editor:
If the Trishna reminds Sam Tellig of the Quad ESL-57, then it's tempting to simply leave that accolade alone. Yet such brevity would be a disservice—as the Trishna, along with its newly designed siblings, are our most musically accomplished speakers to date. The departure from a Lowther drive-unit and its replacement with our custom midrange drivers is perhaps the most significant development. And the incredibly fast and fully active woofers take the Trishna to a new level of realism. The immersive quality and emotional surrender to music is what we strive for in our speakers, and how gratifying for us that Sam acknowledges this in his review. So our sincere thanks to Sam for having taken an interest in the Rethm Trishna, for requesting a review pair, and for doing a meticulous job of listening to them and communicating his insights so effectively. And we thank Stereophile for publishing the review.

Jacob George, Rethm
Gideon Schwartz, Audioarts

Amarra

Editor:
We are pleased that Stereophile has reviewed Amura alongside other computer audio players and recognized our superb signature quality. Our new 2.2 release for three of the four members of the Amura family is now available; Amura Vinyl is at v.1 for now. In the latest release, we've retained the fidelity and functionality while eliminating the iLok hardware security. We've also added uninterrupted playback during the entire 15-day trial period.

Mr. Dudley mentioned Amura Mini as the least expensive. However, the new—96kHz-capable Amura Junior, at $99, delivers the same luxurious sound as her two big sisters. In v.2.2, Amura Mini is now 192kHz-capable, while Amura now works with a new crop of 384kHz DACs.

Please note that only Amura Junior is dependent on iTunes. Amura and Amura Mini can operate autonomously in Playlist mode without any iTunes help.

Mr. Dudley correctly points out that Amura is widely used by many companies to showcase their own equipment. Top-tier manufacturers do depend on Amura for its fidelity and analog-like sound, which we've worked very hard over 20 years to achieve. Thank you for your comparison of all three products, and we look forward to hearing more from Stereophile and your readership about new computer-music discoveries.

Jonathan Reichhach
Sonic Studio

Channel D Pure Music

Editor:
Considering that Pure Music has been graced with overwhelmingly positive reviews in print and online publications, plus praised in many Internet forums, it was disconcerting to learn that the first (that I'm aware of) putative comparison review between Pure Music and other products was apparently conducted with less than anticipated fairness and care. I'm surprised, because Mr. Dudley's reviews usually strike a higher level on the diligence scale.

Though the developers of the other products were contacted by Mr. Dudley and even quoted in the article, Channel D wasn't. This can't
be because we're inaccessible. Other Stereophile editors have no problem contacting us. We're also one of two companies in the player review that publishes a telephone number for free customer support. Any overflow calls bounced to our voicemail will be returned; however, we have no record of a call or message from Mr. Dudley, nor did his name turn up in a search of customer-support e-mails. (Regarding support: Since price was one player's "only real drawback," he neglected to mention the significant add-on cost of that product's per-incident or annual support after 30 days; nor did he mention that telephone support isn't available for the $33 product.) This is unfortunate, because misconceptions (including those involving feature parity) in the review easily could have been addressed, and this seems irresponsible given the comparative review format.

As Mr. Dudley could have learned, the only "quirk" he solely dinged Pure Music for was a logical consequence of the design. First of all, Pure Music plays the music track, not iTunes. If iTunes indicates a "play" state, iTunes must be playing the track. Are we in agreement on that? And second, does playing a track twice to play it once seem like a sensible design? Not to us, but it's true of the most expensive player, because both it and iTunes seem like a sensible design? Not to us, but it's true of the most expensive player, because both it and iTunes play the track at the same time. Pure Music is designed to show whether it's paused or playing in other ways.

Early on, Mr. Dudley states that all three products "work with" iTunes. I think most would presume this means work via the iTunes user interface. Two of the products accomplish that, to different degrees. This is a feature, not a limitation, something he seemed unsure of. Ours does so in a novel way with extremely low system overhead, operating within Apple programming guidelines using fully documented APIs for future compatibility.

Since we weren't also given the chance to comment on what influences the sound quality, I'd like to do so now. It's much more complex than just using double precision floating point (something Pure Music's sister product, Pure Vinyl, had been doing for many years). Floating point is only critical for DSP operations (g, volume control, upsampling, signal-processing plug-ins), and needn't be elevated in status to either mystical pursuit or rocket science. Floating-point/integer conversion is well understood, accomplished with a few lines of code, is lossless, and is completely reversible. A software developer should know that these aren't major selling points. (There is a way to eliminate floating-point conversions entirely for certain DACs, and this feature is now being tested in Pure Music.) Finally, it's impossible for an OS X application to completely "bypass" Core Audio. Those interested in a different perspective are invited to view the video containing my comments as part of the "Advances in Computer Audio" panel discussion, available on the Rocky Mountain Audio Fest website (http://audiofest.net).

