Stereophile
March 1994
$6.95 US $7.95 CAN

Audio Alchemy's
DAC-in-the-Box

Surround-Sound
Special Report
The Audio Future

Apogee Mini-Grand Speakers
ADCOM DAC:
A $750 Standard
Theta CD Transport
Sibelius Symphony 2
Manhattan Vinyl

Quality
$199 & Value

WorldRadioHistory
aragon 18k preamplifier
the value of music

An informed and rational consumer makes purchasing decisions based upon quality and value. Aragon's new 18K preamplifier was created for this person. The 18K was engineered for the person who understands that musical reality does not come from marketing hype, and quality is not determined by the number of switches on the front panel.

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aragomps
Robert Hatley and I were walking down Brooklyn’s Flatbush Avenue trying to remember where we’d parked our rental car. We were in town for last Fall’s AES Convention, and had just had dinner with Stereophile record reviewer Beth Jacques.

"Excuse me, can you lend me $10?" The man in front of us seemed genuinely distressed. "My mother’s been rushed to the hospital and my car’s stalled and I need the cab fare to see her."

We must have looked skeptical. "I only need $10. If you give me your address I’ll send you a check."

The story was intriguing, if farfetched. I gave the guy Stereophile’s address and a $10 bill. The night was warm; we stood there for 10 minutes as he told us more about his broken car, his mother’s accident, the hospital’s awkward location.

It must have been a scam; the man was well-dressed, well-spoken, and we were only two blocks from a subway stop. Or was his story for real? Were we being hustled? After all, he was going to refund my $10.

Whatever, I didn’t mind giving him the money—he was a good storyteller, and the price was about right for the entertainment he’d given us. It was a pleasant cap to what had been a very pleasant evening. I’m still waiting for the $10.

So what does all this have to do with audio?

At the recent WCES, I was on a panel that was asked to discuss the future of the High End. Some commentators were emphatic that that future will involve a marriage between audio and video. It’s true that most high-end audio dealers are delving heavily into Home Theater. And in this issue of Stereophile, J. Gordon Holt writes—as powerfully as only he can—that the future of domestic music reproduction will include surround-sound. JGH has no doubts: "As long as we remain stubbornly committed to two-channel stereo, further advancement in reproduced realism just won’t happen."

I disagree. I suspect stereo reproduction will continue to dominate the listening experience for some years to come. Yes, I have found that the experience of watching a movie on a direct-view TV monitor is dramatically improved if the stereo sound is fed through a high-end audio system.

But listening to music is a different experience. As long as there are music lovers, there will always be a High End.

Jack English doesn’t necessarily agree, and he explained his reasons in his January "R.I.P." article. Others say that the gap between mid-fi and the High End has narrowed so much, you no longer need to spend much money to get satisfactory sound. Others would add that, since the introduction of digital technology, the High End has lost its mystique and its reason for being.

I could put together a pretty good 1994 system for $2300—a pair of Snell Type E/III speakers ($990/pair) driven by an AMT 3030 integrated amplifier ($900), plus a Rotel RB955BX CD player ($449) — for a total of $2339, again not including cables or stands. So why does everyone feel that high-end audio systems are so expensive compared with 25 years ago? Partly because of the explosion in the last five years of very expensive components, I suspect. I suffer increasing ennui every time I explore a CES, listening to another speaker or amplifier that costs more than a car. Back in the ’60s, a really esoteric pair of speakers, like KLH 9 electrostats, cost about $1500/pair—half the (then) average price of a GM car. These days, I can think of seven speaker systems costing more than $50,000, and there’s a myriad that cost more than the $6250 those KLHes would cost today (now less than 50% of the average car price).

Another reason is that, as inflation nibbled away the value of the dollar in your pocket, mass-market audio-equipment manufacturers obligingly kept their dollar prices relatively constant. Of course, they had to throw away pretty much all the quality. So while 1969’s $549 system might still be working today, it’d be a wonder if this year’s $800 rack system is working five years from now. But who would care? It sounds dreadful right out of the box.

The damage: The public’s perception of how much high-quality sound should cost these days is based on 1969 prices, not 1994 ones. And it’s perception that counts, not the reality of what quality costs.

While talented designers may benefit from designing cost-no-object components, the real challenge for an audio engineer is to produce a musically satisfying, technically competent product that will sell at a quarter-century-old price. That’s why I’m excited by products like Audio Alchemy’s DAC-in-the-Box reviewed in this issue—they bring the price of admission to the High End closer to the ordinary person’s perception of what he or she should be paying for that ticket.

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Stereophile, March 1994
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John Atkinson on how the High End needs to widen its appeal.

9 LETTERS
Topics this month: CD transports and — you guessed it — jitter; 20-bit digital recorders; single-ended tube amplifiers; recent reviews of the Jadis JA 200, Sonic Frontiers SFD-2, and Merlin Excalibur II; and Stereophile's new size and look — has our content changed?

36 INDUSTRY UPDATE
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Barbara Jahn listens to Sibelius's Symphony 2 on silver disc.

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The information contained in this chart has been sourced from manufacturer brochures, reviews and physical examinations. It is accurate to the best of our knowledge. Sonic Frontiers, Inc. makes no warranty, either expressed or implied, as to the accuracy of this chart. Manufacturer specifications are subject to change. Contact them directly to confirm.

## Tube Line Stage Preamplifier Comparison Chart

<table>
<thead>
<tr>
<th>Features</th>
<th>SONIC FRONTIERS SFL-2</th>
<th>conrad-johnson Premier 10</th>
<th>Audio Research LS-S</th>
<th>Jadis JPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detachable Power Cord</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Discrete Attenuation (Volume)</td>
<td>yes (44 positions)</td>
<td>no (33 positions)</td>
<td>no (cond. plastic pot)</td>
<td>no (cond. plastic pot)</td>
</tr>
<tr>
<td>Balanced Circuitry</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Single-Ended Circuitry</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>All Tube Signal Processing</td>
<td>yes</td>
<td>yes</td>
<td>no (cap comp in feedback loop)</td>
<td>yes</td>
</tr>
<tr>
<td>Direct Input Mode</td>
<td>yes (balanced &amp; single ended)</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>2 Channel Design</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>yes</td>
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<tr>
<td>Dual Mono Construction</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
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<tr>
<td>&quot;Record Off&quot; Feature</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
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<tr>
<td>Switchable Phase Reversal</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Zero Loop Feedback (phono)</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Turn On Mute</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Standby Mode</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Soft Turn-On Power Supplies</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
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<tr>
<td>Tube Signal Processing</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Film Capacitor &amp; Supply (see electrolytics)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>MIT Capacitors</td>
<td>yes (27 pcs)</td>
<td>no</td>
<td>yes (17 pcs)</td>
<td>no</td>
</tr>
<tr>
<td>Tube, Goldlink and/or Tube Resistors</td>
<td>yes (all types)</td>
<td>yes (Viking)</td>
<td>no (Horsema)</td>
<td>no</td>
</tr>
<tr>
<td>Discrete Power Supply Regulation</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Low Feedback Regulation</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<tr>
<td>Signal Switching (min. length)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Non-Plated PCB Traces</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Signal Path Capacitors (high are better)</td>
<td>1 per phone</td>
<td>3 per channel</td>
<td>1 per channel</td>
<td>3 per channel</td>
</tr>
<tr>
<td>Number and Type of Outputs</td>
<td>5 (4 main, 1 bass, 1 XLR, 1 loop, 1 line)</td>
<td>2 (1 main, 1 line)</td>
<td>3 (1 loop, 1 line, 1 line)</td>
<td>3</td>
</tr>
<tr>
<td>Tube Life Extension Apparatus</td>
<td>yes (9 pair tube output)</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Weight (net, unboxed)</td>
<td>55 lbs (25 kg)</td>
<td>28 lbs (12.7 kg)</td>
<td>19 lbs (8.6 kg)</td>
<td>29 lbs (13.2 kg)</td>
</tr>
<tr>
<td>Warranty</td>
<td>5 year, 90 days on tubes</td>
<td>3 year, P&amp;L /90 day on tubes</td>
<td>3 year, P&amp;L /90 day on tubes</td>
<td>3 year, P&amp;L</td>
</tr>
<tr>
<td>Suggested List Price</td>
<td>$3,495</td>
<td>$3,995</td>
<td>$4,195</td>
<td>$5,395</td>
</tr>
</tbody>
</table>

Available at these and other fine dealers.

<table>
<thead>
<tr>
<th>Sound Advice</th>
<th>Audible Difference</th>
<th>Bradford's Hi-Fidelity</th>
<th>Audio Essentials</th>
<th>Village Audio</th>
<th>Distinctive Audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eureka, California</td>
<td>Palo Alto, California</td>
<td>Eugene, Oregon</td>
<td>Houston, Texas</td>
<td>Hamilton, Ontario</td>
<td>Ottawa, Ontario</td>
</tr>
<tr>
<td>(707) 442-4462</td>
<td>(415) 328-1081</td>
<td>(503) 344-8287</td>
<td>(713) 783-2236</td>
<td>(905) 526-1059</td>
<td>(613) 722-6902</td>
</tr>
</tbody>
</table>

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Following the world-wide critical acclaim received by the SFL-1, we at Sonic Frontiers challenged our design engineers to develop the ultimate linestage preamplifier - a unit that would be generations ahead of the competition. The result of years of intense research and development is the Sonic Frontiers SFL-2 Linestage Preamplifier.

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In Canada: PARADIGM, 101 Hanlan Rd., Woodbridge, ON L4L 3P5
KUDOS
Editor:
I want to congratulate Stereophile for recruiting another superb audio equipment reviewer. Jonathan Scull has written some of the most interesting and insightful reviews I have seen in recent memory. Harry Pearson’s drubbing of Mr. Scull (The Absolute Sound, Issue 92, p.8) only serves to confirm his remorse over TAS’s loss of such a perspicacious and electrifying reviewer. I hope Mr. Scull has a long and fruitful career at his new magazine. CRAIG A. LAWRENCE Highland Park, IL

A HIGHER STANDARD?
Editor:
The January Stereophile is a great issue, both in terms of format and contents. Some readers will have a great time reading and rereading all the Krell reviews—this makes up for many postponed opportunities...I also enjoyed RL’s reviews of women in rock (redeeming his quick’n’dirty job on Metheny’s Secret Story in December 1992) and the Jarrett reprint—KJ, now tell us about your current system! There is much more to say about this landmark issue, but the bottom line is that Stereophile’s new concept reaches new heights in terms of breadth and depth...My only fear is that you guys may have a hard time keeping up the high standard of the January issue with subsequent issues. JEAN-FRANCOIS VIGNAL Belloy, France

THANK YOU
Editor:
Thank you for the new size Stereophile. I don’t need glasses anymore to read the text or to see the pictures in the advertisements. RAUL VILLAVICENCIO Davie, FL

SLICK BUT READABLE
Editor:
Yes, it’s as slick as Stereo Review, but the new size makes Stereophile readable again. No more peering at odd angles to read print in the center fold or seeing the magazine snap shut when it’s laid down.

You should have done this a long time ago... CARL E. MILLER West Worthington, OH

KICK THAT CHAIR
Editor:
I love Stereophile’s new size. I noticed on the front cover that you’ve also raised the price a couple of bucks, not to mention sticking it to the advertisers. Real good on higher rates. Perhaps you can take some of your newfound profits and buy a new rope to tie around Corey Greenberg’s neck. This “old goat” would be glad to kick the chair out from under his boots. MARON HORONZAK Webster Groves, MD

FOOT SHOTS
Editor:
Wow! What a magazine! Congratulations on your first issue in the new format.

I particularly enjoyed your humorous choice in publishing the entire letter from the worthy gentleman who suggested that your prices for advertising should go down, not up, for increased size (January, p.9). After all, he is well-known for setting his products’ price points so that they are easily affordable to the widest sector of the audiophile market!

Can you please endeavor to find out what caliber of bullet Mr. Berlin recommends for foot shots? DAVID MANLEY Manley Labs

A VOTE FOR
Editor:
I thoroughly absorbed the new, big-format Stereophile today. Liked it a lot. I vote for never going back to the small format!!!

High points for me were Jack English’s “R.I.P. High-End Audio” article—an excellent synopsis of high-end short-sightedness; JS’s Forsell opus—one of the biggest reviews ever; and JA’s summary of why he doesn’t want to deal with tube amps if he can help it—so much like my reasons it’s uncanny. Great work, guys.

BIGGER & BETTER?
Editor:
Just when I thought I was well into a rut, along comes a new Stereophile, BIGGER AND BETTER THAN LIFE! The new size is definitely impressive, the new weight will take some getting used to (like the new Krell). But what really took me by storm was Larry Archibald’s response in “Final Word” to the other audiophile publications attacking Stereophile. Yes, Stereophile is excellent: well researched and well edited. If the other guys can’t follow suit, it’s time for them to find new careers. Stereophile attacking other publications would be a waste of time.

Now all you need to do is get Corey Greenberg to pose for the centerfold. HAHAHA! DAVID A. VANSICKLE Aurora, CO

We regret that resources do not permit us to reply individually to letters, particularly those requesting advice about particular equipment purchases. (We are also unable to take telephone calls regarding equipment purchases.) Were we to do this, a significant service charge would have to be assessed—and we don’t have time to do it anyway! Although all letters are read and noted, only those of general interest are selected for publication. Please note, however, that published letters are subject to editing, particularly if they are very long or address more than one topic. All correspondents should include their name, address, and a daytime telephone number.
The Mongoose is a revolutionary interconnect which uses light to transmit audio and video information. Dynamic range rivaling the best of the "High End" conductive cables is achieved by transmitting in the analog domain. Unlike cables of the past, the length of interconnection now becomes irrelevant. Also, since there is no ground connection between components, less noise is transferred through a system. When paired with the Cobra fiber optic cable, the Mongoose comprises what high definition audio is about, the latest in exotic technologies implemented for our musical enjoyment.

The Cobra is a specially optically balanced fiber for analog transmission. It is designed to keep optical anomalies like Fabry - Perot effects and optical feedback to an absolute minimum. The cable is 3 mm in diameter and very flexible. Mongoose and Cobra are available in both audio and video versions.
I do have one criticism: the price range of the hardware reviewed. How could the Equipment Reports section look like this in the same issue as Jack English’s R.I.P. article? A $1000+ FM tuner; $20,000+ turntable; big-buck Krell amp and preamp; $7500 Cary 25W amps; $12,000+ MFA preamp; big-buck Krell transport and D/A; $10,000+ speakers—man oh man oh man...aside from the $880 NHT satellite/sub system [and the HeadRoom headphone amplifier—Ed.], where were the components real people can buy? Okay, Sam Tellig devoted some space to a $400 CD player—that was it.

More $500–$3000 stuff please!

DOUG BLACKBURN
Honeoye Falls, NY

FOR & AGAINST

If I may make a couple comments on Stereophile’s new size:

1) Quite frequently I read while sitting on the throne. The old Stereophile used to fold itself up and jump off my lap. The new Stereophile, if placed just right—ie, spine between thighs—stays put. Score: 1–0, new Stereophile.

2) Always, I bring Stereophile (or, ahem, The Absolute Sound) to work. (Sort of like a security blanket.) The old Stereophile fit perfectly in my lab-coat pocket. The new one is too big. Score: 1–1.

3) At work, the old Stereophile was stealth-like. If I left it lying around at work, no one bothered to read it, since it looked like a Westinghouse Sweepstakes brochure. The new one, by contrast, is too conspicuous. Consequently, my colleagues/co-workers read the mag. Some faint after seeing the price of the Krell KSA–300S, others start fantasizing and inquiring about my income. Score: 1–2, old Stereophile.

4) At home, the new Stereophile is stealth-like. When I read the old magazine, my wife, with one quick glance, could always tell that I was “burying my nose in that magazine” again. That’s because I don’t read Reader’s Digest, and no other journal is the same size. The new Stereophile blends in perfectly with my academic journals. With proper camouflaging of the front and back cover (damn those AudioQuest ads!!), even the wife is now confused as to what I am reading. Score: 2–2, a tie.

CAN QUANG PHAN
Torrance, CA

A VOTE AGAINST

Editor:

Your larger magazine was so unexpected that I initially threw it in the garbage without opening it, thinking that I had somehow received a copy of Stereo Review as a freebie subscription solicitation! The only thing that eventually saved your issue from oblivion was my curiosity as to what Stereo Review was currently up to, as I had not seen one of their issues for about a decade. At last I recognized your magazine by its content! Great joke!

I preferred your smaller format, as it “felt” more “elite.” I also preferred the smaller format because it allowed for very compact storage (I have saved every issue since I started subscribing 10 years ago). Now, so much more advertising per cubic inch will be a disincentive to hoarding.

ANTHONY JARVIS
Orland Park, IL

IT SUUUUUUUCKS!

Editor:

Your new format suuuuuuuucks!

I have been a Stereophile subscriber for many years. One of the things that first attracted me to the magazine was its digest size. It set Stereophile apart from the more mainstream publications; it gave the impression that this was a publication to keep for future reference. Sadly, Stereophile now looks like any other stereo magazine...You no longer seem as concerned as you once were about setting yourself apart from the pack, about being the leader in critical component reviews.
Nearly always, designers operate within limits, especially of time and money. Deadlines and budgets constrain their whole approach and the problem they must solve is how to create good products within these constraints. However skilful they are, the result has to be a compromise.

But just sometimes a company decides to build a line of products from which compromise is completely eliminated. The designer has no constraints, ‘merely’ a challenge: to create the very best.

Basic system includes; RHB10 Power Amplifier, RHA10 Active Pre-Amplifier with Remote control. For the vinyl enthusiast add RHQ10 Phono Equalizer.

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PHONE 800 370 3741

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I will have no part of it. Cancel my subscription and refund my money.

RICHARD SHEPPARD
Fox, AR

I have written in the past (but have not been published) about ways Stereophile can improve. Generally, I have been satisfied. But after receiving a totally mangled copy in the new size format, I felt compelled to pick up the pen. Larry's "Final Word" suggested that subscribers will now receive Stereophile in pristine condition, like other large magazines. I estimate that 5% of the large magazines I subscribe to (11 monthlies, 2 weeklies) arrive with some damage. This seems to happen to Stereophile more than the others. Perhaps my post office has something against high-end audio . . . I, like many Stereophile subscribers, retain each issue in a reference library. I would be thrilled if all issues were packaged sufficiently so they arrived in good condition. The subscription prices certainly warrant this.

I applaud you for increasing your review coverage over the last 12 months beyond the more recognized brands. I hope that trend continues, since many brands are still absent or rarely reviewed. Also, I would like to see more focus on recording equipment—I don't think I'm alone in making tapes for use away from my home system. There have been several advances in recording equipment (Dolby S, DCC, DAT, MD) over the last couple years that you haven't reviewed as frequently as necessary. Your broad-brush approach on cassette decks in "Recommended Components" is appalling. I recently purchased an Aiwa XK-S9000 that has surprisingly excellent recording capability for home use! I would like to hear your opinion on some of this equipment before purchase!

DAVID GROOMES
Novi, MI

A NEW MEDIUM?

Editor: An impressive achievement! No issue in your previous 16 volumes has the heft, sway, swagger, or impact of Vol.17 No.1. Stereophile has become a sexy Euro-zine—the kind one sees devoted to cars, clothes, and cuisine on Italian newsmagazines. Your content is thereby heightened, but could require tighter editing. Different 'zine, different imperative.

The Cary on the cover is simply objectified lust—that re-sized glossy color sings! It ought to force some advertisers into soul-searching. Sell the sex and size, allow reviewers to sort out specs and sound.

Quite simply, 1701 has become a new medium. Lotsa potential here. (Doubling subscription prices by late '94, right? Dammit!)

I can think of three very unhappy competitors. Expect 1701 to be a tolling bell for one of them.

A couple caviars, however. With improved size and stature, above-ground, please don't hire some sweet, young lovely just-out-of-school to go artsy-fartsy with your design and layout. More than one computer and one audio magazine have had very mixed results doing just that. Color and clarity in ad, article, and editing remain paramount.

Too, would someone there please subscribe to any of the Condé-Nast publications: Vanity Fair, GQ, Traveler? You'll find they come in tightly wrapped heavy plastic with stiffening card insert and will probably arrive there as well as they do here. No scuffs on the spine, no dog-eared corners, no tears through the classified section—all of which my 1701 suffered. A tight, heavy wrap is the answer. Screw political correctness; get my issue to me cleanly intact, even if it means static buildup and landfill woes.

You've born a new ballgame, boys. I welcome it, 'cause somehow my avocation of 45 years is elevated. Now, get your advertisers to sell these vastly priced unessentials to our ids, not our egos. The industry might actually start to thrive. The forum, at least—at last—is here . . . Congratulations.

KENT WATERMAN
Oakland, CA

A BOLD STEP

Editor: As yesterday's post arrived, I was certain that my wife had sent you a secret message about my needing a Reader's Digest-style large-print edition to comfortably find my way through Stereophile, and that here it was, a large copy of Stereophile.

Once I got past the front cover, it became immediately clear that Stereophile has taken a bold step forward and improved the magazine immeasurably by increasing the square inches, despite the fact that the cozy space reserved in my bookcase for the smaller publication is now for naught.

Although I did not compare between old- and new-text point sizes prior to writing, I find that I really don't need the large-print version (yet). Just goes to show how subconscious psychology can trick a middle-aged man.

Some constructive comments: Larry Archibald writes, "Ironically, one of the practical advantages of the
From 'The Big Bang' to 'Black Holes', take a quantum leap into a new galaxy of bass performance. Subwoofer technology so advanced, it leaves the competition light years behind. Add Energy powered subwoofers to your home entertainment system and you have crossed the final frontier. Contact your Energy Dealer today for a sound and feeling that will elevate your listening experience into a new dimension.

For assistance in locating your closest Energy dealer, phone 416-321-1800 or fax 416-321-1500.
new size is that we've been able to abandon the environmentally invidious [word of the week!] plastic bags that your Stereophile had been arriving in. Unless Stereophile is treated differently from other full-size magazines, it should arrive in as (relatively) pristine a condition as the other publications you receive."

Pure wishful thinking by the silver-tongued Mr. Archibald. My new copy of Stereophile arrived in very similar shape to most other magazines of its size and weight that I receive—front cover looks as if someone sandpapered it, mailing label barely hanging on, upper- and lower-right-side corners dog-eared, first ten pages folded back twice, and front cover through p.48 ripped. Larry, Murphy’s Law says that if any kind of magazine-delivery mayhem is possible, the United States Postal Service can and will do it! The only large magazines which usually arrive intact are thin mags, such as Newsweek. On the other hand, the only large mail which arrives each time in pristine condition is junk mail—never a tear, fold, or other defect—Murphy’s other law! My suggestion is that you keep some of that environmentally invidious bag material handy to overcome the invidiousness of the postal service.

In closing, thank you all for your earnest effort to make Stereophile the best magazine about sound reproduction in the world. While “best” is subjective, and therefore remains the beauty in the eyes of the beholder, there are many beholders among your readers, myself included, who believe you are certainly within reach of the prize.

Michael W. Maduras
Glendale, CA

Perturbed
Editor:
The January issue of Stereophile arrived on December 24—great Christmas present. I really enjoy the larger format. I am not sure if the type is any larger, but everything seems to be easier on my eyes. [However], the cover and the first four pages of this issue look like they went through a nasty scrap with an armed mailperson.

Quite frankly, I’m a little perturbed that my first issue in this format will never become a collector’s item, due to its condition.

David Schwartz
Coral Springs, FL

Say What?
Editor:
Congratulations on the new format. What a great surprise from Santa. However, since I always read the last page first, I thought you would like to know that my issue arrived with the last ten pages’ bottom corners chewed off by our friendly postal service. Hopefully this problem will not continue, or might we go back to the digest format? Yes, a replacement is already on the way, thanks to your customer service. What was that about the best-laid plans of mice and men?

Say La V!

Youngsville, NC

Larry Archibald addresses the mailing-damage question in this month’s “Final Word.” If any of your Stereophiles do arrive damaged, you should contact Molly Crenshaw, P.O. Box 5529, Santa Fe, NM 87502, Tel: (505) 982-2366; Fax: (505) 989-8791, for a replacement.

When Larry Archibald purchased Stereophile from J. Gordon Holt in 1982, the then-32-page magazine cost $2.00 on the newsstands. The price increased to $2.50 with Vol. 5 No. 2, to $3.00 with Vol. 6 No. 3, to $3.95 with Vol. 7 No. 5, then to $4.95 in early 1985, with Vol. 8 No. 2. The price stayed at $4.95 until January ’94, despite ever-increasing numbers of pages—the average size of an issue in 1993 was 288 pages. The larger-size magazine carries the same amount of editorial content, but costs significantly more to print—hence, the cover-price increase. We do not currently have plans to raise the price to subscribers.
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Stereophile, March 1994

however.
Regarding the increase in size, I’m surprised
that some readers feel it goes hand-in-hand with
a dilution of Stereophile’s content or a com-
promise in our standards. The digest size seri-
ously limited our presentation and design. It
was also commercially limiting, because it made
what we had to say inaccessible to too many
potential readers.

I don’t feel that saying the same amount of
the same things in a more accessible, easier-to-
read, better-designed magazine is equivalent to
selling out—unless you really feel that inac-
cessibility, obfuscation, and elitism are impor-
tant factors in defining/restricting who belongs
in the high-end community. A magazine
benefits from its opinions and philosophies
reaching as many readers as possible. High-
end manufacturers need to more effectively reach
potential customers. A more accessible, more
widely distributed high-end magazine will help
both them and us. I welcome the new distri-
bution opportunities our new size opens up,
but I intend to continue editing and produc-
ing the audio magazine that I want to read—as
I always have done. And as for the negative
reviews, Mr. Johnson, they’re still there, as some
of the following letters will persuade you.—JA

QUESTIONS
Editor:
First, let me congratulate you on the new
format—it is easier to hold and read than
the old one. For those of us who remem-
ber the earlier change from the original
format, this is a positive one. In general,
JA’s stewardship of Stereophile has been
distinguished by such progressive changes
in form and content. The series of
“Industry Update” contributions by
Peter Mitchell and Robert Harley
are particularly appreciated. The purpose
of this letter, however, is to respond to a
couple of editorial statements in the
January issue.