An unanswered question is: Was the listening evaluation performed rigorously, given the superficiality accorded Pure Music in the rest of the review? Fortunately, these products are software, not hardware, so that question is mostly moot. Evaluation demos can be downloaded (in at least one case this might be easier said than done, but please persevere) and tested in the comfort of your own listening chair, so the reader isn't solely dependent on a reviewer's opinions. Without getting into the specific reasons why, take care to restart the computer between testing different players. Then you will be able to reach your own conclusions.

**Ayre Acoustics QB-9**

Editor:

Our sincerest gratitude to Mr. Dudley for a well-written column on computer-based audio and its many subtle aspects. We heartily agree with his statement: "everything matters." To simplify all of the variables involved, we have included a straightforward setup guide on our website (www.ayre.com/usb.htm) for both Windows- and Apple-based machines.

We were pleased to read Mr. Dudley's apt description of the subtle and not-so-subtle differences he distinguished between the pieces of software and hardware. We don't fully understand some of the mechanisms involved, but we also can hear those same differences.

We are also grateful for the fact that he was able to ultimately draw a direct comparison between USB and ethernet DACs, once both were configured appropriately. And we are of course happy to hear that the QB-9 helped Mr. Dudley "reach the same performance heights as with the ... Linn."

Configuring the ethernet DAC for proper operation entailed replacing many major components of Mr. Dudley's computer system. In contrast, elevating the performance level of the USB DAC merely required using a shorter cable and different playback software.

Once again, thanks from all of us here at Ayre to Mr. Dudley for his relentless pursuit of the truth!

Alex Brinkman
Ayre Acoustics

**Sony SS-AR1**

Editor:

Sony would like to thank Stereophile for its thorough review of the SS-AR1 loudspeaker. While the AR1's set-up requires careful calibration and tuning, as the review by Kal Rubinson and John Atkinson suggests, the results justify the effort. We strongly urge your readers to visit one of our dealers and audition the AR1s for themselves.

Michael McCole, Marketing Manager
Sony Electronics Inc.

**Audience ClairAudient 2+2**

Editor:

We would like to extend our thanks to Stereophile for Brian Damkroger's fine review of the ClairAudient 2+2 loudspeaker. The ClairAudient line of speakers was many years in the making, involving painstaking development of the unique full-range A35 driver. Brian pretty much hit the nail on the head in his detailed review, which highlights the finer aspects of this innovative design. Phrases like "tightly correct," "harmonically rich throughout the midrange," and "addictive" are all very similar to the feedback we hear when presenting the ClairAudient 2+2 speakers. While John Atkinson's measurements show some anomalies, the fundamentally different nature of the 2+2's design almost guarantees a different outcome from that of a conventional speaker. For example, midrange suckout is characteristic of a bipole design. A null will always be present somewhere in the response when the wavelength is exactly twice that of the distance from the front to the rear speakers, where you get cancellation. However, this is not a concern at the listening position.
What we are puzzled by is John's mention of midrange hardness, which hasn't been our experience with this product. The overwhelming response we hear from people is how smooth and relaxed the speaker sounds, even when reproducing brass instruments. Our apologies for misdirecting Brian by recommending the obsolete (conventional speaker) speaker-placement calculator, which was a holdover from earlier days. Our bipole speakers do much better at bass when closer to the wall.

Again, we would like to express our heartfelt thanks for the fine review.

The Audience Team

Wharfedale Diamond 10.1
Editor:
On behalf of Wharfedale USA and designer Peter Comeau, a sincere thank-you to Robert Reina for putting the Diamond 10.1s through their paces. We're thrilled that our little pair of $350 speakers could provide so much musical enjoyment.

Thanks to John Atkinson for the measurements, and a shout out to "The Kid" (Stephen Mejias) for getting the ball rolling for the full review.

Ypsilon PST100 Mk.2
Editor:
We would like to thank Mr. Fremer and Mr. Atkinson for the time they took to create this wonderful review of our PST100 Mk.2 preamplifier. We are very pleased with what Mr. Fremer wrote in the review. There is nothing to add or alter in this review; Mr. Fremer portrays in a unique way the essence behind this product. One can ask nothing more than the statement in the last paragraph.

In our opinion, a high-level product should have immaculate sound and matching measurements. Since the PST100 Mk.2 has the transformer attenuator after the active gain stage (post-attenuation), it makes sense to measure distortion with various loads and noise, not only with the volume set to maximum.