Buried in the interesting and useful
reports by Bob Harley is the comment
that “...currently available digital filters
(the NPC SM5803, for example) only
accept up to 18-bit input words.” While
this is generally true, and specifically so
for the SM5803, the NPC SMS5842AP
will accept up to 24-bit input data and
employs, internally, a 32-bit accumulator
allowing up to 24-bit output. This device
is currently available, and I am in the pro-
cess of constructing a new DAC with it.
Also, the Yamaha YSF210B allows up to
22-bit input and output.

Reading Bob Harley’s review of the
Krell Reference 64 DAC, it is unclear
exactly how the output of the PCM-64
is handled by Krell. Judging from Bur-
Brown’s literature, the deglitch circuit
(based on an AD841, a voltage-feedback
device) should supply a voltage signal to
the subsequent AD846, which performs
the low-pass filtering rather than I/V
conversion. This seems more likely to me
than that the deglitch circuit operates
entirely in the current domain.

Regarding RH’s comments on Krell’s
choice of deriving the balanced signals
in the analog domain, I am encouraged
by his discussion of the NMR techniques
with which we will soon be able to mea-
sure the discriminanda that the ear already
detects. Also, I am amused that Krell and
its competitors have each chosen differ-
ent means to an end. What is the sig-
nificance that Krell chose not to derive
the balanced signal in the digital domain?
Why do other comparably priced DACs
use an “off-the-shelf” filter? What do
they hear or measure that dictated their
choices?

I am struck more than a bit by Jack
English’s graphical analysis in his other-
wise provocative article, “R.I.P. High-
End Audio.” The choices of specific sam-
ple data (the particular speakers selected),
the scaling of their subjective classifica-
tions to arithmetic values, and the map-
ing of these values to a linear scale are
arbitrary and have significant implica-
tions which influence the interpretation
of the graph. Among these are that the
overall performance of Group C is twice
that of Group E, Group B twice that of
D, and that live music is superior to
Group A only by as much as A is super-
ior to B. In general, I don’t believe that
these are reasonable relationships. More-
over, the inference that the relationship,
as predicted by the curve, asymptotically
approaches perfection depends on these
presumptive relationships. I suggest that
the data presented in Table 2 are sufficient
for JE to make his quite valid points
without invoking questionable mathe-
matical analyses.

In JA’s review of the HeadRoom head-
phone amplifiers, he states that the mea-
surements, unless otherwise stated, are
for the Supreme version. Can we assume
the same concerning his subjective com-
ments? Moreover, what is the basis for
his distinguishing among the three
models in his “Summing Up”?

Finally, let me put in a good word for
Tyll Hertsen’s HeadRoom. His riposte
concerning “out-of-head” localization
is correct. The white paper and manual
that he refers to are clear on this issue.
Moreover, they are among the most
informative and entertaining publica-
tions that I have ever seen in consumer
audio. To underscore my endorsement,
let me add that I do not own even own
headphones, nor am I likely to in the future.
Nonetheless, the HeadRoom literature
is a model of its kind and should be
Most loudspeakers touted for "Home Theater" are little more than patched up audio models. That's because most speaker manufacturers don't build their own drivers, the components that produce the sound. Instead, they buy off-the-shelf parts and struggle to reconfigure them for Home Theater.

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Compare each Celestion Shield model with any comparably priced so-called Home Theater speaker. Immediately, you will realize...
offered as a lesson to all the manufacturers who hide behind puffery and techno-jargon.  

KALMAN RUBINSON  
New York, NY

I agree with Mr. Rubinson about the quality of HeadRoom’s literature—a bright, informational light in an area where too many manufacturers seem more concerned with fact-free self-promotion. Regarding the different HeadRoom models, I did the bulk of my auditioning with the Supreme. As I stated in the review, I highly recommend the $399 Supreme for its sound quality, but as the $299 Premium is identical other than lacking the HF boost switch, it might well prove sufficient for many headphone fans. The $199 Standard is not recommended, except to those who need a portable headphone amplifier and can’t afford the Premium. Regarding the word-length capabilities of digital filter chips, Bob was talking about those in current use. The new devices mentioned by Mr. Rubinson do, of course, process and output data to a higher precision, and I expect to see them appearing in commercial products as a matter of course.  

—JA

IT’S GONE FAR ENOUGH!

Editor:  
Basta!! Enough!!! This foolishness and bullshit has gone too far, already. CD transports do not make any difference in CD sound. Improper interfaces between the transport and the processor can and do make a hell of a difference.

Virtually any player will function as a “Class A” transport if you get rid of the RCA plugs on both it and the processor and provide true 75 ohm cable and connectors for the digital path. It cost me $5000 to buy my LS2B and Theta Pro Basic II; but for less than $50 worth of cable and connectors, I achieved nearly the same degree of improvement in the sound of my system. Yes! No shit! (No fork in this tongue!)  

I’m using a Yamaha CDC-735 (an ordinary 5-disc player) as a transport in an all-Class A system. It’s gone up against the best Class A transports, and there is no sonic difference. Any CD player with a decent digital output should do as well (no, I haven’t tried them all; but enough to be reasonably sure).  

“How,” you ask, “is this achieved?”  
“All is now revealed,” says The Great One. Know these things:  
1) A digital audio signal will not, nor, not pass through any RCA connector without a severe impedance mismatch which audibly degrades the signal. Name a cable, I’ve tried it—they’re all fair or poor. I’ve built my own from the best cable money can buy—it’s no better.  
2) Use only 75 ohm SMC connectors—not the 50 ohm SMC.  
3) Use only 75 ohm cable with foil under the shield. Belden type 89108 is recommended, but any high-quality RG-59 cable will provide excellent results.  
4) Run a 16- or 18-gauge ground wire from the chassis of the transport to the chassis of the processor. If you don’t do this, all of the above is a waste of time—you’ll probably have so much 60Hz AC current in the cable that the interface cannot possibly function properly.

Optical links can work well. They are absolutely not necessary. A properly implemented 75 ohm cable can do the same job perfectly.

Designing a fine digital/analog converter and putting RCA connectors on the digital input is like putting a 900 horsepower engine in a race car, then using a fuel pump that limits the car to 90mph. Why? You’ll have to ask the manufacturers. (If I were cynical, I’d guess something about making major profits on silly transports.)  

A small investment of time and money will reap tremendous results here. Try it.  

The chassis-mount 75 ohm SMC, by the way, has the same-diameter threads as most RCA types; this simplifies making the change. If you have any problem finding the 75 ohm SMC connectors, I’ll

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be glad to give you the name of a supplier (chassis connectors are under 9 bucks, plugs about the same, and one company has cables made up for under $40 in any length). Call (310) 594-0821, and I will gladly give you any help or info I can. Happy goosebumps.

FLOYD MARTIN
Los Alamitos, CA

INDEED IT DOES
Editor:
As I recently neared the conclusion of an introductory electronics course at San Francisco State University, I had a revelation—as if a giant light bulb overhead had just illuminated. Electricity was created so that Jerry Garcia could play the electric guitar! The advancement of high-end audio, therefore, serves the primary purpose of allowing us to better hear him doing so.

JOHN AMMONS
Mill Valley, CA

BITS
Editor:
I'm sure EMI Studios, not to mention Mitsubishi, Telarc, and Tony Faulkner, will be surprised to learn from Robert Harley (Vol.16 No.12, p.104) that the Mitsubishi X-86HS digital recorder is "impractical for music recording" at 20-bits, particularly since EMI alone has already recorded more than a dozen classical CDs with its sister machine, the X-86E, in the last year and a half. EMI, by the way, thinks their "impractical" recorder is performing quite satisfactorily, thank you very much.

Moreover, his assertion that "all professional digital recorders store only 16-bits" will be news to Sony Classical and Decca, both of whom have been recording more than 16 bits for several years now, albeit on their own proprietary digital gear. Maybe he means a machine "that can be bought from your friendly professional audio dealer", but see my first paragraph, above. (While Mitsubishi is withdrawing from the professional audio market, Sony has just introduced the PCM-9000 recorder that can accommodate 16-, 20-, and 24-bit digital words.)

Bob should do a little more research before making such uninformed statements in an otherwise very informative article.

MICHAEL H. GRAY
Classical Music Editor
The Absolute Sound

RH was indeed referring to commercially available recorders rather than proprietary machines that cannot be purchased. Yes, Sony's PCM-9000 optical-disc machine does record using longer word lengths, but that machine was introduced at the 1993 New York AES Convention, after RH's Dorian interview had gone to press. And the Mitsubishi's stated impracticality was not due to its 20-bit word length, but to its 96kHz sampling rate, which is incompatible with the digital editing systems in general use which operate at the standard 44.1kHz and 48kHz sample rates.

JA

GET THE LP!
Editor:
I enjoyed Allen St. John's review of Liz Phair's Exile in Guyville (Vol.16 No.11, p.237). This double album is available in the superior LP format. I obtained my copy in downtown Philadelphia for $10.

Many of the albums reviewed in Stereophile are available as LPs. Yet, Stereophile record reviewers consistently use that ugly phrase: "CD only."

MICK WOLK
Address illegible

Sorry about that—we'll just keep trying to track down those elusive LPs. Thanks for letting us know.

—RL

SINGLE-MINDED, SINGLE-ENDED
Editor:
I'm really glad that Sam was so single-minded in his praise of single-ended amps (Vol.16 No.11, p.69). Single-ended is a technology so old it's new again. And new and different is what the audio industry needs if it wants to keep the business interesting. Tired of the tube vs solid-state debate? Why not try single-ended vs push-pull? Of course, single-ended is available in either tube or solid-state.

Sure, push-pull gives you fewer measurable distortion products than an SE amp. But once something is split, as the music signal is with a phase splitter, it can never be whole again. Glued together, yes; whole, no. This also applies to two—more—channel stereo and parallel (more than one output device) single-ended amps.

Having heard at least five different 300B SE amps, including my own, in different systems, I agree with Sam that the resolution, palpable presence, and timbre of a 300B single-ended amplifier¹ are extraordinary. However, I think their bass, and especially dynamics, are also extraordinary. If you have sensitive speakers—say, 96dB and up—good horn speakers sound great with these amps.

(What about reviewing Klipschorns?)

¹ The Cary 300B SE amps are great-sounding commercial amps, but medi-

core 300B SE amps. A great 300B SE amp has a circuit that can have as little as two tubes and the output transformer in the signal path. You can also bias the grid with batteries, as they did in the 1920s. In these ultra-simple circuits, every part is audible, so high-quality parts like Teflon caps, silver wire and ground planes, Vishay and Caddock resistors, separate power supplies, and hand-wound output transformers, make a world of difference.

To get amplifiers of that quality, you have to build them yourself. But since Stereophile isn't a do-it-yourself mag like Sound Practices—(512) 339-6229—you can have someone like the amp artists at j in NYC—(212) 966-0831—build a single-ended amp for you.

Sam may think hi-fi took a wrong turn around 1938, but to some of us, it took a wrong turn in the late 1920s.

BRUCE NILSON
Teaneck, NJ

OVER THE FETISH?
Editor:
And I thought I was over my stereo fetish! After reading last November's "Sam's Space," it happened all over again. I remembered that the only way I could listen to my CD player was through tubes. To be specific, I had an unmodified ST-70 with original tubes! I loved the sound of that unit. I hot-rod the CD player (which had a pot to control the output level) directly into the ST-70. It produced the best soundstage through my Vandersteens. I loved the detail. Cymbals sounded real with the bell-toned rings and splashes. It didn't sound like a ball-bearing rolling around in a tin can or being splashed about in one. I could actually tell it was a cymbal and where it was struck, how it was struck, and what struck the cymbal. Was it a rim shot? Yes! Was that a brush? Yes! Was that a hit on top? Yes! I loved it! But in my own quest for power, I sold my Dynaco ST-70 and bought the big Counterpoints. But Sam Tellig reminded me that I miss that sound.

I hate you, Sam. I think you're the only reviewer at Stereophile who I agree with. I trust your judgment.

I can't believe I said that. But I do. I still remember your article debating high-end equipment with your buddies from years back. That's why I hate you. When you were teasing your buddy Lars, it was funny. But when you reviewed the McIntosh MC275 and told me I couldn't have it, well... that's hitting too close for comfort. So I went on a hunt.

The hunt ended with me buying a pair of Dynaco Mk.IVs. Since the job mar-
When Denon, with the audio industry's longest heritage of digital design and music recording, charged its most talented engineers to create a range of cost-no-object components, clearly the goal was not for immediate sales. Instead, Denon applied the most advanced technologies to improve the resolution, integrity and stability of digital data transmission to achieve accurate, transparent sound reproduction and pure musicality.

What uniquely qualifies Denon in this endeavor is that the Company shares the same dedication to music of many esoteric manufacturers, but combines this fervor with the technology and resources gained through 83 years of recording music and building record/playback components. No other high-end or mainstream audio manufacturer can make this claim.

The intensive research and design that has gone into the very limited edition of S-Series components could never be recouped through sales, even at their seemingly lofty prices. Instead, Denon, in keeping with its "Design Integrity" philosophy, will explore ways to incorporate many of these advances in future Denon components. But, for those of you who can afford not to wait...

**TOP:** The DP-S1 CD Transport is constructed using three levels of mechanical and acoustic isolation and a high resolution laser system to deliver ultra stable, jitter-free data. $9,000.

**MIDDLE:** The DA-S1 D/A Converter employs ST-Genlock clock and data transmission with Denon's exclusive ALPHA Converter System to achieve a full 20 bits of data integrity from any CD or other digital audio source. $7,000.

**BOTTOM:** The P0A-51 Monoblocks combine parallel, complementary bipolar power supplies with a full differential power MOS-FET amplifier design to deliver more than 1,400 Watts into a 1 Ohm load. $20,000 each.
ten to my prized Mercury recording of János Starker playing Bach's Cello Suite No.2, I pulled out Stereophile's Vol.16 No.11 to read, among other items of interest, Dick Olsher's review of the Jadis JA 200 amplifier.

My interest in that review was purposeful, as I have owned and used (problem-free) a pair of JA 200s for about 15 months. In 20 years as an audiophile (and 33 as a serious listener to music), I have been through many systems and pieces of audio gear. Residing with me from time to time have been speakers from Vandersteen, Apogee, Thiel, and Mirage. I currently use Avalon Ascent Mk.IIs, with modifications. Amplifiers have included Audio Research (several different models from time to time), Bryston, Krell, Classé, Jadis Defy-7s, and now the JA 200s. Preamps have included PSi, Dynaco PAS 3, various Audio Research models, Krell, and currently, the Jadis JP 80MC, with some modifications. Turntables have included Oracle, VPI, Linn Sondek, Technics, others. I have probably forgotten, and the current, not-soon-to-be-displaced winner, the full-blown Rockport 'table and stand from Andy Payor. Without belaboring the point, it is safe to say that products from every major (and most minor) cable manufacturer and cartridge builder have lived with me, and vice versa, from time to time. Currently I use the Benz-derived Cardas Heart and NBS interconnects and cables. (I won't bore you with the details about my digital rig. It's good. Who cares?)

In short, I may be an all-out crazy, but I'm also experienced. And, having learned the hard way, I know my priorities in listening and what I am seeking from music reproduction: natural, non-fatiguing, detailed (but not spotlighted), full-range musical sound, presented as if it occurred in a natural space of realistic proportion. Tonal correctness, harmonic accuracy and fullness, natural dynamics (especially microdynamic shadings), and re-creation of images in the soundstage are my priorities—in that order.

For those reasons, like Dick Olsher, I have been willing (though sometimes with regret) to sacrifice some bass control and solidity, and the lower noise floor—all of which are available from solid-state equipment—to get the best that tube equipment has to offer: tonal accuracy, harmonic correctness and fullness, imaging, and soundstaging.

So, there I was. The beautiful, rich, complex, and full sound of Starker's cello was rolling over, around, and through me as he traversed Bach's Suite No.2, just as I got to Mr. Olsher's statement that the JA 200s weren't doing enough for him in the midrange. Hell, thought I, if these amps were doing anything more for me in the midrange, they or I (or both) could be arrested if the drapes weren't drawn. As I was listening to a rather well-recorded cello at the time, I can attest that the lower midrange was lush, lifelike, full, robust, and authoritative—definitely not on the lean side of reality. (As my wife and I used to be supporters of a chamber-music society, I have heard real, live celli at about that same distance, in rooms about the size of my living room, on many occasions. These amps sounded as right as any reproduction of cello I have ever heard.) Similarly, I have detected no problems—harmonic or otherwise—in the upper midrange. In all respects, the midrange and harmonic performance of the JA 200s is the best I have heard. (If they can be criticized—as any and all pieces of equipment can and should be—mine would appear to err on the slightly over-romantic side, not on the side of leanness.)

I have gone on at sufficient length. It is neither my purpose to outline my credentials as a listener nor to quibble with Dick Olsher. As another tube aficionado, I generally would find myself in his camp. I would submit, though, with all due respect, that Dick Olsher's
When is a box not a box?

When it's a Fried speaker.

Clockwise from left: Valhalla System (C/5 satellite and D/2 subwoofer), R/5, Beta V, Q/5, Studio V, A/5 and CP/1 (center channel).

During the past four decades, Fried has been perfecting transmission line technology and its variations such as the line tunnel. Line technology transforms ordinary-looking speakers into extraordinary sounding musical instruments. To put it simply, ordinary box speakers cannot solve the problem of the rear wave — the energy that comes from the back of a loudspeaker cone. Fried speakers are free from the restrictions of bass reflex designs or sealed enclosures; they solve these problems and eliminate such undesirable characteristics as bass thump, time smear and coloration in both the bass and midrange. The results speak for themselves and can be heard in our incredibly affordable Beta V at $399 per pair all the way up to our incomparable Valhalla System.

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WorldRadioHistory
criticism of the midrange reproduction of the JA 200s—the area which is their greatest glory—is misplaced and unfounded. Having never written to any editor before, I merely wanted to present other interested listeners and potential owners of these amplifiers with my perception of their abilities. I truly wish, however, that someone else on your capable staff be allowed to express their views on these wonderful machines as, in my experience, they have nothing whatsoever in common with sewing machines. Another review or comment also could be worthwhile, because we could be examining a system-interaction problem. As JA's footnote pointed out, Mr. Olsher's Martin-Logan speakers are a bit lean in the lower midrange. Finally, I should add that I am using stock GE6550A tubes, and they do not display any of the shortcomings pointed out by Mr. Olsher.

By the way, Victor Goldstein, not Dick Olsher, is absolutely right about power-line conditioners, though with one arguable exception (arguable because I don't know whether it is truly a power-line conditioner). The best results I have achieved with the JA 200s have come from use of NBS power cords and MIT Z Stabilizers—one for each amp plugged into the dedicated circuit that I have for each amp. And, yes, those two dedicated circuits, as well as the one that I use for my preamp and turntable, are in phase with one another. Those who fool around with dedicated circuits must pay attention to phasing.

_Larry Alan Kay_  
_Sherman Oaks, CA_

See Jonathan Scull's Follow-Up in this issue.  
—JA

**NO ACCOUNTING FOR TASTE** Editor:
I've written *Stereophile* a few times and even made it to your hallowed pages once or twice. But this is the first time I've ever considered criticizing a review, because, well, uh, er, uh, well...taste is taste, and there really is no accounting for it. I mean, for example, I have been married to a lovely woman for 17 years, and I accept the fact that I like Coltrane, she likes Oscar Peterson; I like Hindemith, she likes Tchaikovsky; I like hi-fi, she likes jewels and gems; I like meat, she likes fish; I say "potato," she says, "potahhhto"; I say, "tomato," she says, "Shut the hell up!" etc.

But I could not restrain myself after reading Robert Harley's review of the Sonic Frontiers SFD-2 Digital Processor (Vol.16 No.12, p.140).

A little background: I, like many other audiophiles, much prefer the sound of analog LP to digital. But because I believe the music is, by far, the main hi-fi raison d'être, I could never disregard the validity of the digital medium because there is so much great music that is only available in that form. No audiophile snobbery should ever stand between a real music lover and any great music. Besides—and more simply—I don't think digital is "bad." I just don't think it is as good as analog LP. Though I have made a huge investment in LPs (thousands of them played on an RPM-2 table with a Wheaton Triplanar arm and Lyra Clavis cartridge), for the reason mentioned above, I have also been willing to invest in digital (more than 2000 CDs played on Theta DS Pro Generation III with C.E.C. TL 1 transport).

A few weeks ago, I happily slipped off to my local high-end dealer to audition the new Sonic Frontiers SFD-2. After listening for some time, here's the conclusion I came to:

I said to myself, "With every objective audiophile criterion in mind, this really does seem like a superior product. Analytically speaking, there's very little that I can criticize. This unit is gonna get one helluva review!" (I was right!)

I said aloud, "Geez. This is a gawdawful piece of equipment!"

Why the conflict?

Subjectively speaking (I thought), this was just not an enjoyable listening experience. You know all those subjective terms—it just wasn't musical. In fact, it was darn well annoying.

Upon further listening, though, it hit me. This product seems so peaky in the upper midrange (I don't know how it measures there—I'm just telling you what I think my ears were telling me) that it gives the illusion of presenting tremendous detail, while in reality it causes tremendous listener fatigue.

Now I'm not saying that Mr. Harley is one of those hi-fi nerds who listens to gear and not to music. Heck, I never met the guy. For all I know he chews tobacco (and spits a lot, of course), eats nails for breakfast, drives a pickup truck, and wears a Carstol baseball cap like the rest of us macho American men. But I may dare to imply that one of the dangers of being an audio reviewer is that, during the reviewing process, one might tend toward listening to the hi-fi at the expense of listening to the music.

I challenge Mr. Harley, or anyone else at *Stereophile*, to take this unit home, kick back with a beverage of choice, and just relax and listen to the SFD-2 without reviewing it for awhile. If any of you do this, and still think it sounds great, I'll... well, er, uh...well, I'll still disagree with you.

Oh, and as for the $4695 price tag on the SFD-2—I think it's way too high. But no—not because it's not worth it. Heck. I've heard tons of audiophile garbage a lot more expensive than that. I just think that if Sonic Frontiers were smart, a short demonstration could easily get the makers of Excedrin to subsidize their manufacturing, enabling them to bring the price of these units down. Just think of the demand the SFD-2 could create for a popular headache remedy.  

_BEROP X LATEEF_  
_Mill Valley, CA_

As RH pointed out in his review, the SFD-2 sounds significantly more neutral in balanced mode. RH would also like to state for the record that he does not wear a Casio baseball cap.

—JA

**JE & THE MAGIC MERLIN #1**

Editor:
I have been an audiophile for some 35 years. In those late days of mono, my rig consisted of Dyna, Marantz, JBLs, and Thrones—it really kicked ass.

Between then and now I've been through the direct-drive turntable thing, the solid-state thing, and suffered through several other components. Without getting vindictive, the list would also include some "heavy hitters" with rave reviews. Strange coincidence, these sonic nightmares are widely advertised.

Today I consider myself fortunate to own a SOTA Star, SME V, Quicksilver preamp, Raymond Lumley monoblocks, a dedicated listening room, and the recently reviewed Merlin Excalibur II loudspeakers. I have good feelings about these products and this system. It has withstood the test of time.

As for Jack English's Merlin review (Vol.16 No.12, p.180), the positives speak for themselves. However, I'd like to address his negative comments:

The supplied and factory-preferred German Acoustics cones would not pierce my Berber carpet and pad and couple the speaker to the floor. Mr. Palkovic then provided me with six Arcici spikes that did the job nicely. After some experimenting with listening positions, I now have flat, articulate bass response to below 31.5Hz at my listening position (measured using the *Stereophile* Test CD 2 and Radio Shack spl meter).

With the factory-recommended flat position for midrange and treble, the total response is, I feel, first-rate. Readers, if you get a chance to hear this speaker system, properly set up, I know you will not

_Stereophile, March 1994_
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JE & THE MAGIC MERLIN #2
Editor:
As a long-time subscriber and a serious audiophile with 10 years of classical piano training, I am writing to you regarding Jack English's December '93 review of the Merlin Excalibur II.

As I have had a pair of Excalibur IIs for a couple of years now, I have heard all the positive points noted in the review; but I have not experienced the bass/high-frequency rolloff or the midbass raggedness commented on by Jack English. I think Jack's experience of the Merlin could be duplicated by one or a combination of the following rituals:

1) Not using the German Acoustics steel cones—supplied by the manufacturer.
2) Using the steel cones, but having carpet and padding too thick for the cone tips to solidly penetrate to the floor for a stable energy transfer/coupling.
3) Injudiciously adjusting the two mid/high-frequency level controls to the maximum.
4) Not adjusting those mid/high controls at all as one changes to different amps, preamps, wires, etc.

If one would have set these 210-lb babies with a little TLC (ie, not trying the above-mentioned rituals), one would then have had the experience of a truly full-range, full-bodied, dynamic, smooth, revealing, integrated, musical response from these speakers.

Also, in response to the political points made, I was born overseas, and what counts for me is everything!!—sonic and non-sonic attributes both, not one or the other. Jack, redo your setup, perhaps get some tips from the manufacturer, and enjoy the Merlins!

DAVID WONG
San Francisco, CA

JE & THE MAGIC MERLIN #3
Editor:
Before addressing the technical issues, I need to say that Jack English's introductory comments in his review of the Merlin Excalibur seem as blatantly biased and malicious as anything I have yet read in Stereophile. I hesitate to surmise the reasons for these statements; suffice it to say that Bobby Palkovic is one of the least political men I know. Regarding his speakers, he is interested in little other than their sonic performance.

I have to assume that the problems Jack experienced with these speakers were due to one of three things: inadequate setup, inadequate environment, or inadequate review. In my own system the deep bass is more powerful, extended, and well-defined than any other full-range speaker system I have heard; the midbass is clear and articulate; the midrange is incredibly accurate and fast; and the treble is exquisite into the uppermost reaches. This system has anything but "restricted extension in the frequency extremes." The overall sound is the most balanced and lifelike that I have yet heard from a home music system.

I suspect that part of J's problem may have been due to the use of the wrong coupling feet. I experienced some of the bass anomalies he mentioned until, with the help of the manufacturer, I found the correct couplers for my environment. I wonder why you did not bother to do the same.

I am more greatly concerned with the fact that JA chose to do his measurements with the midrange controls set at maximum output rather than flat, and then drew major conclusions from the resulting inaccurate data. The change in tonal balance resulting from such a maneuver would explain the rest of the unfavorable findings. At best, this decision calls into question the competence of the reviewing process; at worst, the issues raised are far more serious.