The noise figure of —84.6dB (72+12dB in unbalanced connection) is further reduced by the dBs of attenuation. For instance, in step 26, where the attenuation is 15dB, the noise floor will drop to ~99.6dB. Also, the spectra of this noise are not power-supply spuriae. The tubes are operated with AC (60Hz) heaters, since this sounds the best. The graph in fig.2 shows this 60Hz and multiples of it, instead of 120Hz and its multiples if it were from the power supply.

The PST100 Mk.2 provides only unbalanced inputs and outputs; the XLRs are there just for convenience. For amplifiers that require a balanced signal, we offer our BC1 unbalanced-to-balanced transformer.

The output impedance of the active stage, correctly measured, is around 600 ohms. This is true, however, in only maximum step 37. When measured in lower steps, this figure will go lower. For instance, in step 26, where the attenuation is 15dB (divided by 5.62), the 600 ohms is divided by 31.6, and for a result of 19 ohms. Even at very high levels—in step 32, for example—the output impedance will be lower than 200 ohms. So the...
preamplifier practically keeps a very low output impedance in both passive (when driven with low impedance) and active (in the usual listening steps) mode.

The fig.1 frequency response is correct, and reflects the response of the output transformer in the active gain stage. The peaks of 3.5 or 4dB at 80kHz are because of the combination of the leakage inductance of the transformer with the winding capacitance. These could easily have been flattened out with a corrective R-C network. However, we didn’t use it because this heavily loads the tube, and the sound would be have been affected. But, as Mr. Atkinson states, these peaks are inaudible.

Regarding the low-frequency distortion of the transformer attenuator in fig.4, we think that this is very good performance; 0.35% at 40Hz and 0.5% at 20Hz are great figures. It could have been lower if the already big transformers had been bigger, but that would have compromised the high-frequency extension, which is quite impressive as measured by Mr. Atkinson: flat to 200kHz. To be fair, though, the attenuator measures like that in high volume-control steps. In lower steps it is always flat to 100kHz, which is also very good.

Concluding, Mr. Atkinson states that balanced operation is offered as a convenience. Actually, the PST100 Mk.2 is a single-ended design with no balanced operation at all. And this choice in the design was taken purely after listening.

Demetris Backlavas
Ypsilon Electronics

USB & Rega DAC

Editor: I just received the May Stereophile and was dismayed to read, in Sam Tellig’s column, “Sam’s Space,” Rega’s Chief Engineer, Mr. Terry Bateman, make comments regarding USB audio that were not merely disparaging but downright misleading.

He begins by opining that USB is not “a high-tier audio interface” because he examined some studio equipment and didn’t find any USB connections used. A curious observation, akin to driving by peering in the rear-view mirror. And he seems to go downhill after that.

Mr. Bateman discusses various modes of audio transmission allowed under the USB specification. He makes a grievous error by assuming that the opposite of an “asynchronous” USB DAC is a “synchronous” USB DAC. While it is true that the USB specification allows for a synchronous connection, this mode is intended only for sending audio data to the computer. (It allows a constant amount of audio data to be transmitted during every polling interval, typically 1 millisecond.) Instead, all USB DACs can essentially be separated into two categories: asynchronous and adaptive.

As we shall see, in the case of USB DACs, the opposite of “asynchronous” is “adaptive,” not “synchronous.”

He goes on to invent a scenario for a “synchronous” USB DAC, “where the DAC is completely controlled by the computer.” Mr. Bateman claims that, in contrast, the Rega redocks the incoming datastream “on the fly,” and that the result is exactly what is achieved with asynchronous USB DACs. This latter claim is incorrect. In fact, the Rega DAC operates in adaptive mode when using the USB input. And yes, in adaptive mode “the DAC is completely controlled by the computer.”

Unlike an asynchronous USB DAC, the master audio clock in an adaptive USB DAC must be variable in frequency. (This allows the unit to adapt to the timing variations in each computer.) But if all else is equal, a variable-frequency clock will always have higher levels of jitter than a fixed-frequency clock.

Furthermore, the timing of the audio data packets sent by the computer is affected by nearly everything in the entire system, from the computer’s power supply, to what other programs happen to be running, to the variables in grounding between the computer and the DAC, and much, much more.

With an asynchronous DAC, these timing errors are absorbed in a small buffer and the audio data are clocked out by the local master audio clock. The DAC is in charge of the entire system, and the computer is slaved to it. (Now one can see why “adaptive” is the opposite of “asynchronous.”) But an adaptive USB DAC, like an S/PDIF DAC, can only attempt to filter out some of the jitter in the incoming signals. Some units have more complex (and more expensive) filters and can filter out more of the jitter. But it is not possible to filter out all of the jitter and still play the data in real time.