In summary, I feel that Stereophile has done its readers a great disservice, as I expect that your inaccurate review will dissuade many of them from giving serious consideration to what I believe to be the most musically accurate, exciting, and satisfying loudspeakers yet made. Moreover, I must wonder whether I can ever again rely on what I read between your covers.

MICHAEL L. SHAFER, MD
Larkspur, CA

JE & THE MAGIC MERLIN #4
Editor:
Our current system has a pair of Merlin Excalibur IIs and neither my wife (she has better hearing than I do) nor I hear the things you did. I can't vouch for the treble, as I am 59 years old and my upper limit is probably 14kHz, but I don't hear any problem with the midbass.

These speakers replaced a pair of Merlin 4 Bs that I had for about six years. In the past, after coming home from a satisfying concert, it would have been impossible to put on the stereo for a day or two. However, now I can with the Excaliburs. My wife and I find the Excaliburs to be the most musically satisfying speakers we have ever heard, and we've heard quite a few at prices well over $30,000.

DONALD S. KONICOFF, MD
Boca Raton, FL

Stereophile, March 1994
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Editor:
Inasmuch as the Merlin Excalibur II is on my short list for auditioning, I was pleased to see it turn up for review in the December issue. After reading and rereading the review, however, I remained very confused, as a result of what appears to be an uncustomary disregard for the product by the reviewer, about a number of points.

First, why the gratuitous trashing of non-US audiophiles? I don't think I am in error to state that build quality, "fit and finish," and WAF are all common elements of Stereophile reviews.

Second, in discussing bass definition (p.182), why would Jack make this criticism for off-axis listening, and then state that this is not a "head-in-a-vise design"? Since when is a speaker of this degree of development evaluated by off-axis listening?

Third, if bass definition seemed to be a problem (putting aside the question of inappropriate setup raised by the manufacturer), why didn't the reviewer get to the bottom of the matter, rather than simply posit that it might have been the amplifiers or the room? Would this have sufficed in a review of the Thiel CS5?

Fourth, in the measurement discussion, the review makes it sound as if this speaker rolls off at 38Hz, when the manufacturer states that the 3dB-down point is 30Hz. Didn't this raise anyone's curiosity? In addition, why is sarcasm directed at the manufacturer in "looking forward to their defense" or "throwing away of deep bass extension"? Again, why would the manufacturer of an $8400 speaker throw away the bottom octave?

The most unusual aspect of the review is that the reviewer truly seemed to enjoy this speaker, repeatedly praising its dynamic, open quality, three-dimensional images, locational coherency, first-rate midrange, freedom from box-like colorations, air, etc. However, the reader is left with a big question mark: Why was such a cynical view taken with this speaker?

Subjective reviews will rapidly lose credibility if the reviewer's subjectivity is allowed to extend to factors beyond the sound of the speaker. If the reviewer has concerns about the commercial viability of a company or some other legitimate issue, this would certainly be welcome information, but as a long-time reader of Stereophile, I must honestly say that I have not seen a product treated with quite this disregard or lack of curiosity before. Regardless of the magazine's response to the manufacturer, it would seem that the magazine should be interested in probing the capabilities of the speaker and reporting the results to its readers, particularly if the manufacturer insists such capabilities exist.

WILLARD H. ROSEGAY
San Francisco, CA

Regarding the fact that I made my measurements with the Excalibur's midrange control set to its maximum position: this is what I had understood the intended position to be. It seems I erred. I therefore apologize. But as for the speaker's bass performance, while I applaud manufacturers who take the use of floor-coupling spikes seriously, I know of no mechanism by which the use of such spikes actually changes a loudspeaker's woofer alignment, hence its measured low-frequency extension.

Why indeed, then, would the manufacturer of an $8400 speaker throw away the bottom octave? Although Merlin states that the Excalibur's 3dB-down point is 30Hz, both my nearfield frequency-response measurements and the speaker's impedance plot indicated that, despite its bulk, the speaker was deficient in low-bass output. Indeed, this did raise my curiosity, Mr. Rosegay, so I checked my measurement techniques and experienced no change in the result. In such cases, I have to assume that the manufacturer is using an unconventional measurement technique—or at least one quite different from my own—has made a mis-

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take, or is being overly optimistic. Granted, the Merlin’s bass performance will be boosted somewhat in-room by the usual boundary reinforcement—I am not surprised by Mr. Stagnito’s finding that the speaker’s response in his listening room extended to below 31.5Hz—but I expect that a nominally full-range speaker of this size and at this price will actually offer true large-signal extension to 20Hz.

Yes, there are exceptions—the Wilson WATT/Puppy combo, B&W Silver Signature, and Sonus Faber Extrema come to mind—but in those cases, the manufacturers offer spirited defenses for the design decisions to limit their speakers’ bass performances. As I understood the Excalibur’s limited low-bass extension to be deliberate, I was not being sarcastic when I said that I did indeed look forward to reading Mr. Palkovic’s explanation. This, however, did not prove to be forthcoming. Neither did any details of how Merlin assesses low-frequency extension, which might have indicated reasons for the differences between their claimed bass performance and what I actually measured.

Regarding Jack’s auditioning, Jack is a careful, conscientious, and experienced listener. There were aspects of the Excalibur’s performance that mightily impressed him: the midrange; the dynamics; the wide, deep, open soundstage; and the freedom from box-like colorations, glare, harshness, and grain. There were also aspects that bothered him: the rolled-off high treble; the lack of the lowest bass octave; and the lumpy, uneven midbass. While it’s not impossible that further experimentation and tweaking on his part might have reduced the extent of the Excalibur’s midbass problems, my measurements did appear to indicate that both the midbass excess and the lack of extension at the frequency extremes were all inherent characteristics of the loudspeaker. I am confident, therefore, that Jack got the best sound the Merlin was capable of giving in his room.—JA

THE GREATEST SHOW ON EARTH?

Editor:

As corporate counsel for the Rounder Records Group, it was with great interest that I read Steven Stone’s “Industry Update” (October 1993) concerning Ringling Brothers and Barnum & Bailey Circus’s trademark—infringement claim against Katy Moffatt’s record, The Greatest Show on Earth. While accurate for the most part, missing from Stone’s article was any recognition of the time and effort Rounder invested pursuing options which would have allowed Katy’s album to remain unchanged. Unfortunately, despite the happy and congenial images one normally associates with the circus, Ringling did not appear to be interested in a reasonable resolution.

Although the Rounders (the three owners of Rounder: Ken Irwin, Marian Leighton Levy, and Bill Nowlin) did not want to submit to Ringling’s demands, Rounder, as a truly independent record label, simply does not have the resources to fight a corporate giant like Ringling through the court system. Rounder steadfastly supports its artists and is obligated to devote its resources to bringing all of their music to the widest possible audience. As for Ringling Brothers, it appears to me that clowns run the company, with a legal department full of lions and tigers. And Katy Moffatt was the victim.

JOHN VIRANT
Rounder Records Group
Cambridge, MA

UNBELIEVABLE!

Editor:

Town Sound in York, PA is a 12-volt [in-car] specialty shop. While demoing a mega system for one of our patrons to test the performance of the system, he asked if he could use his CD. We were introduced to the Stereophile Test CD 2. We sold the system, and all our employees were sold on your disc. Unbelievable!

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China: The third mainland Chinese high-end show takes place this month, at the Portman Shangri-La Hotel, 1376 Nanjing Xi Lu, Shanghai 200040, from Friday March 18 through Sunday March 20. For details, contact Peggy Ma, Room 203, Man Yee Building, 60 Des Voeux Road, Central, Hong Kong. Tel: (852) 524-8775. Fax: (852) 645-0746.

New England: Ensemble Music+ Video Systems of Arlington, MA and Nashua, NH is having a drawing on March 5 to win a trip for two to Hi-Fi '94, the Stereophile High-End Hi-Fi Show, which will be held April 29–May 1 in Florida. The trip includes air fare, lodging, and dinner with members of the magazine's reviewing staff. You can register for the drawing at either store. Call (603) 886-4742 or (617) 648-4434 for details and/or a newsletter.

Ohio: On April 7, Audible Elegance (9464 Montgomery Road, Cincinnati) is holding a double seminar, "What to Listen For When Choosing a Stereo System," with Jim Yamaguchi of California Audio Labs and Stephen Hill of Straight Wire. There are two presentations, at 5pm and 7pm. Seating is limited, so call (513) 793-3737 for reservations.

Ontario: The Second International Symposium on Digital Audio Broadcasting (DAB), entitled "The Sound of 2000," is scheduled for March 14–17 at the Sheraton Centre Hotel and Towers in Toronto. (The first Symposium took place in Montreux, Switzerland in June 1992.) For details, contact DAB Symposium '94, 126 York St., #401, Ottawa, Ontario KIN 5T5, Canada. Tel: (613) 594-8226. Fax: (613) 565-2173.

Québec: The seventh Festival du Son et de l’Image is taking place this month at the Delta Hotel, 450 Sherbrooke West, Montréal, from Friday March 11 through Sunday March 13. For more information, phone (514) 384-7082.

Virginia: DC-area retailer Myer-Emco opened a new store at the end of December, and announced its entry into 12-volt land with a Car Stereo and Security Division at five of its six sites. The new store is at 12300B Price Club Plaza Road, Fairfax, VA 22030. Tel: (703) 803-9400.

UK: Ken Kessler
I just realized that I've never provided follow-ups to previous Stereophile columns of mine. And since everything at this time of year is conspiring to make me feel reflective or nostalgic, I figured what the heck—it seemed appropriate to write this follow-up just as the year is ending. So here are a few "aftermaths" interspersed with some new items:

Mission followed through with its plans to restore Wharfedale to a level of prominence by appointing Malcolm Blockley as Managing Director of the beleaguered Yorkshire firm. Blockley's past achievements include establishing Marantz in the UK, helping to create the NAD concept, running retail chain Hi-Fi Markets, and helping set up AMC (manufacturer of that neat little integrated tube amplifier, the 3030). Whether or not Blockley can stop the rot at Wharfedale remains to be seen, but I've been informed by an industry watcher of note that the Wharfedale brand name is one of the most highly recognized in the world.

I read this next item over someone's shoulder on the train, so I might have it wrong, but it sounds like Philips has officially admitted that DCC is a flop. The name "Jan Timmer" caught my eye—JT is to Philips what the Pope is to the Vatican. Note, though, that admitting that DCC is a disaster is not the same as saying they've given up on it completely. They've merely acknowledged its less-than-resounding first-year performance. Can anyone tell me what's Dutch for "Cut your losses"?

CD prices, even after a government investigation, remain obscenely high in the UK. Basically, the record companies laughed in the committee's collective faces. "CD Rot"—the belief that CDs decay after a few years—has hit the British newspapers again. But it sounds like the latest manifestation of the problem is limited to a specific run of CD singles, ca 1989, which reacted badly to the paper used for the sleeves they came in. Amusingly, a Philips spokesperson was reported to have reacted to the public outcry by wondering why consumers think that CDs should stay perfect forever. The words "selective" and "memory" spring to mind.

Desperate British hi-fi journalists are again pushing the notion of freezing CDs, much to the amusement of the mainstream press. Only three years after Stereophile publicized the concept of true cryogenic freezing, as conceived by Ed Meitner and involving the use of liquid nitrogen, hacks in the UK are suggesting that similar beneficial results are possible by stuffy CD-reading in the back of your kitchen's freezer. But they haven't...

The article mentioned by KK included a quote from Philips admitting that DCC sales in the format's first year amounted to "peanuts." It also had the news that Virgin Records, now a subsidiary of EMI, has stopped releasing its titles on DCC because sales were so disappointing. (Production at EMI's DCC plant in the US is apparently at a standstill.) The article also stated that Germany's Saturn-Hansa chain of consumer electronics retailers was considering stopping selling both DCC and MD. DCC was a "catastrophe from the start," said Horst-Friedrich Muller, Saturn's head of purchasing. —JA
said whether the discs should be stored closer to the frozen French fries or the ice cream.

A year later, the world still awaits issue 2 of Sonic Boom, the UK's newest underground hi-fi magazine.

Busy right up to Christmas Eve, the elves in Linn's PR department sent out a delightful missive, which—if my understanding of Harrods' audio division's operating methods is correct—should win an award for its careful phrasing. The press release informs us that Linn products are now on sale at Harrods, undoubtedly the most prestigious department store for the well-heeled in London. The release states, "To meet the aspirations of their most discriminating customers, Harrods have selected Linn Hi-Fi as their premier quality hi-fi brand." Questionable grammar aside, the statement made my eyebrows venture skyward, because—unless the other hi-fi distributors and manufacturers I've spoken to are less privileged than Linn—I was under the impression that manufacturers and/or distributors had to "buy" their floor space in the audio department, and stock and staff it as well, with Harrods taking a percentage. In effect, it's like running one's own mini-store within Harrods. This is not the same as having been "selected" by Harrods, implying that the store chose to stock the products as it does other items, like grousse in the food hall. If I'm wrong about this, I'm certain that Linn will inform me post haste that the legendary department store was so taken with the Scottish hi-fi gear that it made a special case for Linn.

Linn Products has released its next CD, one of the very few issued by a hi-fi company that bears the work of a musician whom people actually want to hear. The disc is Stephane Grappelli's & Martin Taylor's Reunion (Linn AKD 022). Meanwhile, Linn's erstwhile ally, Naim Audio, has followed up its first release with another reissue, SFX, featuring Alan Murphy (NAIMCD 004), from 1984. Murphy subsequently joined Go West, then Level 42, but he passed away in 1989; this CD is dedicated to his memory.

As far as mainstream media sightings of specialist hi-fi go, there hasn't been much forthcoming coverage, other than gleeful reporting of the above-cited "frozen CD" madness. One exception is Linn, the company which fitted Virgin Airlines' luxo-lounge with a complete system. Linn's products were on view during a TV interview with Richard Branson in the lounge, the speakers, with their distinctive nobbly baffles, in sight just past Branson's shoulders. That's the only positive coverage any hi-fi equipment has had recently. Unfortunately, a major soup maker (also a purveyor of tomato-flavored condiments to the masses) has a new campaign promoting the restorative worth of its broths, using tense situations as a reason for opening a tin of the stuff. Enhanced by the irritating voice of Ruby Wax, an unfunny American comedienne domiciled in (exiled to?) the UK, the animated advert shows how nightmarish it is to set up a hi-fi system. Every out-of-date technofear cliché was used to establish audio as the kind of headache which needs nerve-soothing. God forbid that this food vendor should ever want a favorable plug in a British hi-fi magazine. I'm thinking of changing ketchup brands.

Orbis's past-work history of the blues, The Blues Collection, is now up to Volume 8, and the selection and quality remain impressive. The CDs are certainly worth £3.99 including the booklet, though they'll disappoint consumers expecting a cheapo method of acquiring only the original versions of the artists' hits. But the flow continues on schedule, the binders are shipping, and there's even been a one-off CD compilation, The Blues at Christmas, which acts as a nice sampler. How much longer it'll last, I can't say, but the first binder came with stick-on numbers for five volumes, and each binder holds 16 installments. This suggests that there are at least 80 blues artists under consideration. Not wasting a minute, Orbis has just introduced another part-work called The Musicals Collection, kicking off with a CD of West Side Story for a penny less than a pound. The recording is brand-new rather than classic, featuring the National Symphony Orchestra and the cast of the Leicester Haymarket Theatre's production; don't expect Tamlyn or Chakiris or even Kiri Te Kanawa. To follow are installments dedicated to Showboat, South Pacific, Peggy & Bess, and the like, but this is one partwork I think I'll avoid: it looks like it could be heavily laden with Andrew Lloyd Webber.

**US: John Atkinson**

Some corporate and company news: California high-end amplifier manufacturer Threshold—brandname, plant, assets, inventory, lock, stock, and barrel—has been acquired by a consortium, in which the majority partners are Randy and Linda Patton, co-owners of PS Audio.

**Audiosphere Audio Research** has acquired the assets of loudspeaker manufacturer Dahlquist. Audiosphere already owns Clements and claims to be the largest loudspeaker producer for Canada with its Acoustic Profiles brand and OEM manufacture for other companies. Dahlquist will continue to operate independently, but manufacturing operations will be transferred to Canada. The current DQ line of speakers (see Stereophile, Vol.16 No.9, p.107) has been discontinued and will be replaced by a new Prelude series. Dahlquist, 25 Esna Park Dr., Markham, Ontario, Canada L3R 1C9.

The US subsidiary of the Japanese company Audio-Technica has achieved some commercial success with its Signet and Design Acoustics loudspeakers. (We particularly liked the Signet SL260 and '280 models.) Signet and Design Acoustics were sold at the end of 1993 to Jon Kelly, A-TUS's former President, whose new company, Audio Potentials Corp., will be based in Twinsburg, OH. Tel: (216) 688-4836.

**Musical Surroundings**, which already distributes Benz phono cartridges and Graham tonearms in the US, announced in January that it will be the US distributor of the New Hampshire–made Basis turntables. (The Basis Ovation turntable was voted Stereophile's "Analog Source of 1993" by the magazine's editors and hardware reviewers.) QMI has been named the US distributor of the English Soundfield microphones. The Soundfield mikes can be used both to make true Ambisonics surround-sound recordings, or as electronically steerable coincident-stereo microphones. QMI, 25 South St., Hopkinton, MA 01748. Tel: (508) 435-3666. Fax: (508) 435-4243.

Finally, in a surprise announcement just prior to the WCES in January, International Jensen announced a major organizational change. Jensen has formed a new "Specialty Audio Group," which will be dedicated to the management of its specialty audio brands, including Acoustic Research, Now Hear This, and Day Sequerra in the US, and Audio Innovations in the UK.

Chris Byrne, current Vice President and General Manager of NHT, will head up the new Specialty Audio Group as Group General Manager, and Ken Kantor, NHT speaker designer, will serve as Vice President of Technology for the new division. After nearly 40 years in Massachusetts, Acoustic Research's marketing and engineering offices design efforts will be relocated to the NHT headquarters in Benicia, California.
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StereoPhile, March 1994
However, AR's commercially successful Powered Partners line of active speakers will be absorbed into Jensen's multimedia division.

US: Larry Greenhill
December '93 was a tough month for FM-radio classical music fans. First, Day Sequerra's (D/S) plant closed. When Jensen International shut down its Acoustic Research factory in Canton, Massachusetts and laid off 40 employees—see above—it also temporarily shuttered Day Sequerra's manufacturing facility. This means that the D/S FM Reference tuner (given an “A” rating in this magazine's “Recommended Components”) is not currently being manufactured. Jensen's new Specialty Audio Group plans to manufacture AR loudspeakers and the AR Limited Electronics line at NHT's headquarter's in California. NHT's Ken Kantor says that one of the other International Jensen (IJ) affiliates, such as Britain's Audio Innovations, may manage the D/S product line. IJ is approaching the technical employees who worked for D/S to determine how they might best support the D/S line, either as employees or as consultants. Despite these assurances, my local coven of D/S FM Reference tuner owners remain concerned.

Second, WNCN, New York's best FM commercial classical music station, changed overnight to a pure rock format. WQXR, owned by the New York Times, is now our city's only commercial FM classical music station. WQXR's programming is less music-intensive than WNCN's had been, mixing classical music with many of the newspaper's business features.

As it turns out, WNCN's change to rock reflects business practices which unfortunately play major roles in determining the fates of radio stations. WNCN was converted from a fine music station to a “concept” pure-rock station—to capture the upscale, yuppie FM market. The coup was carried out at midnight, December 18, 1993—Mozart and Schubert were stopped dead and replaced by Aerosmith, AC/DC, Pearl Jam, Nirvana, Stone Temple Pilots, and, every so often, Jimi Hendrix's “Foxy Lady.” The new format is music-intensive. The on-air jockeys play five-in-a-row rock-album cuts and then “back-sell” it, they announce the five titles after all the songs are finished. The station's call letters have been switched to WAXQ, and a prerecorded Beavis or Butt-head-like voice fires off a “liner” between each rock selection: “The New Q-104.3—more rock with less jock.” New York's new bastion of rock retains all WNCN's excellent broadcast gear. WNCN always broadcast a high-quality FM signal that was free from overmodulation and compression—a problem that plagues New York's FM rock stations. Not so with WAXQ. My D/S FM Reference tuner's “scope shows that WAXQ's signal is still one of the New York area's cleanest. Sonically, WAXQ's broadcast has a terrific bass response, fine imaging, and a super-wide soundstage. However, I've found the station's music-intensive format makes it hard to concentrate while driving.

Randi Bongarten, owner of WAXQ and president and general manager of GAF Broadcasting Company, explained in Glenn Collins's New York Times article (December 18, 1993) that the change went unannounced to “hide it from our competitors.” Bongarten said the switch was purely commercial. ACRatings for broadcasts through December 7, 1993 showed that WNCN had a 1.3 market share, just behind WQXR's 1.7, and the Times article explained that each station drew an audience of 700,000 people. They chose to make the switch on December 18 to minimize any further losses of share during the changeover—listener-share ratings are not performed during the last three weeks of the year.

Miriam Allenson, Marketing Director
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at WAXQ, further explained that the change was made at the end of the station's fiscal year to allow for changes in staff and schedules. WNCN's enormous classical music library will be donated to charitable organizations.

WNCN's demise provoked strong reactions. The *NY Times* reported that David J. Kitto, Carnegie Hall's Marketing Director, was caught by surprise—he had to scrap his 1994-95 advertising plans with WNCN. David M. Rice, a legal representative of the WNCN-based Listener's Guild, Inc., stated that the group was "shocked by the suddenness of the [the move] and wondered if it was done in part to pre-empt us." This particular listener's group successfully fought off WNCN's 1974 attempt to change to rock. However, they cannot appeal to the FCC, because the FCC can no longer interfere in stations' decisions to change musical formats.

*Stereophile's* Jack English lives in the area served by WNCN and wondered if the station's abrupt change signaled a plan to bump ratings up so they could then quickly sell the station. "Although some of that is there," responded WAXQ's Miriam Allenson, "the station plans to be around." This is evidenced by WAXQ's plan to hire people who plan to stick around. Two air jockeys—Candy Martin, who works 7pm to midnight, and Heidi Hess, who started covering the 10am to 3pm slot on January 31—signed on. Yet the station had not hired these air people one month after the format change, and no permanent program manager had yet been identified at the time of writing. The interim Program Director is Bob Elliot.

**FM CLASSICAL STATION OWNERS SHOULD "ELIMINATE ORGAN MUSIC, AVANT-GARDE, ATONAL, ALEATORIC MUSIC, WALTZES, AND VIRTUALLY ALL VOCAL MUSIC."**

By December 22, *NY Times* writer Allan Kozinn had raised the question that WNCN had possibly sown the seeds of its own destruction. "Few tears have been shed over its demise by serious classical music fans, who have deplored what WNCN became in the mid-1980s," he said. Even in its classical music format, the station's programming had been targeted at a younger audience, with zippy announcers who didn't discuss music, but instead ran contests and promotions.

WNCN's doomsday strategy was highlighted in a 1987 speech by Mario Mazza (WNCN's now-gone director of programming) to the American Symphony Orchestra League. Kozinn cited this speech as a bellwether of national FM broadcasting priorities: FM classical station owners were reminded that they're running a business, so they should "eliminate organ music, avant-garde, atonal, aleatoric music, waltzes, and virtually all vocal music."

Kozinn blamed Mazza and WNCN for its own loss, as well. He also accused them of setting policies that could lead to "the devastation of classical radio across the country." He linked WNCN's business directive to the elimination of two wonderful programs at WXQR. Both Robert Sherman's "Listening Room," where young artists gave live performances, and WNCN's "Performance Today" program.

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recitals, and “First Hearing,” where music critics were asked to review new recordings in real-time, were also scattered in December. This second NY Times article (“Marked Diminuendo in Classical Radio,” December 15, 1993, p.C15) warned serious music lovers that “the barbarians at the gate are not rock-and-rollers howling for the death of classical music, but people in suits who crunch numbers and dream of expanding market shares.” Kozinn believes that WNCN got what it deserved for “abandoning the idea that the mission [listening to fine music] is more important than the bottom line.” WAXQ’s Allenson stated simply, “Such views do not merit comment.”

Is WNCN’s departure so bad? It depends on who you are. Those classical music fans I spoke to sorely miss WNCN. On the other hand, if you like good rock (and some of the writers in this magazine do), then WAXQ is a gas—it offers good music selections, terrific signal quality, and the trendiness of MTV. It proves that it’s possible to energize FM radio without shocking the listener with Howard Stern. WAXQ has found that the FM listening audience has come to live in a way not evident during WNCN’s last years. “There is a tremendous buzz on the street,” said Allenson, for “this is an audience that hasn’t been served.” The station’s request line has been extremely busy with calls from 18 to 34-year-olds, but very few teens. “People on these calls give tremendous positive feedback,” claimed Allenson.

So WAXQ does meet a need. It’s a bummer that WNCN had to be sacrificed in order to bring audiophile-level signal quality to FM rock. But the vitality of this young station may win over DJs owners who are nursing their FM Reference tuners.

UK: Ken Kessler
Arthur Radford, a seminal figure in the design of transmission-line loudspeakers and the creator of a series of superlative, classic tube amplifiers, passed away in November ’93 after a long illness. He was 79.

Radford studied at Merchant Venturers Technical College and Bristol University, and was involved in the manufacture of amplifiers, microphones, and loudspeakers for public-address systems for a Bristol firm. He also enrolled in a course in electrical engineering, studying tube amplifier design and acoustics; it was here that he began his lifelong involvement with transformer design. In the 1930s, he also embarked on loudspeaker design, leading to his patent for a transmission-line design in 1964.

After World War II, Radford entered the manufacturing of top-quality measuring equipment, which was produced alongside the loudspeakers and amplifiers for which he’ll be best remembered. Initially producing a Williamson-based amplifier, he soon developed his own circuits; his MA- and STA-series amps have proven to be among the most highly regarded and durable of all the British-made amplifiers of the “Golden Age.”

I was lucky enough to meet Arthur a couple of times, first at a mid-’80s dinner at which Hi-Fi News & Record Review presented him with its Lifetime Achievement Award. It was believed that this renewed interest in his products inspired him to return to manufacturing—at the age of 70—and it led to some wonderful collaborations with Woodside Electronics, the company which, in the late 1980s, produced the Renaissance STA25 Mk.IV tube amp with Arthur’s approval.

US: Peter W. Mitchell
In December the Grand Alliance of HDTV developers conducted a second round of subjective listening tests designed to evaluate the perceptual audio coding formats that have been proposed for HDTV’s 5.1-channel surround-sound. In these tests the sound from a discrete six-channel original tape was encoded at a low bit-rate, and the decoded playback was compared against the discrete source. Listeners scored each system’s overall sound quality and tried to identify any sonic differences between the coded signals and the source.

The December listening panel confirmed its previous selection of Dolby AC-3 as the best-sounding of the HDTV candidates and also selected MusicaSurround as an acceptable alternative for backup use. In the numeric scoring for sound quality, AC-3 and

AC-3 low-bit-rate coding is the basis of the Dolby Stereo Digital system of film sound.

4 In a workshop at the ’94 WCES, Lucasfilm’s Tomlinson Holman, who participated in the listening tests, went on record saying that the fact that Dolby’s system sounded the best should not be taken as meaning that it was sonically transparent. He pointed out that on some demanding program material—a gluckenspiel recorded in all five channels with no correlation between the channels, for example—the coding flaws of Dolby’s AC-3 algorithm were quite audible, if not as extreme as with the other algorithms tested. —JA

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Musicam/Surround achieved similar overall average scores, but the individual scores for M/S were much more variable than those for AC-3. Observers speculated that this inconsistency might be related to the demand for backward compatibility in M/S coding. One of the main selling points for Musicam/Surround, particularly in Europe, is that in the process of coding a 5.1-channel surround signal, a two-channel code that’s compatible with stereo Musicam receivers like those used for digital radio is also generated. Each frame of M/S code contains, the two-channel “core” codes plus an extension for the surround information. If the Musicam encoder wasn’t constrained by the need to produce compatible two-channel code, it might have the AC-3’s freedom of dynamically allocating its bits for the most accurate coding of even difficult surround signals.

The commission responsible for developing MPEG standards is considering whether a new five-channel code might produce better performance with difficult surround signals by ignoring the compatibility issue. An MPEG standards committee scheduled to meet in March may define a new coding “layer” to deal with this.

AC-3 encoders can deliver two-channel stereo, but in the US there’s no compatibility issue with older receivers, so two-channel AC-3 codes would be distributed separately. For example, while HDTV will carry 5.1-channel AC-3 codes, two-channel AC-3 signals will deliver stereo TV sound via cable systems with improved dynamic range and clarity, and will also provide Dolby Pro Logic decoding of matrixed center and surround signals. Incidentally, in the December *Stereophile* I mentioned General Instrument’s plan to include stereo AC-3 decoders in two million cable converters, but I incorrectly specified the Zoran ZR38501 chip. Evidently GI will produce its own AC-3 decoder.

In the same report I discussed a Musicam/Surround demonstration at the New York AES convention which featured what seemed to be one of the Grand Alliance’s most revealing listening tests—the drum/glockenspiel recording. In the AES demo the timpani and glockenspiel were in different channels. But according to Roger Dressler, technical director for Dolby licensing, the actual Grand Alliance tape had the instruments in all five channels, offset in time by only a few milliseconds, providing a much more challenging test of coder performance. I don’t know why a different tape was used for the AES demo, but if I were a conspiracy buff, I would suspect that the simpler tape made the coder sound better.

In the January issue I reported that a new Pioneer laserdisc format might include AC-3 codes for the 5.1-channel Dolby Surround Digital Soundtracks from recent films. Dolby Laboratories worked extensively with Pioneer to develop a format that preserves maximum compatibility between the new discs and older laserdisc players. In the new discs the AC-3 code will be placed in the area of the signal spectrum that’s been used in the past for the analog soundtrack’s right channel. Contrary to earlier reports, there will be no change in either the carrier frequency or modulation index of the video signal. New videodiscs containing the AC-3 code will produce normal pictures and unaltered 16-bit stereo sound on existing NTSC-format laserdisc players.

In case you haven’t followed the laser disc format’s evolution, the signal spectrum on a modern NTSC-standard laser disc is as follows, from top to bottom: As always, the composite video signal is recorded on the disc by an FM carrier whose frequency is modulated from 9.3MHz (for white highlights) down to 7.6MHz (for the black “sync” bar between frames). The modulation process produces sidebands extending down to about 3.5MHz and up to about 14MHz. In playback the lower sideband is demodulated to reproduce all the details in the picture and to recover the NTSC color subcarrier. Two more FM carriers, at 2.3MHz for the left channel and 2.8MHz for the right, provide the analog stereo sound, optionally compressed for CX noise reduction. (In future discs the 2.8MHz signal will contain the AC-3 Dolby Surround Digital code, while the 2.3MHz carrier will provide a mono analog soundtrack for use with old TV sets.) Finally, the space below 2MHz in the signal spectrum contains the bitstream for the CD-format 16-bit PCM soundtrack.

A laser disc’s PCM bitstream may be converted back to analog stereo via the player’s D/A circuit, or it may be sent through an S/PDIF connection to an outboard D/A converter. Serious home theater enthusiasts feel the converter’s output to a Pro Logic decoder to extract its matrixed Dolby Surround information. Future laserdisc players may be equipped with a special output jack for the AC-3 code or may simply use a switch to route the AC-3 code through the existing S/PDIF socket. Companion surround decoders will automatically...
connections, Digital Music Express (DMX) and Digital Cable Radio (DCR), are each delivering 30 channels of stereo programming around the clock, and each has the technical ability to allocate one or two of those channels to AC-3 coding. The bit-rate capacity is already there, and if you love surround-sound, you'll probably invest in an AC-3 decoder next year when they become available. All that's left is to feed an AC-3 bitstream to it from the digital tuner. If you're already a digital radio subscriber, you may need to take the tuner back to your local cable company and exchange it for a model with a digital output for the AC-3 code, but that's easy. Neither digital radio service has yet announced specific plans for a surround-sound channel, but I expect it to come next year.

**US: Robert Harley**

In my "Industry Update" in the January ’94 Stereophile on Sony Classical’s production techniques and facilities, I noted that no commercially available 20-bit digital recorders existed except the new Nagra D. [See this month’s "Letters"—Ed.] Tom Jung, founder and engineer of Digital Music Products (DMP), quickly informed me that he's been making full 20-bit recordings for the past two years on a Yamaha machine called the DMR-8. The Yamaha DMR-8 is an eight-channel, 20-bit digital recorder with a built-in digital console. The $35,000 DMR-8 uses a proprietary 8mm metal-tape cartridge in a stationary head system that records eight digital audio channels over 40 data tracks. Yamaha has done a good job of keeping the DMR-8 secret: I read Mix magazine every month and visit AES conventions, yet I'd never heard of the product.

Tom uses outboard Wadia Reference A/D converters (which are based on the Ultra Analog A/D converters) to feed the Yamaha's digital inputs. The DMR-8 provides digital-domain mixing, moving fader automation, full automation of other functions, and three separate internal-effects processors. The internal processors obviate the need to convert the digital signal to analog, then back to digital again. The Yamaha's 20-bit output is redithered by external processors to 16-bit for CD release, with the exact noise-shaping algorithm determined by listening. Tom has found that the optimum redithering algorithm varies with the type of program material.

DMP's DMR-8 has been modified so that its clocks run off the Wadia A/D converter's clock to reduce jitter. This modification, used on the last six DMP releases, including the terrific Joe Morello Going Places (DMP CD-497), reportedly resulted in greater focus and transparency.

**US: Peter W. Mitchell**

"Binaural" recordings are made with microphones placed in the ear canals of a dummy head. When heard through headphones, these recordings can provide a remarkably convincing you-are-there impression of the environment where the recording was made. But when a binaural recording is played through speakers, each ear hears the signal from both channels, producing a soundstage that sounds more like fat mono than true stereo. EMI has come out with a new series, "Sensaura" discs, which begin as dummy-head binaural recordings, but are then processed to sound good on speakers as well. Digi-
The Velodyne 15" Subwoofer: Controlling Brute Force Through Superb Engineering

High-output, low distortion bass response can only be achieved by creating and controlling the power of brute force. Perfection of such an accomplishment demands superb engineering, critical manufacturing, and dedication to ideals: A feat, according to the audio press and listeners worldwide, that has been attained only by Velodyne Acoustics.

More than a decade of engineering excellence has generated Velodyne's "High Gain Servo" speakers to the forefront of the audio industry.

Velodyne's patented speakers are built in-house, to the most exacting specifications, using the finest materials available. With their superb design, engineering, and error-correction electronics, Velodyne's subwoofers remain the standard by which all others are judged.

HOLE PATTERN IN CONE
Used to break up unwanted standing waves radiating from the throat of the cone.

LOW MASS (2.5 GRAMS) ACCELEROMETER
The brains of Velodyne's patented "High Gain Servo System," this amazing device is mounted directly on the voice coil, and measures the actual movement of the driver. The information is sent to a circuit, which makes corrections for any deviations from the pure input signal. This "error correction" circuit virtually controls the motion of the driver, and eliminates distortion.

HIGH DENSITY FOAM SURROUND
SPIDER PNEONIC IMPREGNATED LINEN AND SPACER
To handle the long, 5/8 inch peak-to-peak cone excursion, Velodyne uses the strongest, most durable surround and spider available.

3 OUNCE RESIN REINFORCED CELLULOSE CONE
Disappointed with "off the shelf" cones that flex and distort when called upon to reproduce the lowest bass frequencies, Velodyne designed the strongest and stiffest cone ever produced.

STEEL BASKET
Specially designed to accept the deep cone and voice coil structure.

3 INCH EDGE-WOUND COPPER VOICE COIL
Carefully matched to the massive magnet structure, it assures constant linearity and instant response.

26 LB. TOTAL MAGNET STRUCTURE
One of the largest magnet structures on any speaker, it provides the necessary torque required for maximum high-output, low distortion bass response. Includes:

STEEL TOP AND BOTTOM PLATES
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tal equalization is applied to correct the tonal irregularities caused by burying the microphone in an ear canal, and signals from external microphones may also be included in the mix. Sensaura's developers claim that the recordings provide unusually realistic soundstaging in con-ventional two-speaker playback—with a vivid impression of space (and even of height) that extends well beyond the speakers—and very satisfying sound via Walkman-style headphones (an important part of the market these days). I haven't heard a Sensaura recording yet, so I don't know whether these claims are justified.

In a related vein, the November '93 issue of the Journal of the Audio Engineering Society was largely devoted to "auraliza-
tion"—the recently coined generic name for processes that realistically simulate the acoustics of any environment. One potential use of auralization is to test the acoustics of a new concert hall before the foundation is laid.

In the past, acousticians tested new designs by building an exact scale model, placing lights on the miniature stage, and observing how the model was illuminated by direct, reflected, and randomly diffused rays. A more recent technique is to build a 1:10-scale model, use a speaker on the model stage to play recordings from a 10x-speed tape (which multiplies the frequencies and shrinks the wavelengths in proportion to match the scale model), then record the sound in the model hall, play the recording at 1/10 speed, and listen to the result.

The newest and potentially most powerful technique is computer modeling—mapping the direction, strength, and timing of each of the hundreds or thousands of reflective paths in a hall. Early versions of this approach modeled only a handful of reflections, but reproduced them (with added reverberation) via dozens of speakers surrounding the listener in an anechoic chamber. As computer modeling programs have become more sophisticated, fewer speakers are needed for effective auralization. Some programs simulate binaural sound for listening through headphones.

Auralization is not yet exact enough to evaluate the acoustics of a new hall before it's built. But research in this area is having powerful effects; e.g., the development of electronic reverberators from Lexicon and Yamaha that sound remarkably lifelike. These are used in a high percentage of recordings today, adding spaciousness to music and most film and television soundtracks. Traditionally, artificial reverb has been used only with studio recordings of pop music, but today's high-quality electronic reverb systems also solve two problems in concert-hall recordings.

One problem is that recordings of live concerts often sound a bit too dry because audiences soak up the hall's ambience. A second problem is that it's difficult to judge exactly where to put the mikes in empty halls, especially when recording for the first time in an unfamiliar hall. At $30,000/day to record a symphony orchestra, engineers can't afford a wrong guess—especially since placing the mikes a few inches too far out in the hall may yield an overly cloudy sound. Nowadays the easy answer is to err on the close side, ensuring ample presence and detail—if not enough of the hall's natural ambience is captured, the recording can be "sweetened" later by adding a little reverb.

In a growing number of concert halls, the natural acoustics are being augmented by electronic enhancement. Particularly in the planning of new halls, economic considerations often demand variable acoustics: a short reverb time for speech, pop music, and modern classics; a longer reverb time for large-scale symphonic works. Some of this flexibility can be achieved with natural techniques (adjustable reflectors and ceiling openings); but in many halls, longer reverb

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StereoPhile, March 1994
Why won't conventional hi-fi speakers work for Home Theater?

You need three front speakers - left, right and center - to achieve realistic home theater. A stereo pair would place the dialog in the center (where it belongs) from only one listening position. You can't use conventional hi-fi speakers for the center channel, even shielded models, because their dispersion patterns prohibit raising them too high or laying them on their sides.

KEF's proprietary Uni-O\textsuperscript{\textregistered} driver, which places its tweeter at the center of the woofer, allowed KEF engineers to create the ideal center channel speakers, the Models 100 and 90. Their uniform dispersion patterns let them be placed beautifully above or below the screen, creating the impression that the sound is coming directly from the screen. Moreover, the Models 100 and 90 are both Reference Series, which not only ensures their quality and consistency; it permits their use as satellites and their seamless integration with other KEF Reference and O-Series loudspeakers.

The Uni-O driver. One of a series of KEF scientific achievements dedicated to one goal: the most realistic performance in your home.

KEF Electronics of America, Inc.
85 Doug Brown Way, Halsey, MA 01746
times are provided by electronic enhancement, it using mikes to pick up the sound at the stage, delaying and equalizing the signal, then reproducing it through dozens of speakers hidden in the ceiling. One of the most impressive systems of this type is the LARES package from Lexicon, which produces a rich reverb pattern without feedback.

In audio reviewing, the traditional assumption has been that recordings capture an acoustic event—amplifiers and speakers have been judged on their ability to re-create a believable illusion of that reality. But in this decade the trend leans toward less reality and more illusion—the soundstage in recordings is increasingly a product of electronic artifice, even among recordings that were made in a concert hall. Even when no post-processing is added to a recording, the ambience of the concert hall may be a product of digital electronics and speakers rather than natural acoustics. Reality itself may be just an illusion.

The Netherlands: Robert Harley

Compact-disc mastering and manufacturing technologies have advanced so rapidly that the CD factories built just a few years ago now look archaic. The CD manufacturing field has been revolutionized by new, highly sophisticated equipment that is virtually unrecognizable to someone accustomed to older CD factories.

This trend is exemplified by a remarkable new CD mastering system called the Automatic Mastering and Stamper-Making System (AMS), developed by Optical Disc Manufacturing Equipment (ODME) in the Netherlands. To appreciate what the AMS does, a short background in conventional CD mastering is necessary.

Older CD manufacturing plants had separate cleanrooms for all stages in the mastering and stamper-making processes. One cleanroom—with several workers inside—produced glass master discs coated with photo resist. The glass masters were transferred to another cleanroom and put on a laser mastering machine. The CD master tape was played back and the audio data transferred to the glass master. The cleanroom-clad operator would manually cue up the tape, set the recording laser power, and synchronize the tape playback with the disc cutter.

The exposed glass master was then sent to another cleanroom—again with workers inside—to be chemically developed, creating pits in the photo resist where it had been exposed to the recording laser. The developed master was delivered to yet another cleanroom, where it was coated with silver, then dipped in an electroforming tank to produce mothers and stampers.

The entire process requires about 1500 ft² of expensive cleanroom space and a dozen workers outfitted in cleansuits.

The new AMS mastering system is considerably more advanced. Occupying a 20' by 18' footprint, the AMS performs all the processes described above without a cleanroom. The operator loads the AMS with raw substrates and 8mm Exabyte tapes containing the audio data. A few button pushes later, finished stampers come out the other end. The AMS cleans, coats, and dries the substrate, loads it on the integral laser-mastering machine, cuts the glass master, removes and chemically develops the glass master, coats it with silver, puts it in the electroforming bath, and outputs a ready-to-use CD stamper. Up to 20 CD audio programs and substrates can be loaded in the AMS at a time. A single operator, sitting in a normal area outside the AMS—not a cleanroom—merely monitors the AMS's automated functions and waits for the stampers.

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SAM'S SPACE

SAM TELLIG GIVES HIS SYSTEM AN ATOMIC WORKOUT

"Y"ou are not going to believe this.

It was Lars with another audiophile tweak.

"What is it this time, Larsik? New cables? Magic dots? Room treatment?"

"No, it's something totally different. It's from Yim Aud."

"You mean Jim Aud, of Purist Audio Design."

"That's what I said: Yim Aud."

(sigh)

"What is it?"

"It's a CD you play for 24 hours and it breaks-in your system."

"What do you mean, breaks it in?"

"You have to hear it for yourself. Your system sounds different after you play the disc. Do you want to borrow it?"

"No way. Remember when I put those Microscan vibration dampers on my Advent speakers? A few days later they fell off and took the paint on the back of the speakers with them. Give the disc to Lew. Give it to Brass Ear. Give it to Howie. Let them use it first, and if no one's blown up his system after a month, then maybe I'll try it."

"You're being stubborn."

"I'm being cautious. Remember l'affair Armor All? That was one of your tweaks."

"It was yours," Lars shot back. "You're the one who put me on to Armor All."

"I was the one who suggested that it might be a way to clean discs; you're the one who discovered it was a disc treatment."

"You should be treated."

I paused.

"We all should be treated, just like Low's wife Anita says."

There it stood for a month or so, while Lars, Lew, Brass Ear, and others experimented with the System Enhancer CD from Purist Audio Design. And after no one nuked their system with Yim's disc, I then felt free to try it.

"You'll be amazed," said Lars. "You're going to hear a big difference. It will give your system a big yolt."

"Yolt?"

I missed that one.

"That's what I said. Yolt."

"Ah."

Prist Audio Design system-enhancing CD-R

"The trouble with you is you treat everything as a yoke," Lars said in all seriousness. "This disc is not a yoke. Try to make sure Stereophile puts it in the March issue, not for April Fool's Day, your favorite holiday."

I tried the disc.

At the time, my main system was in flux, with the Pioneer PD-65 (a processor I'm not yet ready to write about), the Audible Illusions Modulus 3 preamp, the new B&K ST-1400 power amplifier, and my latest pair of Quad ESL-63 USA Monitors. Analog didn't come into play. I did more or less as I was told: put on the disc and adjust my system to the lower range of a normal listening level, and go to bed. Fortunately, my listening room's across the house from my bedroom—the strange noises were sure to keep Marina and me awake all night.


I couldn't wait 24 hours. I couldn't even wait 12. I played my system the next morning, and like Lars said, this is no yoke—I experienced a genuine yolt. (Figuratively, of course. The disc had done my system no apparent harm.)

In fact, the system sounded rejuvenated—as if it had had a shot of adrenaline. It was as if the throat doctor had cleaned my sinuses, or as if I'd cleaned out my system with an enema, or as if the Roto Rooter man had cleaned out all the pipes. Sorry about the nasty images, but everything flowed. The entire system sprang to life.

Probably the most amazing thing was the transformation of the still-new B&K ST-1400 amp, which, before it got Yim's yolt, had been sounding quite good, but a little ragged—not quite broken-in. The disc turned the B&K into a Krell. I'm exaggerating, of course—I haven't heard the latest Krells. But the B&K sounded like a whole different amp: smoother, cleaner,

1 Jim Aud is an engineer who used to work at a nuclear power plant developing those "liquid jacket" interconnects and speaker wires that are still known in some parts as the Texas water cables, although they're now filled with something else. I only tried them briefly, because I was always afraid they'd spring a leak. Besides, I already have a good collection of cables and interconnects. But Lars, Lew, Brass Ear, and others swear by them; and Lars has one of the best-sounding systems I've ever heard.
more detailed, and much more dynamic. In fact, on my Quads, the B&K sounded like a real powerhouse for a $548 amp, with amazingly strong, tight, and dynamic bass. Of course, since I was listening to the sound of the entire system, maybe the pre-amp, speakers, digital processor, interconnects, and wires were also energized.

Adverse effects?
I could hear none in my system. I did notice the effects of the disc wearing off a little after a few days—the system didn’t sound quite so dynamic over time. But I also didn’t use the disc for 24 hours straight, as Jim says to do. (I’m waiting for a new amp to arrive. When it does, I’ll zap my whole system again.)

Here’s the thing.
Everyone I know who’s tried the disc has heard a big difference and has liked it. The comments are all similar: more dynamics, life, energy, smoothness, delicacy, detail.

But one ’phile thought his system sounded too dull after using the System Enhancer, and Jim Aud told me of another audiophile who ran the disc for several days straight, and his system then sounded not so much energized as exhausted. Jim says that in the unlikely event you don’t like the changes, return the disc to your dealer and you’ll get your money back. Your system’s original sound should be “recoverable” over time, says Jim, as the effects wear off. (After the initial 24-hour treatment, you’re supposed to play the disc through once a month—it’s about an hour long.) Keep in mind that I’m not actually recommending you use the disc. I use it. So do Lars, Lew, and Brass Ear. But the decision is ultimately yours.

Jim Aud developed the disc because people kept telling him it took too long to break in his interconnects and speaker cables. If he could break them in faster,

EQUIPMENT SOUNDS BETTER AFTER SIGNAL HAS PASSED THROUGH IT FOR A PERIOD OF TIME.

customers would be happier. Playing music or pink noise helped, but the process was still too slow—it could be weeks before cable was fully broken in. So Jim, who is heavily into something called “materials science,” developed the disc not as a commercial product, but as a tool for himself and maybe his dealers. I think even Jim was taken by surprise.

So what’s going on?
If you talk to Jim you’ll get into a conversation about how atoms in various materials rearrange themselves before and after “stress,” which can come in the form of heat, freezing (cryogenics), or being bombarded with electromagnetic energy. Stuff that looks the same to the naked eye is said to change at molecular levels. Jim talks about submitting a coathanger to intense heat, then letting it cool. The coathanger feels different. It might break more easily. The atoms have rearranged themselves.

Weird science?
Who am I to say? But I don’t think so.
Most audiophiles accept that equipment—whether speakers, wire, amplifiers, processors, whatever—needs to be broken in, or run in, with music or pink noise or both. Equipment sounds better after signal has passed through it for a period of time. In the old analog days, I remember listening to FM for a few hours before playing records, but it still took another hour before they sounded good. (Maybe it was the cartridge getting limbered up.)

Jim told me that if you took two systems, played jazz on one and, say, classical on the other, the two systems would sound different over a period of time.

Aha!
Maybe this explains why I’ve found that jazz seems to warm up my system differentely than classical—gives the system more life, more dynamics.
The Meridian High Definition Music System realises for the first time the full potential of digital sound recording. No other audio system carries the digital signal from a compact disc to the heart of the loudspeaker. The benefits are clear; no distortion or compromise; easy instant remote control; and error free adjustment to match your room acoustic. Soon, all sources will be digital. Today, the Meridian High Definition Music System shows the way.

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Only Meridian can bring you this level of sound quality and convenience today. Ask your dealer to demonstrate the Meridian High Definition Music system or call us for details.
Strange? Jim Aud didn't think so.

Risk?

Who knows? Since this disc will likely change the sound of your system, there's always the chance that you won't like "after" more than "before." You have Jim's word that changes are "recoverable" I think they are, because the effects do seem to wear off. But at the risk of repeating myself, you must accept the risk, however small.

Also, I can imagine some audiophiles going overboard, playing this disc too long, too loud, blowing up amps, woofers, tweeters, and the like. If you do decide to try the disc, follow instructions. Otherwise the atoms might rearrange themselves too much and get worn out—atomic fatigue!

I decided to have some fun.

One night, while Marisa was visiting her parents, I decided to treat the TV room's system. (The laser disc player accepted CDs.) The system came to life overnight—Oprah Winfrey sounded much more dynamic the next day.

"Please turn down the TV," said Marisa. "It sounds too loud." I tried the disc in my Sony Discman™ connected to a pair of headphones. Same thing—more dynamics, more detail, greater smoothness. Jim says you can treat your car system, too, although I don't know why you'd want to run the battery down playing it for 24 hours.

"I need to play this disc on the car radio," I said to Marisa after coaxing her away from Beavis and Butt-head. "On the way up to Toronto. Nine hours there, nine hours back—18 hours should be enough."

"You mean you will play the disc throughout the entire trip, while we listen?" asked Marisa.

"Da, it has to be at normal volume levels. And if the disc isn't done the moment I pull into Yuri and Ira's driveway, I'll have to stay in the car until it's finished—you can't stop it in midstream. Jim warns of adverse consequences if you do."

Of course, I was only joking about playing this disc all the way to Toronto and back.

Now the bad news. The System Enhancer Disc retails for $150. Yes, this may be the most expensive CD ever. Of course, it comes in a handsome hardwood box, like megabuck cartridges of yore. Jim hasn't been able to get the disc manufactured like a normal CD and get the same effect, so each one is recorded in real-time on a CD-R machine. Of course, he can only make so many.

Could someone else come up with a disc that produces the same effects? Maybe. When I told one speaker manufacturer about this, he said, "Aha. Makes sense. Take some pink noise; add some other frequencies, especially those that aren't normally found in music, and you might have a disc that breaks-in your system faster."

Maybe. Even Jim Aud admits that someone else might be able to create such a disc and come up with similar results. But for the moment, Yim has the yump on all others (though Gryphon is now advertising a box and Sheffield Lab a CD that are said to break systems in more effectively). Moreover, Jim swears that his disc is not a series of random noises—there's a method in the madness. He says that different parts of the disc are intended to break-in different materials according to a special sequence.

Yes, it's all very, very strange.

FLASH!

Someone's amplifier has blown up while playing the Purist System Enhancer CD. The amp belongs to Ken, who recently bought a modified Dynaco 35. During what Ken says was Hour 19 of playing the disc, "the tubes flashed and the left channel went up in a puff of smoke." He lost the output tubes on one side, and blew a diode and a resistor.

Still, Ken is not rushing to blame the disc. The amplifier is, as he points out, 30 years old, and the diode and resistor were original parts. Maybe they would have blown anyway, if the amp had been left on for 19 hours straight, or the next time the amplifier was turned on.

Do I think this is a risky disc? I tend not to think so, provided you follow Jim Aud's instructions. But I'm not issuing any guarantees, and neither is Stereophile. I'm going to keep using the disc, both to keep my system humming and to break-in new equipment. I'm willing to accept the risk-reward ratio—whatever it is. And make no mistake about it: I think the sonic rewards are great.