It is truly unfortunate that a company with the (well-earned!) stature, visibility, and longevity of Rega has chosen to disseminate inaccurate and misleading information regarding computer audio. I would suggest that they would be ahead of the game to do as they have done with their turntables: avoid simple “off-the-shelf” solutions, roll up their sleeves, and tackle computer audio in a serious way. As the world of high-end audio makes a transition to a new paradigm of high-resolution digital audio available via the personal computer, what are needed are more clarity, more accurate information, and more “high-tier audio” products.

Charles Hansen
Ayre Acoustics

Harbeth P3ESR

Editor: Once again we would like to thank Stereophile for their consistent and thoughtful coverage of our products. Brian Damkrogger’s update on the Harbeth P3ESR loudspeaker came as quite a surprise when the preprint copy arrived unexpectedly in our inbox. The P3ESR has been a major hit internationally, with thousands sold and many superlative reviews, including Stereo Sound’s (Japan) prestigious Grand Prix Loudspeaker of the Year Award.

Many longtime LS3/5A users have finally put this classic out to pasture in favor of the more articulate sound of the P3ESR, which is essentially a drop-in replacement with nearly identical dimensions. One must still be reminded that the P3ESR has limitations, as any shoebox-size speaker does, and that it was never intended to play large-scale orchestral music at full crescendo. It was designed to perform best in smaller spaces (say, 8’ by 14’ by 17’ or less), and has found great success in nearfield and desktop applications, as well as when augmented by a subwoofer for greater dynamics, etc. The 7.5’ (out from the front wall) location that BD chose will not be ideal for achieving a balanced sound in most rooms with this speaker. Generally, we recommend 3–4’ as a maximum distance from wall boundaries, as this closed-box design will benefit from the room gain that this type of placement provides.

Walter Swanson
Harbeth USA–Fidels


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E ven in a town full of songwriters, he stood out. It may have been his attachment to one of mankind's most ver
tsatile miracles. "He was this big, hulking guy covered in duct tape," says Louis Black, editor of the Austin Chronicle, with no hint of a smile, in director Kevin Triplett's Blaze Foley: Duct Tape Messiah, the new film about Foley's life. But while his duct-tape ties, hatbands, and guitar straps brought smiles or puzzled stares to a lot of Texas faces, Foley's songs—particularly his best known, the heart-wrenching "If I Could Only Fly"—often inspired tears.

By any measure, Foley, born Michael David Fuller, had a hard life, some of it due to his alcoholic father, who sold the canned goods his family earned as a Pentecostal gospel singing group to buy liquor. But Foley could also be his own worst enemy; by the time of his death, he'd managed to have himself 86'ed (thrown out) out of half the bars in Austin. "He could pull the rug out from under himself," says his former wife Sybil Rosen, with whom he lived in a tree house in Georgia in the late 1970s.

"Any time anything got going good, he would figure out a way to f**k it up," says guitarist Gurf Morlix, who in the mid-1980s let Blaze sleep on his couch for "four or five years." Morlix, best known for the years (1985-96) he spent arranging, producing, and playing on the albums of Lucinda Williams, this year released an excellent collection of his covers of Foley's tunes, Blaze Foley's 113th Wet Dream. He's also become something of an ambassador for the eccentric Texas troubadour, who died in a tragic shooting in 1989, at the age of 39. Mixing his new album with pieces of sadness, humor, and ultimate redemption, it tells the tale of Foley's life through interviews and the clever, judicious use of rudimentary but colorful animation.

A rough and ready character who could be charming and antagonistic with equal ferocity, Foley knocked around Texas. He was a drinking buddy of Blaze's. This guy who had a son who was a junkie, I guess, and he was stealing his father's welfare checks, and beating him up when he didn't have any money. Blaze just wasn't gonna stand for this. I think Blaze had beaten the kid up one time with an axe handle or something. There was a peace bond out against him, but he wasn't allowed to be over there. It was like two doors down from where he was staying in this house in South Austin. The kid came home at five o'clock in the morning one night, and Blaze was sittin' in there drinking with the old man, and the kid shot him.

The son got a good lawyer and was acquitted of first-degree murder, claiming self-defense. Although the film recounts all of this, it ultimately focuses on Foley's happier, quirkier sides. Back on the rooftop in Austin, Gurf Morlix, too, comes back to Foley's rascally spirit.

"He came out to visit me in L.A. one time, and this band I was playing in had a Nike endorsement. We had an appointment to visit Nike, and Blaze said, 'Do you think they'll give me some shoes?' I said, 'Come along and see if you can charm 'em.' He had these falling-apart cowboy boots, and he cut Nike swooshes out of duct tape and put them on the sides. He walked into the Nike office and said, 'How about a new pair?' "They loved it."
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