MORE WEIRD SCIENCE

The other day I was in the supermarket buying some fish when I saw a LaserLight Digital CD on sale for $2.99 with coupon—The Bagpipes & Onions of Scotland, performed by The Gordon Highlanders (LaserLight 15 159). The thought hit me right away: what would happen if I treated my system overnight with this disc? Would I hear a difference?

I tried it, and sure enough, I did hear a difference the next morning. Or at least I thought I did—enough to give me pause. The disc was three bucks. It could be that playing any disc repeatedly through your system might change the way your system sounds. Maybe you need to treat your system with Mozart on Monday, Louis Armstrong on Tuesday, bagpipes on Wednesday...

Don't get me wrong—I'm not saying that using the $3 LaserLight bagpipes disc effected the same changes as using the $150 Purist System Enhancer disc. And I had already treated my systems with the Purist disc by the time I discovered the bagpipes disc. But I do think I heard a change after a dozen Scots blew the wind through my system overnight.

Now—one more thought for the insecure: Are you de-enhancing your system's sound by playing certain kinds of music? Does each audiophile get the sound he or she deserves, depending on taste in music? Huh—huh—huh—huh...

AND EVEN MORE

Time for another zap from one of our readers.

I got a letter the other day from Rich Westerman of St. Anne, Illinois. He used to be heavily into model railroading, a habit he says he's kicked. "Before I was successfully deprogrammed, I was using a product that I later discovered had use in my audio system. The product was Rail Zip. It is used by model railroaders as a contact cleaner and enhancer. I remember the tremendous improvement in the performance of a model engine after treating all my rail joints with Rail Zip.

"After my audio system was up and running in its first incarnation, I began reading about products such as Tweek and wondered if they bore any relationship to my old friend, Rail Zip... The odor was the same, the consistency was identical, and after treating my system's contacts with Rail Zip, the results were identical." Note that our friend Rich is not saying that Rail Zip and Tweek contact enhancers are identical; he just wonders if they might be. Perhaps Sumiko, the distributor of Tweek, might enlighten us.

Rail Zip is $4.95 for 4oz, Sumiko Tweek is $19 for a small bottle. 

---JA
High-end audiophiles are space freaks—we relish the warmth and spaciousness of a fine, old perfor-
ing hall almost as much as we do the music recorded in it. But my attendance at a series of orchestral concerts held last summer brought home to me—as never before—the sad fact that our search for the ultimate soundstage is doomed to failure: we're trying to reproduce three-dimensional space from a two-dimensional system, and it simply can't be done.

The performance hall in Boulder's Chautauqua park is a big, barn-like, wooden building that has no memorable acoustical signature, unlike, say, Boston's Symphony Hall or Philadelphia's Academy of Music. In fact, from a Row-

H, center seat, I'm hardly aware the hall has any reverberation at all. But one July 4th concert, held outdoors on the green, left no doubt in my mind that the seemingly benign auditorium had been contributing immensely to the orchestra's indoor sound. Outside, it sounded completely different—

cold, stark, and dead. The orchestra had no acoustical frame around it.

Real-life ambient space reaches our ears from all directions, as a multiplicity of diminishing echoes from the concert hall's sides and rear, and our ears expect to hear the echoes as such. As long as the reproduced soundstage is more or less bound by two frontally located speakers, we know, at least subcon-

sciously, that what we're hearing is wrong. There's only one way to put the hall sound where it belongs—all the way around you—and that's with a surround-sound system.

Most of us who think of surround-sound tend to think of Home Theater and raucous blockbuster movies—with airplanes roaring over one shoulder, explosions blasting behind the other, and gunshots soaring all around. Except for those who remember the quadraphonic debacle of the '70s, most audiophiles are unaware that surround-sound can also be used to reproduce musical space the way it ought to be reproduced—from all directions.

Audiophiles often choose loudspeakers that excel in sound-

stage presentation over those that give a more convincing portrayal of the instruments themselves. Much of that "space" around and behind your loudspeakers, however, is ersatz. A reviewer's listening room greatly contributes to the sound's apparent realism—sounds reflecting from the wall behind the loudspeakers enhance spaciousness, and reflections from the other room boundaries help to restore some of the enveloping ambience of a real space that the system can't reproduce by itself.

This becomes immediately apparent when you listen to the same loudspeakers outdoors or put sound-absorbing treatment on the walls behind them. I have found that when stage depth disappears. There's apparent distance but little "real" depth. That deep, wide soundstage in your listening room isn't coming from the recording, it's largely the result of interference between the reflected Left and Right signals, which gives rise to "comb-filtering."

Comb-filtering is the creation of narrow frequency-

response dips (which resemble the teeth of a comb) through interference between two or more similar signals that are out of phase. This happens when the sounds from two loud-

speakers reflect off the front wall; the reflections come from the entire area of the wall and follow many paths of different lengths on their way to your ears. If the speakers are sym-

metrically placed and the listener is dead-center between them, the combing dips will be at pretty much the same fre-

quencies in both channels; there'll be little intra-channel difference due to the dips, and negligible spatial enhance-

ment from mono recordings. But because the hall ambience on a stereo recording is very complex and is vastly differ-

ent between the L and R channels, their front-wall comb-

ing produces tremendous differences in the reflections from the wall to the left and right of the speaker pair—differences I believe the ears interpret as greatly enhanced spaciousness.

This is why minimonitors so often throw such an impres-

sive soundstage—they comb a wider range of middle frequ-

encies than large speakers. A piston-type loudspeaker (as opposed to a dipole) radiates low frequencies in all directions, and high frequencies forward—toward the listener. The frequency at which radiation begins to change from omnidire-

1 There were four competing four-channel "systems," and most quadraphonic recordings were used for blasting sounds at the listener from all directions rather than for trying to reproduce acoustical space. Classical listeners were offended, rock/pop listeners didn't give a damn, and the decoders didn't work very well. It died of natural causes, and the industry still avoids using the Q-word. The S-word carries no such stigma.

2 These are often called rear-wall reflections, because the wall is behind the speakers. In surround-system parlance, the rear wall is the one behind you, so it's less confusing to call the one behind your speakers the front wall.

J. Gordon Holt explains both why he feels the High End should abandon two-channel stereo and why it is misguided in its choice of loudspeakers for stereo reproduction.
Tom Miller's "Tweak of the Year"* is now on CD.
*(the absolute sound, vol. 17, #92)

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tional to directional relates to the width of the enclosure’s front panel, and becomes higher as the panel gets narrower. A very narrow speaker—and they don’t come much narrower than a minimonitor—is omnidirectional well up into the midrange. This means an unusually wide range of those frequencies that our ears use for direction-finding is wrapping around the enclosure and being combed off the front wall. [See Sidebars.—Ed.]

Since combed wall reflections that add spaciousness are mainly a result of L- and R-channel ambience, they do relate to the acoustical environments of the recordings themselves. This is evident from the range of apparent soundstage “dimensions” that we hear from different recordings. But a lot of that soundstage information is actually disinformation; it’s being synthesized by the front–wall combing. It’s not a reproduction of what’s on the recording, because two loud-

COMB-FILTERING & SOUNDSTAGE DEPTH

Is soundstage depth a psychoacoustic illusion brought on by strong reflections of the speakers’ sounds from nearby walls? While there’s no doubt that discrete sidewall reflections can lead to beyond-the-speaker lateral imaging, and that planar speakers produce very strong reflections due to their undamped full-range backwaves—which do contribute an added sense of spaciousness—conventional monopole speakers tend to be quite directional in their upper midranges and above.

This is true even with small speakers. Fig. 1, for example, shows how the response of a minimonitor widely regarded as throwing good soundstage depth, the Rogers LS3/5A, changes as the microphone moves from the tweeter axis at the front to behind the speaker.1 The LS3/5A’s narrow baffle does contribute to wider-than-usual dispersion in the mid-treble, the axial response holding up over a wide ±45° window. But apart from the persistent peak at 3.7kHz, there is no significant treble output much beyond 60° off-axis. In the bass, the speaker is omnidirectional, of course, due to the wavelengths being so much larger than the size of the enclosure. At 100Hz, the response to the speaker’s rear is only a little down from what is in front. But by 1kHz, the speaker’s output is mainly to the front, the level at 90° being 7dB down (the cursor position) and around 15dB down at 180°. Even with the LS3/5A, therefore, the reflection from the wall behind the speaker will mainly consist of bass and lower-midrange frequencies.

My experience with minimonitors runs counter to Gordon’s hypothesis, in that the farther away you move them from room boundaries, the better the image depth they produce. Take the Rogers Studio 3 minimonitor that I reviewed last December. To offset its “mini” nature, the designer, Andy Whittle, chose an overdamped sealed-box bass alignment that sounds too lean with the speakers out in the room. But place the Studio 3s close to the wall behind them and the bass region’s level comes up, giving a much better balance between bass extension and articulation. However, the price to pay for this has been, in my experience, a degradation of the speakers’ soundstaging—the opposite of what Gordon’s arguments might suggest.

Close to the rear-wall boundary, which will maximize the reflection’s strength, hence of any comb-filter response dips, the soundstage of the Studio 3 lacked depth and focus. But in the room, where reflections will be both weaker and spaced further apart in time, and any comb-filter notches will be less deep, the Studio 3s’ image focus was more precise and their soundstage featured better depth.

JGH’s hypothesis is intriguing, however, and I encourage readers to perform their own experiments. However, you will need a source that’ll allow you to break free of the “I like it/I don’t like it” syndrome. The question is whether or not you like soundstage depth, but whether or not that depth represents accurate reproduction. You’ll need to be able to check your system’s soundstaging width and depth abilities in absolute terms.

I included track 10 on Stereophile’s Test CD 2 for this purpose. It features Larry Archibald speaking and clapping as he walks from side to side and from the rear of the nave to the piano position in the Santa Barbara church where we recorded Robert Silverman performing Brahms for our 1991 Intermezzo album.2 The Blumlein mike technique used by Kavi Alexander (see next Sidebar) preserves image-depth information relatively accurately, though as with all stereo miking techniques, it folds images in front of the microphones over to being behind the plane of the speakers. The more depth you hear on this recording, the more accurate your speakers and/or system are. If you hear no depth even though the sound becomes more reverberant—if Larry’s image doesn’t move behind the plane of the speakers when he’s supposed to be at the back of the church—then you know that something in your system is distorting image depth. And in my experience, strong boundary reflections, an over-reverberant listening–room acoustic, or inherently poor loudspeakers are the usual suspects.

—John Atkinson

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1 I used the Italian Outline speaker turntable, distributed in the US by Old Colony Sound Lab, to make this series of measurements. It can be automatically controlled by the MLSSA, TEF, or LMS software to rotate the loudspeaker a specified number of degrees between measurements. Details from Old Colony Sound Lab, P.O. Box 494, Peterborough, NH 03458-0494. Tel: (603) 924-9464. Fax: (603) 924-9467.

2 Vol. 16 No. 12, p. 189.

3 Both the Test CD 2 ($7.95) and Intermezzo ($16.95 on LP or CD) are available by mail-order. S&H adds $3 per item. Call (800) 358-6274 for credit-card orders, or write to Stereophile Record Department, P.O. Box 5960, Santa Fe, NM 87502.

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Stereo\Tell, March 1994
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speakers are incapable of reproducing all the recorded depth information. [See Sidebar—Ed.]

It's rather like height information: Some systems sound as if they reproduce it, even though there's no way two mikes can capture it or two speakers can reproduce it. The up-and-across imaging of the Chesky Test CD LEDR demo is ersatz, too, because it relies entirely on the ear's interpretation of a progressive change in the spectral distribution of the signal. If the CD is paused when the "image" is at its highest point, then restarted for a fraction of a second, the sound will be heard to image at the height of the speakers, not above them. We have to hear it changing in order to interpret its equalization as height information.

Reflections from the side and rear walls of the listening room are necessary, of course, because without them, our ears would receive no 360° reflections at all, and their lack while listening to music would be oppressive. Yet even when a listening-room's acoustics are optimized, no one will argue for a moment that the "sound" of that room bears any resemblance to the reverberant space of a large hall.

Surround reproduction allows the reverberant energy in the recording itself to reach us from the sides and back as well as from the front, providing a sense of envelopment by and involvement with the music that's impossible with two-channel stereo. And because the "room" sound is coming from the speakers and not from the original recording space, it sounds like a hall rather than a small room. Indeed, true ambient surround-sound works best in a very dead listening room, in which the only spatial cues returned to the listener are those of the original recording venue. This can seem to put you into the concert hall, instead of making you listen to it though a picture window. The difference must be heard to be appreciated.

The ambient surround field extends all the way around the listening seat, giving a much more palatable impression of the size and acoustical qualities of the performing space. Off-stage sounds will frequently image all the way out to the sidewalls, and the images are firm; i.e., you can turn to face them and they'll stay put, unlike similar beyond-the-speakers effects that are sometimes heard from two-channel systems.

And there are other benefits. Surround reproduction makes a system sound effortlessly louder during fortissimos, as though its dynamic range has increased. The difference sounds like about 3dB—the equivalent of doubling the available amplifier power, even though a sound-pressure meter may show no increase in level. And surround reproduction can yield

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**Blumlein on Soundstage Depth**

Interestingly, Alan Blumlein's original 1931 patent application on stereophonic reproduction was quite specific about a two-channel system's ability to reproduce two dimensions—width and depth—to the front of the listener. This might be expected from the nomenclature; the word "stereophonic" is derived from the Greek word for "solid." To quote from the patent application, as reprinted in the 1987 AES Anthology, Superphonic Techniques,1 compiled and edited by John Eargle:

"The fundamental object of the invention is to provide a sound recording, reproducing and/or transmission system whereby there is conveyed to the listener a realistic impression that the intelligence is being communicated to him over two acoustic paths in the same manner as he experiences in listening to everyday acoustic intercourse and this object embraces also the idea of conveying to the listener a true directional impression... An observer in the room is listening with two ears, so that echoes reach him with the directional significance which he associates with the music performed in such a room... When the music is reproduced through a single channel the echoes arrive from the same direction as the direct sound so that confusion results. It is a subsidiary object of this invention so to give directional significance to the sounds that when reproduced the echoes are perceived as such."

In other words, if you can record not only a sound, but also the direction in space that that sound comes from, and can do so for every sound wave making up the soundstage, including all the reflected sound waves (the reverberation or "echoes"), then you can reproduce a facsimile of the original soundstage, accurate in every detail. In addition, because the spatial relationship between the direct and reflected sounds will be preserved, that reproduced stereo soundstage will give a realistic illusion of depth.

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1 Available for $27 (AES members) or $30 (Nonmembers) from the Audio Engineering Society, 60 East 42nd Street, New York, NY 10165-0075; $7.50 (212) 681-2385.

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The patent goes on to explain that "It will be clear that obliquity of the direction of sound wave propagation relative to the microphones... will produce differences of intensity at the loud speakers [sic] so as to give an impression to an observer of oblique sound incidence.

If you have two independent information channels, each feeding its own loudspeaker, then the ratio of the signal amplitudes between those two loudspeakers will define the position of a virtual, or phantom, sound source for a centrally placed listener equidistant from them. For any ratio of the two speakers' sound levels, this virtual source occupies a dimensionless point located somewhere on the line that joins their acoustic centers. The continuum of these points, from that represented by maximum-left-zero-right to that represented by zero-left-maximum-right, makes up the conventional stereo image.

If there is no recorded reverberant information, then the brain will place the virtual image of the sound source in the plane of the speakers; if there is reverberation recorded with the correct spatial relationship to the corresponding direct sound—if it is "coherent"—then the brain places the virtual image behind the speakers, the exact distance depending on the recorded direct-sound/reverberant-sound ratio.

Note that this illusion requires processing by the brain. Some people cannot perceive stereo reproduction at all—they always hear two loudspeakers and no phantom images between them. And as Gordon correctly points out, the tradeoff with stereo reproduction is that the reverberation enveloping the real-life listener of necessity folds into the frontal image. But for studio-based, nonclassical music recordings, this has not been a major factor in limiting stereo's acceptance. Only now, driven by the film industry's need for more than two information channels to compensate for the lack of three-dimensional visuals, has true surround sound-only playback become practicable.

—John Atkinson
more realistic instrumental timbres than you may have ever heard, because it’s no longer necessary to compromise the sound of the loudspeakers in order to make two of them sound as good as four.

Or weren’t you aware that those “state-of-the-art” loudspeakers in your cherished audio system were purposely designed to distort the sound? They were, because literally accurate loudspeakers don’t sound as realistic in two-channel stereo as they would in four.

**THE TWO-CHANNEL DIFFERENCE**

If you’re skeptical, then try this simple experiment: Dig out a stereo recording of any large-scale musical work with an active bass line—symphonic, operatic, cathedral pipe organ, what have you—and fire it up. Then switch your preamp to mono A+B mode. (If your preamp lacks a mono mode, see fig.1.) The first thing you’ll notice, of course, is that the soundstage has collapsed. The second thing you’ll notice is how much thinner the sound has become. Much of the upper bass/lower-midrange warmth and richness are gone, and the sound seems almost pinched in comparison to the stereo reproduction.

Contrary to what your ears tell you, you’re not hearing a difference in frequency response. But one characteristic common to large-scale recordings is that they have lots of big-hall ambience on them, and that’s what accounts for the

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3 This is partly because much of the low-frequency information in digital orchestral recordings is not correlated between the channels, as JGH explains later. Played in mono, this bass information will therefore tend to cancel. With LP recordings, however, the mastering engineer would often sum the channels in the bass, to avoid large vertical excursions of the cutting stylus that would ruin the master by breaking through the lacquer to the aluminum below. Would using LP rather than CD as the source affect the outcome of JGH’s experiment?

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PART OF THE ART OF RECORDING IS IN GETTING JUST THE "RIGHT" MIX OF REVERBERATION AND DIRECT SOUND.

difference. Our ears, it would seem, respond to hall ambience quite differently in stereo from the way they do in mono.

Psychoacousticians seem unable to explain why this is so. The consensus appears to be that the phenomenon is related to auditory masking—the tendency for sounds to obscure softer sounds of similar frequency coming from the same perceived direction. In mono, all sounds come from the same direction, so the hall reverb, being softer than the direct sounds, is largely masked by them. In stereo, the instruments producing those reverberations are heard to image at specific locations across the soundstage, while the reverberant energy comes from two spatially separated sources, offsetting some of the masking effects of the direct sounds. The result is that the reverberant energy becomes more audible—it sounds louder, even though, as mentioned previously, frequency-response measurements will reveal no differences that could begin to account for the extent of the perceived difference.

In a large hall, the upholstered seats and the air itself absorb a lot of treble energy, so the reverberation consists predominantly of midrange and midbass. If we place a linear-response loudspeaker on the stage and measure its frequency response from an audience seat, we'll get something that looks like fig.2. Because it's coming from all directions, the reverb is equally loud throughout the hall, but the direct sound waves from the stage become increasingly weak as they travel away from the source. All listeners farther than a certain distance from the stage (the so-called "far field") will hear more of the reverberant energy than direct sound, but for those in the near field (where direct sounds predominate), the reverb is quieter than the direct sounds and becomes susceptible to masking by them.

Part of the art of recording is in getting just the "right" mix of reverb and direct sound, and it usually turns out that the reverb content is below the level where masking can occur. Once a stereo recording is made, the amount of reverb on it is the same whether we listen to it in mono or stereo. But in stereo, the two-source reproduction unmasks some of the reverb that's obscured by the mono reproduction, making the sound fuller and richer.

Exactly the same things happen when we reproduce that reverberant field from two more directions, such as from the left- and right-rear quadrants of the listening space; then, virtually none of the hall's ambience is subjected to masking by the direct sounds. The whole lower range sounds even fuller and richer than it does in stereo.

The amount of low-end difference between two-channel and multi-channel reproduction of large acoustical spaces is almost as great as that between mono and stereo. It has its greatest effect on sustained bass sounds, like those of bowed cellos and bass fiddles, which take on a lush bloom that two-channel stereo can usually only suggest. Yet most high-end speakers seem perfectly capable of reproducing that bloom without the help of surround channels. Why? Because of the miracle of equalization, that's why.

MORE REAL THAN REAL

One of the distinguishing features of high-end audio products is that they're designed to sound good rather than just to measure well. We all acknowledge this fact and even see it as something to be proud of, because it makes product design as much a noble art as a heartless technology. High-end loudspeakers haven't measured very well for some years now, and the bass difference between unequalized stereo and surround reproduction is a major reason.

Stereo loudspeakers with truly flat frequency response tend to sound weak through the midbass because much of the hall's ambient warmth is being masked. So speaker manufacturers, ever attuned to the aesthetic sensibilities of music-loving audiophiles, learned early on that a slight clockwise-response tilt—usually topped off with a treble lift5 to offset an otherwise dull top—sold more loudspeakers, because it gave large-hall bass some of the richness and warmth that was missing when the speakers had a flat measured response. The tilt is relatively slight—amounting typically to only about a 3–4dB difference at 40Hz and 12kHz—but it's conspicuously audible and immediately earmarks any speaker that has it as a "high-end" product rather than a professional one (fig.3). In fact, today's high-end audiophile speakers and those used in theaters and recording studios almost constitute two different kinds of speakers: The consumer models are laid-back and full-sounding, while the pro monitors are, by comparison, up-front, cool, detailed, and relatively lacking in depth.

Not everyone applauds this practice of "prettyfying" loud-

5 I have long suspected that HF lift is the reason so many high-end audiophiles are plagued by minuscule amounts of signal distortion—it's the aural equivalent of a microscope. Most music lovers insist that audiophile systems sound tipped-up. That's because they are.

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**Fig.2** Averaged response of a flat-response onstage loudspeaker, as measured from a mid-hall listening seat. The measured HF rolloff is due to absorption by the air and the upholstered seats. Listeners will perceive a much flatter response (see text).

**Fig.3** Anechoic frequency response of a typical high-end loudspeaker. The across-the-board clockwise tilt adds warmth and body; the top-octave lift compensates for missing detail.

Stereophile, March 1994
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ENGINEERS CLAIM AUDIOPHILES ARE MISGUIDED FOR PREFERING EUPHONICALLY COLORED SYSTEMS TO ACCURATE ONES.

Speaker sound. Purists argue that it’s not an audio system’s job to make recordings sound “better” than they really are, but to reproduce the recording as honestly as possible—the ongoing accuracy-vs-musicality debate. But if a recording of large-scale music—which I view as the ultimate challenge to a system—is reproduced through two channels rather than four (or more), it won’t sound as realistic from an accurate system as it will from one that’s been doctored up to sound more like real music.

Neither the mainstream audio nor the audiophile community has ever come to grips with this dichotomy: Engineers claim audiophiles are misguided (or worse) for preferring euphonically colored systems to accurate ones; audiophiles claim the engineering fraternity doesn’t listen critically enough to the sound of their own systems. Neither camp has apparently entertained the thought that the source of their differences might be the differences between 90° stereo and 360° surround.

A CASE HISTORY

Generally, the engineering community simply dismisses high-end audiophiles as a lunatic fringe. But the High End, itself, has been unabashedly hostile toward the sonic qualities valued by audio professionals.

John Atkinson’s 1992 review of the Westlake BBSM-6F and the Acoustic Energy AE3 loudspeakers (Vol.15 No.1, p.207) is a case in point. The Westlake is a typical professional monitor of moderate size, that I understand to have been designed “by the book.” The AE3 is a high-end consumer loudspeaker with all that that implies. JA faulted the BBSM-6F for a balance that “favored the midrange,” bass that was “shelved down and lightweight at low levels,” and “disappointing” soundstage depth. (He also noted a “striking immediacy” and an “extremely open, detailed” sound, neither of which were apparently judged important enough to redeem the product.) The AE3, on the other hand, was generally well received, partly because of “bass that was full and extended.”

In light of those reviews, the accompanying on-axis frequency-response curves were illuminating. Give or take the inevitable bumps and dips, the Westlake’s averaged response was a horizontal line, while the AE’s had the characteristic clockwise warming tilt of the “musical” loudspeaker. [See Sidebar.—Ed.] While frequency response isn’t the only determinant of low-end weight (woofer Q is important, too), it is still a major one, and the audiophile preference for that clockwise tilt has permeated almost every review published by the high-end press.

HORSE FOR COURSES

Well, so what? The extra warmth makes the sound more realistic, doesn’t it? That’s the catch: It doesn’t necessarily. Since the tilt is fixed and indestructible, it also affects the kinds of recordings that don’t need it. This is what has given
rise to the conventional wisdom that different loudspeakers “favor” different kinds of music. It’s true. Speakers that sound suitably rich and full-bodied when reproducing large-scale music do sound fat, sluggish, and turgid when reproducing small-scale stuff like jazz, folk music, solo piano, and chamber music. (Rock, in particular, demands a driving, punchy sound.) Conversely, speakers that sound fittingly lean and articulate with small-scale music invariably sound thin and pinched with the big stuff.

Speaker manufacturers will dispute this, because it’s in their interest that you not know about it. The fact remains, however, that the speakers which best reproduce the spectral balance of one kind of music sound worst with the other.

To demonstrate why this is so, repeat the previous stereo/mono comparison, but with some small-scale performing groups. As before, the soundstage will collapse when you switch to mono, but the apparent spectral balance will hardly change at all—far less than when playing large-scale music.

The reason for this should be obvious. Most small-scale music is performed (and recorded) in a small acoustical space...
that doesn't support the kind of reverberant field a large hall does. The room doesn't sound “rich and warm,” so the small-scale sound doesn't need the built-in loudspeaker equalization that so enhances the sound of large-scale music. If it gets it anyway, it sounds lousy.

In other words, what we have here is a situation where loudspeakers can either be optimized for one kind of music at the expense of the other, or compromised for both. And that is what we proudly call the “the State of the Art!”

The Surround Solution

A surround system composed of unequalized—i.e., truly neutral loudspeakers—is the only type that can reproduce all kinds of music with the same musical accuracy. With small-scale music, the surrounds are hardly active at all, so the sound is as lean, crisp, and immediate as it should be. With large-scale music recorded with natural hall ambience, the surrounds spring into action and—with natural warmth. This means that a single system can do justice to all kinds of music,

an important role in determining sound quality, in a real room, as opposed to an anechoic chamber, the off-axis behavior will also affect the perceived balance.

To illustrate this point, figs.3 and 4 show the spatially averaged responses for each of the two loudspeakers taken in my listening room. Though this measurement will only be valid for my listening environment—which is why I generally include it in my own speaker reviews—it has proved to be a relatively good indicator of perceived balance, if not soundstaging. Again, the Acoustic Energy's exaggerated bass balance (fig.3) makes its presence known, while the Westlake's entire bass region (fig.4) is shelved down, as I noted during my auditioning. (The 63Hz peak and the suckout at 50Hz in both graphs are residual room effects that have not been eliminated by the spatial averaging; the lack of energy in the 250–400Hz region is the cancellation effect of the floor reflection, which always appears in in-room power responses like these. The degree of its audibility is open to question.)

Though the Westlake again has the smoother balance, its more limited lateral dispersion in the treble gives an in-room response that slopes down, even when compared with the Acoustic Energy, which, despite its greater treble energy in-room, also has an overall downtilt to its response. Coupled with the shelved-down bass, this results in a very midrange–prominent in-room balance, which is what I perceived? (Remember that all my measureaments are done after the auditioning.)

Coupled with a high dynamic range, this balance is appropriate for a “monitor” speaker, of course; the engineer needs to hear midrange detail thrown forward in order to make optimal judgments concerning edit points, mixing choices, and background-noise problems. But for music reproduction, I found that, in the longer term, this vividity sounded unnatural and was fatiguing.

The Westlake's bass could be usefully reinforced by placing it near the wall behind it—or in the studio, it would be placed on the recording console's meter bridge, which would have the same effect. But the irony, then, would be that its already rather shallow, somewhat smeared imaging would be further degraded by the strong reflection from the close boundary (as I explain in an earlier sidebar).

To sum up my reviews, I felt that neither speaker sounded particularly neutral (which is perhaps why neither is still manufactured). The BBSM-6F's high dynamic range, a necessary design choice for a true monitor speaker, was not a significant factor in my own listening. However, for me, the Acoustic Energy's better, more accurate soundstaging offset most of its faults, while the Westlake failed to do enough of what I judged important. But to respond to JGH's general point, which could be condensed to “the better the soundstage, the worse the loudspeaker,” I have to say, “Sorry, Gordon, I think you're off-base on this one. Such speakers (if they are neutral) are the ones that give me goosebumps.”—John Atkinson

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*Fig. 3 Acoustic Energy AE3, spatially averaged 1/2-octave response in JA's listening room.*

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*Fig. 4 Westlake BBSM-6F, spatially averaged 1/2-octave response in JA's listening room.*
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WorldRadioHistory
When those who are familiar with live sound in a large space learn what surround-sound can do for the reproduction of that sound and space, they'll never be satisfied with two channels again.

Discrete reality
But back to reality. Not everyone responds to realism/neutrality in sound reproduction, because many audiophiles rarely get to hear the "real thing"—ostensibly the standard by which a reproduction is judged. But when those who are familiar with live sound in a large space learn what surround-sound can do for the reproduction of that sound and space, they'll never be satisfied with two channels again. Unfortunately, the average audiophile has a hard time learning this, because "going surround" isn't as simple as merely adding a surround decoder, an additional stereo amp, and two more speakers to an existing stereo system. If your present system has enough warmth to sound natural with large-scale music, it'll sound unnaturally heavy and distant when used in a surround system. This is why so many who claim to have tried surround reproduction have been disappointed.

In most cases, you can't just "try" surround-sound; you have to commit to it—to the point of starting from scratch with non-audiophile front speakers that weren't designed to sound in any way except neutral. Under the circumstances,

Because it's the result of countless reflections from the performing space boundaries, hall ambience consists of random-phase energy, and roughly half of this is more or less antiphase energy. The direct sounds of the instruments, however, are predominantly in phase, which means that the L-R subtraction will recover more reverb than front-channel sound. This makes it possible to get ambient surround-sound from almost every stereo recording currently available. In other words, you don't have to wait for the record industry to rediscover surround-sound in order to take advantage today of what it can do for musical realism. The surround signals are already on most of the LPs or CDs you buy; you just need the equipment to reproduce it.

Then there's SQ. SQ was the leading quadraphonic system, espoused by CBS (then Columbia), Vanguard, EMI, and countless small rock and pop labels, and it used a matrixing system similar to Dolby Surround. Hundreds of SQ discs were released during the quad years, many of which have been re-released on CD—usually with their surround encoding intact. Modern decoders will extract it (although they don't put the surround images precisely where they belong), producing even more spectacular surround than straight stereo recordings. Pop SQs often featured instrumental sounds coming from many different directions and sound effects zooming around the listener's head, and these are—I hesitate to use the word in such a serious magazine—FUN (there, I said it) to listen to the way they were intended to sound.

By reproducing recordings with much greater accuracy, a surround system lays the responsibility for musicality squarely on the recording engineer rather than the loudspeaker designer. Except for the improved low end, many recordings war's sound as spectrally correct as before, because, in fact, many recordings aren't very good. (It's hard to make "good-sounding" recordings when you have no idea what buyers are going to be listening to them on.) What does immediately and dramatically improve is the reproduction of the acoustical space that gives every large performing group its unique sound, and assures our ears that, at last, they are in the concert hall.

Surround recordings
Although proper surround reproduction requires a minimum of four loudspeakers, the maximum number of signals that can be delivered to consumers is two: front left and front right. This is as true for video sources as it is for audio-only ones. Home Theater's Dolby Surround channel is "matrixed" into the stereo front signals as antiphase information, making it sufficiently different from the front-channel information that it can be separated out by L-R subtraction and routed to the rear speakers. The same process allows us to extract ambience from audio-only recordings.

6 Generally, the earliest and latest stereo recordings are the best. During the '60s, '70s, and '80s, recorded sound was in creative free-fall.

7 Matrixing is the mixing of one or more additional signals into the stereo pair according to a set of mathematical "rules" that define image locations relative to front center in terms of phase angles and amplitude ratios (the matrix). When decoding, the same parameters are used in reverse (de-matrixing) to separate out the extra signals from the stereo pair.

Because it's the result of countless reflections from the performing space boundaries, hall ambience consists of random-phase energy, and roughly half of this is more or less antiphase energy. The direct sounds of the instruments, however, are predominantly in phase, which means that the L-R subtraction will recover more reverb than front-channel sound. This makes it possible to get ambient surround-sound from almost every stereo recording currently available. In other words, you don't have to wait for the record industry to rediscover surround-sound in order to take advantage today of what it can do for musical realism. The surround signals are already on most of the LPs or CDs you buy; you just need the equipment to reproduce it.

Then there's SQ. SQ was the leading quadraphonic system, espoused by CBS (then Columbia), Vanguard, EMI, and countless small rock and pop labels, and it used a matrixing system similar to Dolby Surround. Hundreds of SQ discs were released during the quad years, many of which have been re-released on CD—usually with their surround encoding intact. Modern decoders will extract it (although they don't put the surround images precisely where they belong), producing even more spectacular surround than straight stereo recordings. Pop SQs often featured instrumental sounds coming from many different directions and sound effects zooming around the listener's head, and these are—I hesitate to use the word in such a serious magazine—FUN (there, I said it) to listen to the way they were intended to sound.

Discrete reality
But back to reality. Not everyone responds to realism/neutrality in sound reproduction, because many audiophiles rarely get to hear the "real thing"—ostensibly the standard by which a reproduction is judged. But when those who are familiar with live sound in a large space learn what surround-sound can do for the reproduction of that sound and space, they'll never be satisfied with two channels again. Unfortunately, the average audiophile has a hard time learning this, because "going surround" isn't as simple as merely adding a surround decoder, an additional stereo amp, and two more speakers to an existing stereo system. If your present system has enough warmth to sound natural with large-scale music, it'll sound unnaturally heavy and distant when used in a surround system. This is why so many who claim to have tried surround reproduction have been disappointed.

In most cases, you can't just "try" surround-sound; you have to commit to it—to the point of starting from scratch with non-audiophile front speakers that weren't designed to sound in any way except neutral. Under the circumstances,

8 There are a small number of Dolby Surround music recordings available, the most recent of which is Emerson, Lake & Palmer's Return of the Mnistrie on Victory, which was specifically engineered for full surround-sound playback. RCA/BMG has also remastered the superb Tomita classical synthesizer transcriptions from the '70s in Dolby Surround using, the booklet says, "Snell Acoustics loudspeakers designed by Kevin Voeks" for monitoring. A cool namecheck for Kevin, who can also be seen sitting at the bar in a final-series episode of Cheers.

9 A factor in my own lack of enthusiasm for surround-sound is the lamentable quality of the electronics used in typical surround-sound systems. The only Dolby Pro-Logic devices I have heard so far that seem to be able to process music signals—as opposed to video soundtracks—without inflicting terminal damage are the Proceed PAV and the Meridian 500 Series DSP processor, with the Lexicon CP-3 best of the rest. (JGH is also a fan of the Pooeate.)

JA
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A wide range of models offer new levels of realism and comfort to enhance your listening. Whatever your musical preference, there is a Sennheiser headphone perfect for your style.

You've only got one set of ears. Go ahead, spoil them.
it makes more sense for someone who’s curious about surround-sound to listen at length to a system designed for it, like a good home-THX installation. Not that THX-approved loudspeakers are necessarily all that great; indeed, they vary significantly in sound. It’s just that their THX-mandated performance specs don’t allow for much frequency-response fudging. (There are no minimum-performance standards at all for audiophile loudspeakers.)

Most industry insiders agree that surround reproduction is where music in the home is going. They see the burgeoning home-video surround market as a foot in the door of American homes. Several firms are furiously working on ways of delivering discrete (as opposed to matrixed) surround-sound to consumers using data-reduction techniques, and they’ll be actively promoting it for music recording as well as for home-video sound. Dolby Labs has already licensed the manufacture of Pro-Logic chips that incorporate decoders for their cinema digital AC-3 data-reduction system. And others (such as the developers of Digital Theater Sound, first used for ‘Jurassic Park’) are almost certainly pursuing the same

10 “…two-channel stereo is a crock. The only reason [we have it] is because the phonograph record … could only contain two channels!”—Martin Holman of Lucasfilm, in an interview in the 1993 Premier Special Edition of Widecreen Review.

11 To which I would respond that the other reason is, at least for a centrally placed, solitary listener—and that’s what we are, aren’t we, fellows?—two-channel stereo works very well with the minimum hardware and data storage requirements: an elegant practical realization of William of Ockham’s famous Razor. —JA

THE TWO-CHANNEL CUL DE SAC
As long as we remain stubbornly committed to two-channel stereo, further advancement in reproduced realism just won’t happen. Sure, we can continue indefinitely to tweak what we have now, for a minuscule improvement here and a subtle improvement there. And while such endeavors are worthwhile, it’s time we faced the fact that trying to reproduce 3-D space from a 2-D system is ultimately futile. Surround-sound is the only way to do it.

Many audiophiles will resist the change, preferring the comfort of the familiar to the challenge of the new. After all, there are still music lovers who listen in mono, because they judge stereo to be “unmusical.” But most two-eared listeners will agree that the world has passed those people by. The same will happen to audiophiles who insist that two channels up front are all they will ever need to reproduce acoustical space.

course, raising genuine concerns about another format war like the one that helped kill quadrophonics.

Discrete surround does have a lot to offer, though—at least for rock recording, because it permits any number of effects to be panned into the rear quadrants without confusing the steering circuits (as can happen with Dolby Surround). But discrete surround is some time in the future; in the meantime, we can enjoy the benefits of 70% of what it’ll have to offer.
Enough

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For vinyl-afflicted die-hards, downtown New York is not such a bad place to search for LPs. Whether you’re cruisin’ with the wannabe poets and folk singers in the West Village coffee shops, or trying to act nonchalant in the East Village around the pink-haired punks with ten-penny nails through their extremities, there are a number of LP emporia you can duck into to get your vinyl fix. (For addresses and phone numbers, see Sidebar.)

My wife Kathleen and I took off from our loft in New York’s Chelsea area with the idea of taking a Magical Mystery Reporting-and-Purchasing Tour that would encompass our own neck of the woods, the West Village, and the downtown record warrens of the East Village, where we spend a lot of time. The plan was that, while I checked out the LP bins, Kathleen would “boutique” and check out the Village’s small, idiosyncratic shops.

We began The Tour at the first of two places technically just outside the Village, but so vinyl-rich that they’re must-visits. The first is the well-known Jazz Record Center. The resource for the avid jazz collector, the Center is also one of the core downtown LP venues. Owner Fred Cohen tends his vinyl garden with care, dedication, deep personal knowledge, and humorous enthusiasm. It’s a wonder to see so much classic jazz individually polybagged, graded, and arranged by artist and label. LPers will be happy to know the CDs are in black boxes (how appropriate) in the first room, and, unlike the LPs, are not “featured.” Don’t be alarmed by the ancient Thorens with the fossilized suspension and a quarter on the headshell. Fred means well. While I was there, palmcorder in hand, a Japanese women’s magazine was just finishing an interview and photo shoot with him, and a couple of Swiss were loading up on a vaultful of LPs.

Fred’s own jazz favorites are The Three Ms—Mingus, Monk, and Miles—and he’s got a message for the audiophile press: While he doesn’t disagree that reviews should be written and that a reviewer can’t sit down and listen to 400 records at once, to say one recording is the best (which prompts dozens of calls from people looking for the recommended disc) sometimes does more harm than good. For example, when speaking with Cohen about the timeless quality of Miles Davis’s Kind of Blue, he said that many other LPs cut at the same time by Miles and other artists—like Monk, Mingus, Getz, or Paul Desmond—also have that magical, classical quality. Fred pointed out that the time during which a recording was made is perhaps more important than any individual recording.

As we got deeper into the jazz discussion, I realized that this is a guy who really loves the music. About Charles Mingus, who some find difficult to understand, Fred recommends that if you don’t like the work, “Just walk away from it and never intellectualize. Mingus draws from every jazz tradition, a real eclectic. In one tune you’ll hear him drawing on the improvisations of traditional Dixieland, swing, bebop, and totally free improvisation, then come back all the way ‘round,
full cycle. It’s done faithfully, drawing from these traditions, because it’s appropriate, not a gimmick.” And about Miles Davis: Someone once pointed out to Fred that if you ignore the backgrounds and listen only to Miles, his playing never changed—only the backgrounds did. Miles never played

fusion or rock; Miles always played Miles—the same as 30 years ago—even if you can’t recognize any melody statements. When the audience would beg Miles to play some old stuff from the ’60s, he’d just walk away. Fred thinks he was right, as the artist shouldn’t feel at the public's mercy. “Louis Armstrong or Duke bent with the times in a more effective and ‘ingratiating’ way. Miles? Up yours!”

Sixty percent of the Jazz Record Center’s business is done via mail and phone-order, with the rest coming from walk-ins—there were many the afternoon I visited. Fred pointed out that one of his major overseas customer bases is Japan, where they take jazz very seriously. He characterizes the Japanese as fastidious researchers, concentrating on bebop, ’50s and ’60s Blue Notes, and Prestige releases of Hank Mobley, Lee Morgan, Miles, and so on.

After describing my own personal tastes to him (“Romantic,” he declared; “Awww, Fred,” I blushed), we spent a few minutes in the bins. He pulled out the following: Stan Getz’s and Johnny Smith’s Moonlight in Vermont (Jazz Vogue VJD 39), a double album for $18; Stan Getz’s Focus (Verve VE1-2528) for $8; Ben Webster’s Saturday Night at the Montmartre (UK Black Lion BLP 30155) for $9; Charles Mingus’s Pithecanthropus erectus (paging Heidi Fleiss!) (Atlantic Jazzlore SD 8809) for $8; Jackie McLean’s (a new one to me, but high on my Get More NOW list) Bluesnik (Blue Note 84067, Pathé Marconi/EMI) for $9; Monk’s Big Band and Quartet in Concert (Columbia CS 8964) for the princely sum of $15; Paul

The Jazz Record Center’s Fred Cohen, taking care of business
CLOSEST TO THE MUSIC

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Desmond's *Take Ten*, featuring Jim Hall (RCA LPM-2568; a Dynagroove, alas, but what divine music) for $15; and a rare double album on Japanese Blue Note (Toshiba/EMI 5068 and 5069) called *The Prophetic Herbie Nichols*, whom Fred describes as "Monk-like," for . . . don't ask. Nichols on piano, Al McKibbon on bass, and Art Blakey on drums—a "Golden Touch" Rudy Van Gelder-engineered recording (love that guy). There are only four albums in Nichols's discography. I'm playing Vol.1 as I write, and he's fabulous!

Our next visit was to the second important off-the-beaten-path spot, very close to the Jazz Record Center, and much in the same vein, but for Classical releases. This very special place, A Classical Record, is ironically not very well known in New York. A Classical Record is lovingly owned and groomed by Albert ten Brink. (That's German and Turkish via Cuba, for the ethnically curious.) Albert is better known outside New York, where he's developed a loyal and devoted following of music lovers from around the world who are willing to pay astronomical prices for quality LPs. In New York, the feckless hungry—for-a-bargain types (like myself) shop at other, more accessibly priced vinyl watering holes. While I was interviewing Albert, he received a call from Greece, finished the call, chatted with a Spanish-speaking customer seeking Flamenco recordings (of which Albert is an expert and a fan), and then took a call from Miami.

Brink explained that his main interest lies in pre-1959 repertoire, which forms the "pillars" of his store. For a guy who isn't terminally interested in the "audiophile legacy," he sure has a ton of juicy audiophile recordings—more than I've ever seen in one place: Lyrattas, Mercuryys, LSCs, and Bluebacks! The quality! I could scarcely contain myself. With a smile, he showed me his cache of 12 *Casino Royales*—for the well-heeled among us. Albert finds Germans and Brits to be the most interested in audiophile, while the Japanese, Chinese, South Americans, and other Europeans are more interested in nuance—the grand tradition of music and performance—rather than just sound. His long-term customers are mainly interested in music, and damn the label! That's why you'll find his place stuffed with great and hard-to-find LPs. Some are reasonably priced, but be prepared to pay big bucks for quality. Hardly any of the prices are marked here, so phone first to make sure Albert is around to tell you what things cost; without him around, you'll be in a pickle. There's a representative catalog available, but the items in it are generally rare, and the prices reflect it.

Brink has worked with Max Dreisner, Ludus Tonalis, and has spent time at Barnes & Noble and other NY record centers. He's put in his time learning his craft, and it shows. He isn't a "stasher"; if he's just bought a fabulous collection and you happen to be in his store or on the phone with him, you're as welcome as Beldar to purchase it—if you can afford it.

Albert admits he admires those stores that "throw open their doors and let thousands of people handle the records. They slide the records in and out, and when they're ready to buy, they ask 'What's this mark?' I'd have a nervous breakdown if they did that here!" Instead of searching alone at a lessor place for three hours, you'd be better served by calling and querying Albert about his inventory. He's completely fluent with composers, orchestras, chamber groups, pianists, violinists, and divas, and will wax poetic on his favorites for hours. He loves his work, and it's a joy to visit his place. By the way, his jazz section is slowly growing; if you're bi-musical, give him a call.

Both these venues are a far cry from "cute," so while you haunt the aisles of the Jazz Record Center or A Classical Record, I recommend that your partner-in-crime spend some time at the DIA Art Foundation at 548 West 22nd Street (at West Side Highway). Call ahead to find out about the current exhibit—surprising and avant-garde exhibitions await those who visit. The last time we were there a Japanese artist danced to some very modern music in a large, plastic-walled courtyard built on the roof, while visitors lounged around drinking espresso and looking hip. Divine, dahlink!

Next we headed back downtown and found a new place right in our area. In fact, Chelsea Books and Records had been open for such a short time that its bins had not yet been picked clean (until I got there). They have a wide-ranging jazz and pop selection and some very clean classical, including a number of EMIs priced at $25—the going rate, but a little high for me. I picked up some rare jazz albums for five to eight bucks, a few hard-to-find Blue Notes and Verves for as much as $12–$15, and a terrific original mono, red-vinyl Fantasy, *Brubeck A La Mode*, for five big ones. It sure looks cool spinning on the Forsell!
store. You can sometimes find worthwhile LPs here. I bought a few Led Zepp in reasonably good shape for around $5 each, and if you’ve a mind to wade through the classical, you can also find some LPs you might want to own. This definitely isn’t a primo resource place, just a very dusty, very disorganized joint to check out for cheap, filthy records. Bring an oxygen mask and kneepads.

If you’re tired out already (find another hobby!), you can pop into Book Friend’s Café on 18th between Fifth and Sixth for a cup of tea (if you’re in a Precious Mood), or the F Stop Café on 19th Street (in the same block) for a fast, thick, strong cuppa espresso with all the photogs and models. If it’s day’s end and you need a brewski, Zip City Brewing is right there at 3 West 18th Street. The German food is heavy, but the beers are custom-brewed each week: a light, an amber, and a dark in the style of world-famous beers are always on tap here.

Our next stop—again, right in our neighborhood and a CD’s throw from our loft—is 22nd Street Records. This small shop, run by a knowledgeable guy named Jerry, is one of the few remaining new-vinyl bastions around, but he sells CDs and cassettes, too. Die-hard LPers will be happy to know that in this shop, CDs are relegated to relative obscurity in glass cabinets above the LP racks, while the LPs are the stars. You’ll find plenty of classic and current jazz, some classical, a blues section, country, international, soundtracks, and a good selection of contemporary rock. I came for Carmen (McRae) Sings Elvis... just kidding... Sings Monk, a fantastic and beautifully recorded LP (Novus 3086-1-N). McRae is a classy lady singing the ultimate in classic tunes. For those in the New York area reading this, I’m sorry to say that I picked up the last copy. Jerry hopes to be able to find a few more soon. But until then, it is available on CD (giggle).

Jerry is one of the few LP sellers who doesn’t make a career of bending your ear while you groove the bins—a real “yup” and “nope” kinda guy. 22nd Street Records is right at the hub of the Flatiron District, so the many trendy boutiques lining lower Fifth Avenue will please the best-heeled shoppers. No drooling on the windows, please.

Barry’s Stereo & Sound was next. Here you can find a surprising mix of new pop releases on LP and CD at super-cheap, “cutout” prices, with vinyl ranging from 99¢ to $6.99. These guys are the Crazy Eddies of record sellers, and pepper you with exhortations while you pick through the bins: “Is that all you’re getting? Buy a few more!” Watch out they don’t sell you a portable stereo from the cabinet behind the counter, or some Florida real estate.

Serious vinyl addicts might give Tower Records at Broadway and Fourth a wide berth, but their LP cutout department one block east at Lafayette and Fourth is always good for a few $1.99 “As-Is” specials—there are literally thousands to choose from.

Eschewing The Tower Experience for the moment, we turned our bow southeast and headed into the wind for the East Village’s nether regions. We made our first landfall at a place where show music collectors will heave a big sigh of relief as they step into Footlight Records. In addition to their vocals and Broadway tunes LPs, for which they are best known and have no counterpart, they have an excellent selection of quality jazz, international, folk, and classical records.

Footlight is a clean, well-lighted, and airy place where all LPs are polybagged and always in perfect condition. Prices range from moderate—but-fair to slightly pricey, but they’re always realistic. I went for some Charlie Byrds on early Riversides that I found for 20 bucks a pop. Footlight is also the only record venue that offered me a spritz of alcohol and water, along with a paper towel and some sympathy, to clean up my grubby hands. Shopping at Footlight is the antithesis of crawling around on all fours inhaling golf-ball-sized dustkittens in some forgotten corner of the LP Universe. The staff are friendly, and their shopping bags are first-rate for LPs. This last might seem like no big deal until the more typical, deli-type plastic bags with handles in the wrong places rip open on your way home, dumping your newfound treasures on the heaving pavement.

Next stop was Downtown Music Gallery, near the NYU campus. Their card reads: Rock—Jazz—Downtown—World CDs—Records—Cassettes—Videos—Mail Orders. There’s...
custom-blended scent—*Eau de Living Presence*, perhaps? Seventh Street is chockablock with nutty places, like the famous McSorley's Old Ale House (139 years old and counting) a few doors down, where the brewskies are first-class. Another hysterical place on the same block is Burp Castle, a "temple of beer worship" run by "Brewist Monks" (aliens?) dressed in monkly garb. Glug, glug, glug—knowwhatimmean, Vern?

As we moved deeper into the East Village, we visited *Singer-Saints Records*—a small, relatively new shop with interesting jazz, '50s and '60s pop and vocals, opera, show, Brazilian, and punk tunes on both LP and CD. A six-eye Brubeck *Time Out* beckoned at me for a mere five bucks—the cover was a little shabby, but the vinyl sure wasn't! While you're checking the bins here, your SOIQ might want to visit Charteuse, a shop located a few doors down at 309 East Ninth Street that has eclectic gifts, crafts, decorative arts, and furniture to satisfy even the most jaded eye.

A little farther over on Seventh Street, between First Avenue and Avenue A, is a cavernous place called *Thompkins Square Records and Books*. This large, spacious shop near Thompkins Square Park sports a unique, scholarly, and intellectual book collection which includes many art, architecture, and movie titles. More importantly for my Paris-born wife, there's a wide-ranging selection of French books, from classics to contemporary literature, and *Serie Noire* or *Policier*! This takes the burden off yours truly while I rave dust clouds in the LP racks, as I know Kathleen isn't hored to tears.

Thompkins doesn't really specialize in one genre of music—then's just a wild mixture of rock, jazz, vocals, classic, show music, country, what have you. Nothing is arranged particularly well, and it's best to just jump in feet-first and take pot luck. They have a basic stereo setup, so if you find something you're interested in, you can play a few cuts to see if you'd like to buy it. Thompkins is cozy and relaxed, if a bit on the dusty side. I've found several dozen terrific, rock-bottom-priced discs here which, after a good cleaning, sounded just fine.

Across the street is a fab Swiss restaurant called Roettele A.G., 126 East Seventh Street, which features eclectic continental cuisine and a lovely, open garden out back where you can enjoy a drink or meal after your LP excursions—very relaxing and charming. The *Vendôme de Crêton* (thin-sliced, air-dried beef) is particularly good, and all the waitpersons are European and have that certain je ne sais quoi. Next door you'll find Rumbull's, a great pastry shop if it's too early for din-din.

Associated with Thompkins Square Records is *Stooz*, located a few doors down on the south side of the street. This store, which specializes in rock, is run by a wild-eyed vinyl-holic named Stuart—surprise! I found a few well-priced Dire Straits albums along with a great-sounding Straits test-pressing of their first album.

If your Significant Other wants to take another break from all this LP foolishness, you can swing by the Life Café at Avenue B and Tenth, which commands a panoramic view of the shenanigans going on in Thompkins Square Park. Or stop by *Live Shop Die* (love that name) at 151 Avenue A between Ninth and Tenth, which is a fun place with "'50s, '60s, and '70s collectibles, H&W photo booth," and even a few LPs. While Kathleen was taking her mug in the photo booth, I picked up a couple Art of Noise LPs in perfect condition. Alphabets, at 115 Avenue A, is another fun shop with all kinds of bizarre and interesting goodies. Beads of
paradise, at 127 East Seventh Street, is an amazing and sophisticated museum-quality slice of African culture selling multicolored beads and jewelry. Each tray of beads has a little card detailing the contents' provenances, and I promise you this delightful place will keep you interested, sociologically speaking, for a long while—another place our niece refused to leave. Musical-instrument freaks will have a good time fondling the stock at A-1 Music at 186 First Avenue, between 11th and 12th.

a number of street sellers give good lp.

for the nirvana crowd, try smash compact disc for new and used CDs, or venus records, who also deal in vinyl. St. Marks has a number of CD rock places, so if that’s your groove you can wander the street and check them out. St. Marks, the heart of the East Village, is a sort of grunge casbah; a stroll down its corridors is always an eye-opening (and nostril-flaring) experience. St. Marks (and Sixth Street) also seems to turn into “little India” between Second and Third Avenues, so have your friends spin you around with your fickle finger outstretched, and eat where you wind up pointing. Keep your hand on your wallet, don’t inhale, bring your own Malox, and remember that St. Marks is actually Eighth Street.

Before heading back to the West Village, we took a refreshing late-lunch break at Palmyra Garden Restaurant on First Avenue, a few doors south of Ninth Street. Kathleen consulted with the owners of this Middle Eastern restaurant on the health of their fresh herb garden located in back (Kathleen’s got a heavily-biased-into-class-A green thumb).

Finally, we headed east toward our neighborhood and stopped to scan the bins at an outdoor LP vendor on Fourth Avenue. A number of street sellers there offer the good, the bad, and the ugly, with a few well-known types giving good LP. This particular guy is often found on Fourth Avenue around 11th or 12th Street, and his tables are covered with plenty of classical, jazz, pop, and rock. You’ll recognize him by his bald pate and long-suffering countenance. Hey listen—when searching for vinyl, it doesn’t pay to be a snob. I found several excellent classical LPs on his fold-up table, as well as some Errol Garner and Sonny Rollins, and even Kathleen picked out a few discs—happytime when the wife is browsing too. Bring your elbows, as you’ll need ‘em to ward off the other aggressive New York vinylmaniacs.

We walked south, picked up Bleecker Street, and followed it back to the West Village. Our first stop was mercer st. books, just south of Bleecker. Co-owner Brian Futterman specializes in classical, jazz, blues, selected rock, international, organ, and Renaissance and early music. Mike Trei, a well-known manufacturer’s rep and part-time Sound by Singer fixture, was there, his arms wrapped around several bins of LPs, muttering “Mine! Mine! All mine!” Mercer Street is a “walk-in” kind of place, with slightly-higher-than-average prices. Futterman claims he tries to get a few new things in each category every day, and all LPs are clean, polybagged, and price-marked. I found his selections interesting and scholarly, with good 20th-century and jazz sections augmenting the classical. This place is right up the block from the Angelika Movie Theater, which shows more interesting
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But before you audition the M-si Series at your Mirage dealer, take in a live concert or two. Then you can experience for yourself just how unforgettable life-like the M-si’s really are.
and artistic movies than your average 18-screener. You might consider parking your loved one there for a double feature while you finish up on Bleecker.

The Golden Disc is a largish two-floor place specializing in "American Roots Music" (well, that's what they told me)—jazz, rock, R&B, blues, reggae/African, gospel, oldies, and soundtracks—on LP, CD, and cassette. They've got lots of posters and "picture vinyl" here, and were having a sale on OJCs at $5.98 per LP, $8.98 per CD. Prices are all over the map here at "Eccentrics R Us," where the staff all look like they came out of an R. Crumb comic book. Speaking of prices, don't faint when you see how LPs are priced: $12.41, $8.32, $25.74, and so on. Someone's got a sense of humor. Prices start somewhere around $5.93 and climb up to several hundred dollars for hard-to-find imports, etc. When I asked for a volume discount, they hitched their plaid polyester pants up over their corrective shoes and looked at me as if I'd started double-talking. This shouldn't stop the fearless vinyl buyer from asking, as they'll very often accommodate you in one way or another.

Rebel Rebel is another watering hole for dance, alternative, independent-label, and collector's-item hunters looking for new and used vinyl and CDs. David, the fellow behind the counter, confided that his new mid-fi CD player sounds lousy: bright, shrieky, and flat. Could that green pen I told him about help? David's got possibilities!

Dub Syndicate, Orb, Jah Wobble, African Head Charge, and Gary Clail fans will go for Record Runner, another "alternative/collectibles" shop. Just up the street is Strider Records—a used-record shop catering to the '50s and '60s rock lover, with R&B and pop soundtracks thrown in. Just make sure your R&B and pop soundtracks are rolled up in your T-shirt sleeve, or they'll show you the door.

Close by is BPM, The Sound Rising, a small shop with lots of avant-garde stuff on the walls. Manager Susan Morabito explained that they handle a bit of everything on LP, and specialize in dance music for the gay community. She laughed as she told me about how, after an article about them appeared in the New York Times, some geek called up asking if straight people were allowed to shop there. Only if they can prove they have half a brain.

Golden Disc—oldies but goodies!

There are hundreds of terrific Italian specialty food shops and butchers on Bleecker Street, so you and your RTAC (Rapidly Tiring Audio Companion), who's happy that you're happy, can get something for dinner. The Florence Market, on Jones Street, sells a tender, juicy, not-too-expensive cut of beef called a Newport Steak. Ottumanelli's, Balducci's, and a host of other fancy food places will make it easy for the Exquisitely Exhausted Record Hunter With Rapidly Swelling Feet to kiss up to their Long-Suffering, Day-Tripping Partner with a first-class meal and a bottle of vintage wine. If your energy level is flagging near the danger point, consider stopping at one of the many outdoor cafés on Bleecker for an espresso before heading home to start peeling garlic. After a few of these you'll be wired.

Ooohh! By now, if you're on schedule, you'll be dead on your feet. We were. Kathleen and I ended our trek and headed back to our loft with visions of Osso Buco in our heads.

A few final vinyl words:

• Don't forget to bring Wash'n'Dri packets for cleaning up the paws afterwards. LP hunting in most places is no white-glove affair.
• Do ask for discounts when buying LPs in number. But then again, try to support those who're selling the precious stuff.
• Don't dress up for this pursuit; wear old jeans or khakis—you will get dirty.
• Do do a few dozen squats the night before so your knees won't explode when trying to read labels on that shin-height-level shelf.
• Do do some deep-breathing exercises to fill up those lungs with good air before you start sucking in the dustclouds floating around the bin of LPs you haven't checked out yet.
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what’s not. Over time, you’ll also develop a good sense for those LPs that’ll play well—even if they have a surface scratch. Today’s high-end styli ride so low in the groove that they often won’t be affected by a surface blemish. But this isn’t always true: it depends on how hammer-handed the previous owner was and how many quarters were piled up on the headshell.

The Sergeant Bilko in me urges you to get a record-cleaning machine! Now! Ayyyyy-UU! This is not optional. The ubiquitous VPI or Nitty Gritty machines do nicely; the VPI’s bidirectional cleaning feature and rugged build make it the choice of many. The ritual around here is to pull all the LPs out of the shopping bags and, with a rag sprayed with Glass Plus or Windex, clean the records. Begin with a gatefold album which you can then stand up open on the floor. Continue cleaning the single albums’ jackets and prop them up against the gatefold to dry, after which you can put them onto your groaning shelves. At play time, I clean the LPs on my VPI, then drop them into a fresh rice-paper inner sleeve with the date marked on the corner. Whaddaya mean, “retentive”?

I make my own record-cleaning solutions for my VPI. The regular one-gallon mix is 75% distilled water, 25% non-lanolin isopropyl alcohol, 10 drops of Direct (a bathroom tile cleaner), and 10 drops of Kodak Photo-Flo. My special mixture for really deep grime is 50% isopropyl, 50% distilled H2O, and 10 drops each of Direct and Photo-Flo.

Kathleen always looks amused when I clean a few dozen new arrivals, as if asking herself, “Do you know why he can’t clean the kitchen like that?” I dunno. Hum a few bars and I’ll fake it.

Happy hunting, and enjoy the listening!

$
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When I first heard about Audio Alchemy’s $399 Digital Decoding Engine three years ago, I was shocked that a digital processor with high-end aspirations could be designed, built, and sold at retail for less than $400. Although it wasn’t a giant-killer, the DDE offered to many music lovers on a budget higher sonic performance than that available from inexpensive CD players of the day. Indeed, the DDE’s commercial success became the foundation from which Audio Alchemy launched a whole array of affordable digital products.

It should come as no surprise, therefore, that Audio Alchemy would be the first to offer a digital processor that breaks the unheard-of price barrier of $200. That’s right, the new DAC-in-the-Box sells at retail for $199!

The DAC-in-the-Box’s extraordinarily low price is partially a result of the huge potential market for an inexpensive converter—DMX digital radio decoding, and upgrading the D/A sections of videodisc players in home-theater systems. The economics of scale—along with aggressive component purchasing, clever design, and careful production engineering—allow Audio Alchemy to offer a multiple-input, multi-bit digital processor for less than the price of a good pair of interconnects.

But is the DAC-in-the-Box musically worthy? Or is it just a cheap gimmick that isn’t worth the money?

The answer may surprise you.

TECHNICAL DESCRIPTION

I knew when I started that the DAC-in-the-Box (hereafter called the DITB) was small, but you can’t appreciate just how tiny this processor is until you hold it in your hand or put it in your coat pocket. The unit is just over 5” wide, less than 2” high, and about 4” deep—a little bigger than two decks of playing cards. This chassis is augmented by an external power supply—a fist-sized module intended to lie on the floor or an equipment shelf. (You can replace the stock power supply with Audio Alchemy’s Power Station One or Power Station Two supplies.)

The DITB’s front panel has two red LEDs, one indicating power to the unit, the second illuminating when the DITB is locked to a data source. The rear panel has coax and TosLink inputs, analog output on a pair of RCA jacks, and an input jack for the power supply. Because the DITB has no manual input selector switch, it automatically selects whichever input is active. If both inputs are active, the unit defaults to the optical input. Audio Alchemy recommends turning off the unused source for best sound quality.

The circuitry is mounted on a single board that slides into the DITB’s extruded aluminum chassis. When I removed the board, I was amazed that an entire digital processor could fit on a circuit board about half the size of a CD jewel case. How did Audio Alchemy do it?

First, the outboard power supply removes the transformer, rectifiers, and filter caps from the DITB chassis. The incoming +12V DC is regulated to +5V for the digital circuits and DAC, and +5V for the analog output stage. The +5V regulator is a standard three-pin TO-220 type; the other three regulators are in the much smaller TO-92 plastic package, which looks like a small-signal transistor. Additional electrolytic filter caps are included on the DITB board, and each chip is locally bypassed.

The input receiver is a Crystal CS8412, which feeds a Yamaha YM3433 8x-oversampling filter chip. Although Yamaha’s YM3434 filter is found in other products (notably the PS Audio Digital Link), I’d

1 The DAC-in-the-Box is available from dealers at a suggested retail price of $199, or can be bought factory-direct from Audio Alchemy for the same price. If you live anywhere near an Audio Alchemy dealer, you should buy it from the local dealer.
never seen the YM3433. Apparently, the two chips are identical—they have identical specs in the data sheets, and, according to Audio Alchemy, sound the same.

Digital/analog conversion is handled by a pair of Analog Devices AD1860 ladder DACs. The AD1860 is an 18-bit device that has a voltage output rather than, like most DACs, a current output. Consequently, no external current-to-voltage (IV) converter is required. The DACs are bought ungraded, then selected by Audio Alchemy to meet a linearity specification. This method was reportedly less expensive than buying DACs already graded by Analog Devices. No MSB trimmer is included; the DACs must meet the linearity specification without trimming.

The output stage is a single Analog Devices AD712 dual op-amp chip. The DITB was also available in a higher-output version that substitutes the OP-275 op-amp for the AD712 (the price is the same). (The PS Audio Reference Link’s output stage is based on the OP-275.) All resistors are 1% metal–film types, and capacitors are polystyrene. dc-emphasis is passive, switched in-circuit by FETs.

Even considering the DITB’s economy of construction—no IV converter, no MSB trimmers, tiny chassis—it’s hard to believe that the unit can sell for $199. Moreover, the DITB isn’t the cheapest possible converter; the DACs are multibit, not 1-bit, the DACs are hand-selected for linearity, metal-film resistors and polystyrene caps are used throughout, and two inputs are provided with a lock-indicating LED. In its own way, the DITB is an impressive piece of engineering.

LISTENING

Putting inexpensive digital products at the front end of a very-high-resolution playback chain is a tougher test than if the digital product were auditioned with less good electronics—the digital source has nowhere to hide in the transparent playback system. Although the product’s performance can be fully scrutinized in this situation, it’s somewhat unrealistic in that the product will probably prove a better match in a budget-priced system.

Nevertheless, the responsible reviewer has to stick with a limited reference system: the DITB was therefore auditioned in a system consisting of an Audio Research LS5 preamp (with its BL2 Balanced Line Driver), Audio Research VT-150 tubed monoblocks, and Thiel CS3.6 loudspeakers. Transports driving the DITB included the Theta Data Basic, PS Audio Lambda, and a Mark Levinson No.31. Digital connection was via an Aural Symphonics Digital Standard coaxial link (which costs as much as the DITB). Interconnects were Straight Wire Maestro and Expressive Technologies IC-1. Loudspeaker cables were AudioQuest Sterling.

It didn’t take hours of analytical listening to discover that the DITB was an absolute killer for its price. I had expected cheap digital’s typical litany of sonic flaws: Hashy treble, glassy midrange, glaring timbres, flat soundstage, no dynamics, and a synthetic character that sounds nothing like real music. But instead of these characteristics, the DITB had a surprisingly unaggressive treble, decent dynamics and bass, and a soundstage that could hold its own with many $1000 digital processors. In fact, I was taken aback at just how good this $199 box sounded.

First the soundstaging. The DITB’s ability to present a real sense of space, depth, and bloom was the biggest surprise. The outstanding Mobile Fidelity release of Muddy Waters’s Folks Singer (Mobile Fidelity UDCD 593) was presented with a tangible feeling of air around the instruments. The DITB portrayed the instruments and voices in the soundstage as separate images rather than one big, congested image. Front-to-rear depth was outstanding—and at the level of some $1000 products. There was a tangible impression of instruments existing behind other instruments, and this greatly added to the DITB’s overall musical presentation. Although not in the same league as the $750 Adcom GDA-600 or the $895 Meridian 263, the DITB’s soundstaging was nonetheless a revelation for inexpensive digital.

The DITB’s overall tonal balance was a bit lightweight and thin compared with the Meridian 263 and particularly with the Adcom GDA-600. The bass sounded somewhat rolled-off below 100Hz and lacked power and weight. Further, the extreme bottom end—below, say, 50Hz —was effectively missing. The musical result was less impact from bass drum, reduced weight from bass guitar, and a lessening of the music’s rhythmic qualities. The midbass, however, was well-defined, fairly tight and controlled, and produced a clearly defined sense of pitch. Significantly, the DITB didn’t reduce the bass to a smeared roil. I could clearly hear the articulation of individual notes within intricate bass lines. Overall, the DITB’s bass tended to be lean and tight, in contrast to the 263’s fatter and more “bloomy” bass. Similarly, the DITB was missing the bass depth, power, and solidity that characterized the Adcom processor.

The treble didn’t have the hashy glare I’ve often heard from other inexpensive digital processors. Moreover, the treble wasn’t bright to the point of constantly reminding me that it was the digital source at the system’s front. Instead, it was well integrated into the music and not overly prominent. On the down side, the treble was overlaid with a grain and untidiness that manifested itself as a spitty character on vocal sibilance, a bit of edge to cymbals, and a gritty texture on strings. This grain and coarseness, however, was somewhat mitigated by the treble’s lack of forwardness. Most inexpensive digital falls on its face through the combination of forwardness and grain—the combined result is a much bigger sonic liability than either one alone. Fortunately, the DITB balanced the inevitable flaws at this price level into a musically acceptable result. Similarly, the midrange was a little grainy and coarse rather than liquid and warm. Female vocals were overlaid with a roughness and untidy character not heard from the Adcom or Meridian 263.

Dynamics were far better than what I hear from inexpensive—and even moderately priced—1-bit converters and CD players. The DITB had a more upbeat, rhythmically involving quality than the often lackluster dynamic presentation of 1-bit-based converters and CD players. The Michael Ruff disc, Speaking in Melodies (Sheffield Lab CD-35), had a real sense of snap and punch on the snare drum from the DITB. Despite the DITB’s weak bottom end, the processor had a moderately good sense of pace and drive.

Although I haven’t heard the original Audio Alchemy DDE for some time, my memory of it suggests that the DITB is a significant improvement over the $399 DDE. The DITB’s treble was less aggressive, the soundstaging vastly more three-dimensional, and the overall presentation had greater ease and was less like that of inexpensive digital.

Finally, my brother Steve reported that the DITB greatly improved the sound of his Rotel RCD-855 CD player (a $399 favorite). His comments centered on the DITB’s increased space, depth, and ability to separate individual instruments from the whole. In fact, he thought the DITB was a significant upgrade from the Rotel.

MEASUREMENTS

The DITB’s maximum output level when decoding a 1kHz, full-scale sinewave was 2.263V, a value 1.1dB above the standard 2V output level. The unit is not polarity-inverting. Output impedance was a low 99 ohms at any audio frequency, and DC levels at the output were a reasonable 7.8mV (left channel) and 3.5mV (right). Although the DITB locked to 32kHz and
44.1kHz sampling frequencies, it put out a highly distorted waveform when driven by 48kHz data. I don't know if this inability to decode 48kHz signals is a flaw in the review sample or a fundamental design limitation.

Fig.1 shows the DITB's frequency response and de-emphasis error. While the frequency response is flat, the de-emphasis error is huge—the largest I've measured. Fig.2 shows the de-emphasis error with an expanded scale so you can see the error's magnitude—nearly -5dB at 20kHz. This will be audible as a treble rolloff when playing pre-emphasized discs. Because the large error is nearly identical in both channels, I suspect the DITB has the wrong-value capacitors—or loose-tolerance capacitors—in the de-emphasis circuit.

The DITB's squarewave response (not shown) looks nearly identical to the squarewave produced by processors using the NPC filter chip. Channel separation, shown in fig.3, was remarkably good for such an inexpensive product—and one using a dual op-amp output stage. The right-channel leakage (dotted trace) was considerably better than the left (solid trace).

A spectrum analysis of the DITB's output when decoding a -90dB, 1kHz sine-wave is shown in fig.4. The external power supply accounts for the lack of power-supply noise in the audio circuitry. The overall noise level is low, and the linearity appears to be pretty good, with the traces coming very close to the -90dB horizontal division.

The DITB's linearity was indeed good, as seen in fig.5. The left channel (solid) has a slight negative error (-0.73dB) and the right channel a small positive error (+0.06dB) at -90dB. This is better linearity than I've seen in some processors that have had their MSBs trimmed at the factory. The noise-modulation performance (fig.6) was good, but shows some shift in the noise floor's spectral balance with input amplitude. The divergence of traces in the top octave is unusual (the top two traces are at -60dB and -70dB, the bottom three traces are at -80dB, -90dB, and -99dB), although the traces maintain fairly tight grouping over the rest of the spectrum.

The DITB's reproduction of a 1kHz, -90dB undithered sinewave is shown in fig.7. Again, the performance is surprisingly good. The waveshape is symmetrical, and the three transitions at this level (0, -1, +1) are visible rather than being swamped by noise. There is, however, some glitch energy, particularly on the leading edge of the waveform's negative-going portion. This is seen as the downward-pointing spikes just to the right of the 50µV division and every millisecond thereafter.

Fig.8 is an FFT showing the DITB's analog intermodulation spectrum when driven by a full-scale mix of 19kHz and 20kHz. The 1kHz difference component (20kHz minus 19kHz) is low in level, and there's some energy at 17kHz, 18kHz, and 21kHz. Otherwise, this spectrum is fairly clean.

Performing an FFT on the DITB's clock jitter with an input signal of all zeros (digital silence) produced the plot in fig.9. The RMS level, measured over a 400Hz-22kHz bandwidth, was 250ps. This RMS level is about 100ps higher than the RMS level measured from the Adcom GDA-600 reviewed in this issue, which also uses the Crystal CS8412 input receiver. The

(Continued on page 100)
Reviewing audio equipment has always been a blast. With each passing month, some potentially wonderful new piece of audio gear finds its way into my system. But as an audiophile, I don’t want to be constantly changing the equipment in my system—I want to put together the best setup I can and spend my time optimizing its performance. In spite of the revolving equipment door, I try to listen to the majority of music on my own equipment.

But my system must not only satisfy me personally, it must also act as an evaluation tool for the gear I review. For example, as an audiophile I would never feel the need to own the wonderful Audio Research Classic 150 amplifiers—rarely have I needed that much power, and I typically wouldn’t spend $5495 on a single amplifier. But as a reviewer, the Classic 150s have been ideal: they have protective turn-on circuitry and dual-speed fans which extend tube life, so the amps virtually can be used continuously; their power and output options make them compatible with almost anyone’s speakers; their attenuators allow me to leave the amps on while I change cables; and speaker and cable manufacturers have been consistently satisfied when I’ve reviewed their products with the amp. Essentially, the Classic 150 has satisfied both my reviewing and personal needs.

As a reviewer and an audiophile I’ve long desired a sonically splendid, truly full-range loudspeaker with high sensitivity and an easy impedance load. The sonic splendor and full-range capability would satisfy me personally; the high sensitivity and benign impedance would allow me to review virtually any amplifier, including low-powered ones; and its full frequency range would make it an appropriate tool for reviewing other components.

Over the last five years or so, I’ve “compromised” by using the ProAc Response 2, 3, or 3 Signature as my reference loudspeakers. Although each is sonically stunning, high in sensitivity, and an easy load to drive, none has great extension into the deep bass. Nevertheless, these speakers have matched up extremely well to my personal biases and suited my audio reviewer needs reasonably well.

I lobbied ProAc designer Stuart Tyler tirelessly during this period to take a crack at a truly full-range speaker which would preserve the strengths of the Response lineup. My wish came true in mid-1993, when ProAc announced the release of the monstrous Response 4. I eagerly arranged to get a review pair. They arrived just before the 1993 Summer CES, and with the help of my two nephews, Ryan and Shawn, I lugged the two 355-lb boxes (which didn’t include any sand or lead) into my basement and headed off to Chicago.

I got to the Show early enough to watch Richard Gerberg, the US ProAc distributor, unpack a pair of 4s. The packing is brilliantly clever: The +300-lb. boxes were placed down on the integral pallets, binding straps were cut, and the entire package was lifted off the speaker. The remaining pallet/speaker was tilted upright, and the speakers were slipped out into a standing position. The rest of the setup took muscle but was rather straightforward: the plastic covers were removed, the plinths were bolted on, the 4s were placed properly in the room, and four spikes1 were inserted into each speaker.

I couldn’t wait to hear the speakers. I was particularly impressed with the fact that their weight was due entirely to the heavy ATC drivers and the well-constructed cabinets.

Unfortunately, the Response 4 failed to live up to my expectations. My disappointment was shared by Bob Deutsch, who described what he heard in his Show report (Vol.16 No.8, p.93). All I could think of was unpacking, auditioning, repacking, and sending back over 700 lbs of audio disappointment. What could I do?

Rationalize! There had to be a reason for the ProAc’s disappointing sound at the Show. After all, the CES set up featured all new wire with which I wasn’t familiar, a brand new digital front-end I hadn’t heard, new amps that weren’t broken in, and a room that didn’t appear to be a great match for the speakers. But each time I came back to ProAc’s room, the overall sound was better. They played more analog, changed the wires, repositioned the room treatments, and the electronics were breaking in. Things got better, yes, but they never got good enough.
to justify the $18,000 price tag. It looked like the big ProAc's weren't going to be the answer to my dreams after all.

When I got home from Chicago, I replaced the Response 3 Signature in my system with the 4s. The rest of the system consisted of the Koetsu Pro IV mounted on a Versa Dynamics 1.2, Mark Levinson Nos.30 & 31, CAT SL-1 Signature, ARC Classic 150s, dual Tice Power Blocks/Titans, and all NBS Signature cables. I aimed the speakers directly at my listening position—approximately a third of the way into the listening room and just under 3' in from each side wall.

**The Tide Turns...**

Much to my surprise, the 4s sounded very good right out of the box, much better than they'd sounded at CES. The soundstage was slightly narrow, with a tendency to be located well within the speaker-cabinet positions; there was a bit less top-end extension than I would've preferred; and the bass level, while extended, was somewhat uneven. Nevertheless, everything was naturally musical, harmonically rich, and immediately satisfying. I realized I could do a meaningful review after all.

The room placement of the 4s turned out to be much more critical than it has been with many other speakers I've had in my listening room. Since the 4s extended so low in the bass, room reinforcements and cancellations became problematic. I ended up moving the speakers in and out of the room, closer to and farther away from the side walls, and toed them in or more. The best location turned out to be a slightly asymmetrical one: I placed the right speaker slightly farther from the side wall than the left, which meant that my listening position was no longer centered. Although the 4s' initially uneven bass performance bothered me, once the best location was found, the bass extended powerfully to 50Hz and audibly down to 20Hz. In my room, I ended up with a mild peak at around 125Hz, but the bass overall ultimately became extended and relatively flat. The remaining bass unevenness may have been a room problem.

With proper placement, the 4s provided the power and authority missing in many speakers. This powerful foundation added a satisfying underpinning to music as diverse as the otherworldly soundspace of Brian Eno's "Julu Space Jazz" on Nerve Net (Opal/Warner Bros. 45033-2) and the naturally recorded splendor of Stravinsky's Petrushka with Ansermet and L'Orchestre de la Suisse Romande (Athena ALSS 10004). Of course, this foundation was essential for the reproduction of most rock, especially metal and grunge.

After a great deal of experimentation, I finally aligned the speakers so they were close to straight ahead—with all the other ProAc's I've owned, I've aimed them directly at the listening position. The soundstage was very wide, but with too much toe-in, the stage became more narrow, the bass more uneven. Depth was excellent, mimicking whatever the source (analog or digital) contained. The deep, wide soundstage was located behind and around the speakers, with realistic layers in both directions. Placement upon the stage was precise, with no vagueness or wandering, while images within the stage were full and dimensional. Interestingly, the perception of the soundstage remained very good from locations other than the primary listening seat. All things considered, the 4s were superior to the 3s in soundstaging. Considering the speaker's size (which is necessary for deep bass extension), I'd assumed this would be one area where compromises would have to be made.

The 4s' soundstaging strengths were wonderfully illustrated by Chesky's marvelous reissue of Fritz Reiner and the Chicago Symphony Orchestra's performance of Rimsky-Korsakov's Scheherazade (RC-4). The reproduced stage was realistically large for a full symphony orchestra, offering layers of width and depth for each section of the orchestra to occupy. Placement within the stage was precise and well-focused. I often found myself trying to find where the snare drum was located. With less populated soundstages, such as the one found on Pj Harvey's Rid of Me (Island ILPS 514 606-1), the sensation of space between the performers was as tangible as the locations of the performers themselves. Once again, the sensation of depth was amply demonstrated by the placement of the drum kit.

While many small speakers have been criticized for creating small soundstages, many large speakers have been faulted for portraying larger-than-life soundstages. These kinds of shortcomings have often been misinterpreted—many of them are actually due to room and/or placement problems. Still, many speakers are incapable of conveying the differences in scale and dimensionality between solo performers and symphony orchestras. But the Response 4s always re-created the appropriate size and space of the performance—they effortlessly handled any full-sized musical event, including live heavy-metal recordings.

Historically, Stuart Tyler-designed speakers have impressed me with their extended, clear, and delicate treble performance. The ProAc 4 uses a special version of the tweeter found in the ProAc 3 and 3 Signature, with a lighter diaphragm and slightly different coating, and crossed over at a higher frequency. I expected a faster, more open presentation, so was surprised at the 4s' slightly closed-in sound—until I removed the grille covers. Once they were off, the top end opened up and displayed the characteristic ProAc treble splendor. The triangle on Scheherazade was clear and delicate, floating realistically within the stage, with quick percussive attacks and naturally diminishing decays. The cymbals on the SBM version of "Blu Rondo à la Turk" on Dave Brubeck's Time Out (Columbia CK 52860) were remarkably lifelike, especially on a digital source.

Although the 4s are big speakers, their overall sonic performance was remarkably seamless and coherent—and I was sitting as close to these speakers as I do much smaller two-ways. The coherency was particularly impressive on full-range, well-recorded piano, such as Dick Hyman's direct-to-CD rendition of Fats Waller tunes (Reference RR33 DCD).

The speakers' amplification needs also surprised me. Many big speakers make awesome demands of amplifiers—they often require tremendous amounts of power, unlimited current delivery, or multiple amps capable of both power and current delivery. But because the 4s have a high sensitivity (89dB/W/m), a nominal 8 ohm impedance, and jumpers (so they can be driven with a single amp with output as low as 50W), they didn't need unusual or unduly expensive amplification—a single, sonically excellent, low-powered amp could do the job. This will dramatically lower the cost of using this expensive speaker in a real-world audio system. Although an unlikely combination, I had very good success using the modestly priced and powered AMC CVT-3030 with the 4s.

**Measurements from JA**

The logistical difficulties associated with such large, heavy loudspeakers made it impracticable to ship the Response 4s to Santa Fe for measurement. Instead, I will be taking the DRA Labs MLSSA system to JE's home around the middle of this month, so that the measurements can be made.

2 The five drivers are arranged in a pseudo-7"/Apollito configuration; ie, the speaker arrays aren't strictly vertical as the higher-range drivers are progressively offset toward the inside of the mirror-imaged cabinets. The 4 also has a complex crossover and a rear-firing port in its physically imposing cabinet.

3 Reviewed in Stereophile, Vol. 16 No.6, p.146.
appear in a Follow-Up to appear in our May issue.

—John Atkinson

**CONCLUSION**

The ProAc 4's musicality was consistently satisfying—the speaker never sounded offensive. There wasn't anything obviously added to the music or done to the sound. From simple performances such as Dick Hyman's solo piano to such full orchestral warhorses as Scheherazade, the ProAc always sounded natural and musical. It never drew attention to itself with excessive deep bass, ruthlessly revealing detail, or blustering transient re-creation. The music was always the center of attention.

One of the enduring paradoxes of high-end audio is the lack of convergence on the sound of real music. I've always expected ultra-expensive products to sound more similar to one another as they (supposedly) approach the real thing. I'm always amazed that megabuck speakers such as the Apogee Grand, Wilson WAMM, Infinity IRS V, and Genesis One sound as dissimilar to one another as modestly priced speakers like the Vandersteen 2Ce, Spica Angelus, and Thiel CS1.2. Part of this paradox is the growing number of truly excellent speakers in the $10,000–$25,000 range, including the Wilson WATT/Puppy/WHOW, B&W Matrix 800, Avalon Ascent, Sonus Faber Extrema, Hales System One Signature, Apogee Studio Grand, Magneplan MG-20, Sound-Lab A-1, Thiel CS5, and now the stunning ProAc Response 4.

A second irony almost mimics genetics: Differently priced speakers from the same designer tend to sound more similar to one another than similarly priced speakers from different companies. Just as there are family resemblances among the various Vandersteens or Thiel's or Martin-Logans, the ProAc line has clearly sprung forth from Stuart Tyler's fertile mind. While the Response 4 is clearly a sonic relative of the Response 2 and 3, it has the added dimension of wonderfully deep bass performance.

Probably the 4's most important innovation is the bass's three-way electrical crossover and four-way mechanical crossover. The top woofer has a smaller diagram than the bottom one, which causes them to cover slightly different ranges. Both bass chambers load into a center chamber ported out the rear.

The ProAc Response 4 is a stunning, world-class performer in every regard. It is well deserving of a Class A recommendation and has become a cherished component of my reference system. I recommend that you do whatever it takes to hear this lovely loudspeaker. It deserves to be compared with any speaker at any price.

**Audio Alchemy (Continued from page 97)**

curve shows some nasty, inexplicable periodic jitter components at the harmonically related frequencies of 8.5kHz and 17kHz. The other two spikes (at 7.35kHz and 14.7kHz) are related to the S/PDIF's 7.35kHz sub-code rate. Most processors have no periodic jitter components with no input signal, except some subcode-

related 7.35kHz jitter energy.

Fig.10 shows the clock jitter spectrum with a full-scale, 1kHz sinewave input. The spectrum is remarkably free from signal-correlated jitter components (which would show up at 1kHz and multiples of 1kHz), but the 8.5kHz and 17kHz components seen earlier still dominate. The RMS level decreased slightly to 245ps. Even when the test signal was reduced to –70dB, the DITB clock was still relatively free from signal-correlated jitter (fig.11) and the RMS level remained at 250ps.

The DITB's overall bench performance was better than you'd expect from a $200 processor, although Audio Alchemy has problems with the de-emphasis circuit and 48kHz decoding.

**CONCLUSION**

Audio Alchemy's DAC-in-the-Box sounds better than it has any right to at its price. On the plus side, the DITB has a surprisingly open, transparent, and three-dimensional soundstage—unique in sub-$600 digital products, in my experience. Some $1000 converters don't have this good a spatial presentation. Further, the DITB manages to avoid the worst faults of inexpensive digital—glare, hard textures, flat sterility, and rapid fatigue. That glassy "in-your-face" character often heard at low price levels is mercifully missing from music reproduced by the DITB.

On the down side, the DITB has a coarseness in the mids and treble that identifies it as a budget product. In addition, the bass doesn't extend as low, or have as much weight and power, as processors in the $600–$750 range (the $595 Cobalt DAC 307 by Theta Digital and $750 Adcom GDA-600, for examples). The DITB also lacks the same level of detail resolution, refinement, and nuance as the under-$1000 processors I've reviewed lately. Finally, the review sample's failure to operate with a 48kHz input signal and the huge de-emphasis error may be factors for some listeners.

These criticisms must be taken within the context of the DITB's price—one third that of the Cobalt, and just over one quarter that of the GDA-600. In fact, every time I thought of the DITB's $199 price during auditioning, I was astonished.

Although most of us will choose a higher-quality digital source to put at the front of our playback systems, the DITB is perfect for those on a tight budget, for a second system, to recommend to a friend or relative who would have otherwise bought a mass-market 1-bit CD player, or as a higher-quality replacement for a videodisc player's D/A section.

If you're needs match any of those listed above, you can't go wrong with the $199 Audio Alchemy DAC-in-the-Box—The Little DAC That Could.
**YOU’RE A GRAND OLD STAGER**

Thomas J. Norton listens to the Apogee Mini–Grand ribbon/dipole system, based on the Apogee Stage and supplemented with dynamic cone subwoofers.

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**Apogee Stage:** dipole speaker system with a 12" by 26" electromagnetic film-dipole woofer and a 0.7" by 26" ribbon midrange/tweeter. Crossover frequency: 600Hz. Crossover slope: 6dB/octave gradually increasing to 12dB/octave. Frequency range: 30Hz-20kHz (no tolerance specified). Sensitivity: not specified. Nominal impedance: 3 ohms. Recommended minimum amplifier power: 100W. Dimensions: 37" H by 26" W by 2" D (without stands). Finish: optional parchment, antrhacite, or black sand, with or without mahogany or basswood trim. Weight: 60 lbs each. Serial numbers of units tested: 003639/003584. Price: from $2595/pair.


**DAX Crossover:** Input/Output: balanced or unbalanced. Crossover frequency: 80Hz. Crossover slope: 6dB/octave gradually increasing to 12dB/octave. SN: 100W (A-weighted). THD: 0.003%. Nominal input level: IV. Level controls: +3dB in 1dB increments for both Stages and subwoofers. Approximate number of dealers: 100. Manufacturer: Apogee Acoustics, 35 York Ave., Randolph, MA 02368. Tel: (617) 963-0124. Fax: (617) 963-8567.

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**d-po-gee:** the farthest or highest point.

When Jason Bloom and Leo Spiegel founded Apogee Acoustics in 1979, they picked an ambitious name. I've never heard the original Apogee loudspeakers (Steven Stone still has a pair), but a friend of mine could scarcely contain his enthusiasm after hearing them at the 1981 Summer CES. My first real exposure to Apogee was at a Frankfurt (Germany) High-End Hi-Fi Show in 1983. The model I heard there, which left me with an indelible favorable impression, was the Scientina, a now-discontinued model with an amplifier-challenging 1 ohm impedance.

But all of this, and much from Apogee which has followed—striking though some of it may be—was merely a warm-up to the real Apogee: the Grand, which was introduced with much fanfare at the 1991 Summer CES. The Grand, a four-way system with four amps per channel, blew the minds of a bunch of speechless reviewers and other assorted scribes in the very large listening room in which it was being demonstrated. The Grand established two new milestones for Apogee: It was their first flagship loudspeaker to use dynamic cone drivers for subwoofers, and it boasted a numbing price tag which vaulted it into Wilson WAMM and Infinity IRS territory.

When I reviewed the Apogee Centaur Major back in 1992 (Vol.15 No.4, p.215), I made a wish: Wouldn't it be nice if Apogee could take their Stage loudspeaker—one of my longtime favorites and, not coincidentally, a longtime fixture in "Recommended Components"—and give it the Apogee Grand treatment, substituting subwoofers similar to, but less ambitious than, those in the Grand for its optional stands?!

And so came the Mini–Grand, the subject of this review. There's also a bigger adaptation of the Grand design, the Studio Grand, sized between the Mini and the Grand, but with a cost closer to that of the Mini.

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1 These should be considered mandatory to get the best sound from the Stage.
2 I'll take no credit for planting the idea of a Mini–(or a Studio) Grand in Apogee's plenty fertile brain trust. The concept isn't much of a stretch anyway, what with the Grand itself in place and Apogee's recent concentration on hybrid models (the various Centaurs). Anyway, my idea was a little more grand: I suggested a three-way sort of super-Stage plus subwoofer. Apogee hasn't gone quite that far here. The upper-range units in the larger Studio Grand resemble the now-discontinued Duetsa Signatures, though they're considerably more expensive. The three-way Diva is also now apparently discontinued, making the only three-way Apogee the big Grand itself.

From the front, the Mini–Grand Stereos Subwoofers look like slightly taller, deeper versions of the standard Stage stands—they're tall enough to accommodate two custom-built, heavy-duty 8" drivers per side in reflex-loaded enclosures. The subwoofers are designed to be powered by an outboard amplifier chosen by the user—Apogee only specifies the recommended power range. A single pair of inputs on the rear is the remaining distinguishing feature.

Apogee also furnishes the Mini–Grand with an outboard electronic crossover. Like the active crossovers they've supplied with some earlier Apogee loudspeakers, they refer to it as a DAX (Dedicated Active Crossover). And like those other crossovers, it's designed specifically for this application. The specified crossover frequency of the Mini–Grand DAX is 80Hz, with a rapid rolloff in the stopband (see "Measurements," below).

Front-panel controls permit level settings of ± 3dB on both the high- and low-pass sections, to accommodate individual setup needs and/or differing amplifier sensitivities. While use of identical amps on the top and bottom is usually a good idea (and Apogee's apparent preference), many users will, through design or necessity, elect to use different models or even different brands.

The DAX is designed to be used in either balanced or unbalanced mode, to be chosen through internal jumpers. Reconfiguration is a bit of a hassle—in order to get inside the chassis, you have to remove the control knobs—but not all that difficult.

Though the Mini–Grand's cosmetics are new, its heart remains the Apogee Stage. The Stage sits atop the subwoofer on brackets that allow for variable tilt-back—an important feature for proper
setup. For those unfamiliar with the Stage, it is a two-way, inherently full-range design. The midrange/tweeter is a 26" ribbon which handles the range above 600Hz. A dipolar, electrodynamic driver takes over below that frequency. Apogee calls this driver a ribbon, but this is not quite correct—it's a large thin-film panel with embedded conductors, located near a large array of permanent magnets on one side. The drive-unit is loosely analogous to a planar electrostatic driver, but the operating principle is electromagnetic rather than electrostatic—no external polarizing voltage is required. The current in the conductors reacts to the fixed, permanent magnetic field, causing the panel to move.

The Stage can be bi-amped via two sets of terminals on the rear. A two-position switch selects between two level settings for the midrange/tweeter—Normal and High—altering the overall balance. While I briefly experimented with the High position, I ultimately did most of my listening in the Normal mode, consistent with my extensive previous experience of the Stages. Even when used alone, the Stage—the most domestic of Apogee's non-hybrid panel designs—is an awesome loudspeaker; adding a subwoofer is intended to address its low-frequency extension and bass dynamic-range problems.

The Mini-Grand Stage's cosmetics have been considerably changed from those of the standard Stage—a combination of a textured black-matte finish with black grillecloth. Combined with the matching Mini-Grand Stereo Subwoofer, it's a striking package—more than slightly reminiscent of the Grand itself.

**SYSTEM**

The Mini-Grands were set up facing down the long axis of my new 18' by 26' by 11' main listening room. The associated system consisted of Kreid electronics: the Reference 64 processor, DT-10 transport, KRC preamplifier, and two KSA-300S power amplifiers—one driving the Stages, the other driving the subwoofers. Note that the KSA-300S has a higher output than the recommended maximum for these loudspeakers. This matter's significance, particularly with respect to the subwoofers, will become clear in the course of the review. In addition, the Rowland Consummate preamp, Hafler Trans-Nova 9300 and 9500 power amps, and an analog phonograph system consisting of the VPI HW-19 Mk.IV turntable (not a recent version), SME V tonearm, and Lyra Clavis cartridge were also used. Cables included TARA Labs RSC Master from CD processor to preamp (ST fiber optic from transport to processor) and, except as noted, Cardas Hexlink from preamp to power amp—or DAX, as the case may be. Loudspeaker cable was Symo.

**SETUP**

The Mini-Grands can be set up in two different ways. First, you can hook up the entire system—Stages, subwoofers, DAX, etc.—and optimize soundstage, balance, and bass simultaneously. Or, you can set the Stages atop the subwoofers, but temporarily ignore them and leave them disconnected. That is, use the subwoofers as stands, but drive the Stages full-range and concentrate your attention on getting the soundstage right. Neither setup is necessarily "right." I chose the latter because I'm familiar with the Stages' sound (though primarily in a different room), and didn't want the possible distraction of dealing with what was, with the subwoofers, a potentially very different loudspeaker overall.

In other words, I shot for the "Stage" sound with which I was familiar, allowing for the inevitable changes resulting from the larger room, before tackling the subwoofer integration problem. But there's at least one disadvantage to this approach: dipole bass responds differently to a room than does conventional bass. As a Stage, the system is a dipole all the way down. As a Mini-Grand, it behaves more like a conventional system below its 80Hz nominal crossover frequency. The differences will likely be more noticeable in a small and/or poorly dimensioned listening room. Since my new listening room is fairly large and, in theory, optimally proportioned, I chose to set up by listening to the Stages alone first. If I had to compromise, I preferred to do so later, in the bass alone.

Apogee recommends setting up the back of the loudspeaker panels (not the back of the subwoofers) 3'-4' from the wall behind—my experience with the Stages and other Apogees told me that 3' is a bare minimum. I began with +4' and ended up with somewhat more than that. (The exact distance isn't relevant here—the optimum setup will vary from room to room and from listener to listener.) The same holds true for lateral spacing, toe-in, and back-tilt. While only the last is seldom a consideration in setting up conventional loudspeakers, dipole are inherently trickier to position. Despite what you may read elsewhere, there really is no single "right" position for dipoles in any but the rarest of rooms. (This is true of any loudspeaker, though the rear radiation of dipoles makes their positioning somewhat more critical in certain respects.) Instead, there will be a number of good positions, each with its own compromises. With reasonable care and a dose of good luck, you'll find positions whose compromises you can live with.

**ON-STAGE**

With just a slight back-tilt and a toe-in marginally greater than the 45° maximum recommended by Apogee, I found a satisfactory position. And, with the Stages alone, the system sounded very much as I expected. For those unacquainted with the Stage, and for those who haven't seen one of our prior descriptions of its sound, a few words here will set the, ah, *stage* for the Mini-Grand. The Stages produced a big sound, with an expansive yet by no means featureless soundstage. Lateral imaging, while definitely less precise than that from the best direct-radiating loudspeakers, was more than sufficient to generate a convincing presence. The central image, indeed, could be astonishingly precise in the sweet spot; solo vocals and instruments were almost spooky in their "in-the-room" feel. Indeed, the cliché "palpable presence" might well have been invented to describe the overall impression produced by a pair of Stages that are well set up and driven by a good front end.

The immediacy of sound of which I earlier spoke was never far from my consciousness. Depth was first-rate; when properly set up, dipoles in general are noted for their ability to generate a sense of three-dimensionality. With the Stages, this depth always seemed perfectly natural and part of the recording, though in truth some of it, as with all dipoles, resulted from the reflection of the rear radiation from the wall behind. The bass response of the Stages was surprisingly extended, though it appeared to be slightly emphasized in the low to midbass. Bass drum—which is concentrated in this region—could be surprisingly potent from these smaller Apogees within their power capability. The same held true for string bass. While the response dropped off quite rapidly below this point (somewhere just below 35-40Hz), the Stage never gave the impression of having insufficient weight. In fact, their response was tilted toward the bass and lower midrange. A band of brightness in the mid-treble kept them...
from sounding dark, however, while the spaciousness of their radiation pattern compensated for a certain lack of air at the extreme top end.

I did encounter one unexpected problem with the Stages. Apparently, Apogee, in a production change, used washers that tended to loosen and rattle on some samples. This happened with both of ours. First the left began buzzing on bass-heavy program material, seeming to resonate only at a particular frequency. The unit was replaced, the new sample broken-in, and the auditioning continued. Then, late in the second test cycle, the right loudspeaker (the Stages are mirror-imaged) began to buzz slightly. This was also replaced, but because there wasn’t sufficient time to properly break-in the new panel and still complete the review by deadline, I finished the testing with the original panel. It only rarely buzzed when used as a Stage alone, and never when used as a Mini-Grand with the DAX’s 80Hz high-pass filter.

The replacement will be pressed into service shortly, and any problems will be reported later. The original replacement is fine, and Apogee apparently made another production change as soon at they were aware of the problem (subsequent to our receiving our first samples, but prior to our asking Apogee for replacements).

As I stated above, in my new listening room the Stages sounded very much as Stages have sounded in the past in the Stereophile listening room—but not exactly the same. In the larger room, the sound was more expansive (a plus) but less intimate (something of a minus). The bass in the larger room was less potent and punchy—not as immediately impressive—but was smoother and less prominent. On balance, the low end of the Stages in the new room was better behaved, if less wowie-zowie.

I was somewhat troubled by one aspect of the Stages’ performance in the larger room—the mid-treble brightness I briefly alluded to above. While this had always been noticeable with the earlier pair of Stages in the Stereophile room, it was never much of a problem for me. In my new room, I was finally able to tame it on most program material by damping the lower corner of the wall behind the loudspeakers. (This has a large window covered by heavy vertical blinds.) This didn’t completely solve the problem, which, I’m certain, could be partly cured by further acoustic treatment of the room, which is a project-in-progress.

In any event, the Stages worked extremely well in my listening room once all the setup niceties were taken care of. Next it was time to hook up the subs and get on with the second act.

**MINI-GRANDING THE STAGE**

Everything was ready to go. The second Krell KSA-300S was in place, and extra lengths of Syrmo loudspeaker cable were on hand. The DAX was set for balanced operation. Since I didn’t have a complement of one brand of balanced interconnects sufficient to handle the complete preamp-to-DAX-to-dual-stereo-power-amps-lash-up, I used a somewhat eclectic mix: TARA Labs RSC connected the DAX to the Stage amp, AudioQuest Lapis Hyperlitz did the same for the subwoofer amp, and Cardas Hexlink connected the preamp to the DAX.

My initial reaction was definitely positive, though a little more restrained than I’d anticipated. Good bass extension was evident, an improvement on the Stages’s already very satisfying bottom end. But it didn’t seem all that much more potent. True, the interface was handled with aplomb; I wasn’t conscious of any sort of discontinuity. And the DAX seemed transparent enough, though it has a gain of 3.6dB (see “Measurements”). But I wanted more.

And I got it—in two different stages. First, I remembered that the phasing of a subwoofer, relative to the upper-range loudspeaker, is not cast in cement. Even with a subwoofer as purpose-designed as the one here, experimentation is not a bad idea. I made a few very rudimentary measurements—the sort you can perform yourself with a $30 Radio Shack spl meter and the Stereophile Test CD 2. Using the LF warble tones, I checked the response at the listening position of the Stages alone, then of the Mini-Grand—the latter configured with all-positive electrical phasing.

The result was fascinating. The biggest difference with the subs in the system was a somewhat higher output in the 50–60Hz region and a little more output at 20Hz—but it wasn’t a major difference. Then I reversed the phasing of both subwoofers. Yeeks! That was more like it. Now the measurements showed at least 5dB more output below 50Hz. There was still some emphasis in the 50–60Hz region—possibly due to a room mode—but the bass was not only smoother overall, it was **noticeably more potent**.

The proof, of course, is in the listening. The sort of measurement described above, while useful, is a rough approximation at best. It can, and does, save hours of chasing up dead alleys trying to decide if a given change in hookup or positioning is a net gain or a loss in performance. Very seldom do you gain something by altering a setup without simultaneously losing something else—the trick is to gain more than you lose. Once again, I learned this lesson later in my listening sessions.

But even at this point the sound was really coming together. First, and perhaps most important, is what the subwoofers in the Mini-Grand did not do. They did not muddy or fatten the overall sound; when there was no serious bass present, they did not exaggerate the mid- and upper bass. *Mokare, Volume 2* (AudioQuest AQ-CD1007), for example, doesn’t serve a constant diet of room-shaking bass, but the bass that is there—notably a growly, gravely double bass—definitely makes you sit up and take notice. Apart from that, the sound was classic Stage: open, detailed, and transparent, with a palpably rich midrange and a bit of brightness in the mid-treble. On Leo Kottke’s *That’s What* (Private Music 2068-2-P), the low end, while not particularly deep, was nevertheless full and solid. Although the subwoofers weren’t appearing to do much here, they were certainly doing something—this recording sounded better than I recall it ever sounding in the past.

On material with a real bottom end, the Mini-Grands didn’t disappoint. While the bass did not sound as potent as the best I’ve heard in the (smaller) Stereophile listening room, it was extended, tight, and gutsy. Combine that with a big, expansive soundstage—Jean Guillou’s organ transcription of *Pictures at an Exhibition* (Dorian DOR-90117) nicely demonstrated both of these qualities—and the result was quite astonishing. If the result was never quite trouser-flapping or room-shaking, remember I was listening in a +5000ft² space with a concrete slab floor. More than once I noted that this is what a top-quality minimonitor might sound like if it could be made to respond below 30Hz.

**THE RULE OF THIRDS**

Subwoofers in the system seems to bring out the Neanderthal in me; “Yah, yah, bass. Bring me bass! More bass!” But the purist pulls back, saying, “No, no, you’re losing it! Bass—who needs it?” “But can’t I have both?” says the idealist.

I wanted it all. To try and get it, I pulled out the stops and tried the “Rule of Thirds”—something for which I’ve never before had the space. Simply put, the Rule of Thirds requires you to place the loudspeakers one-third of the room length out from the front wall, with the listener one-third of the room length...
The Mini-Grands. The loudspeakers themselves nearly disappeared as discrete sound sources. The soundstage was immense, with a layered depth stretching beyond anything I'd previously heard from the Mini-Grands or the Stages alone. Imaging precision, while not in the minimonitor class, was nevertheless convincingly real. The mid-treble was now smoother, less prominent. While this characteristic didn't disappear completely, the added distance to the wall behind the loudspeakers was clearly having a positive effect on the overall balance. And the bass? The sound was now decidedly warmer, but in a positive way—a bit less of the extended minimonitor bass, a bit more of the Stages—along-the-Stereophile-listening-room quality.

Measurements similar to those described above showed an increased emphasis in the 50-60Hz region and less extension at the extreme bottom. But what I heard was decidedly more impressive than that. The string bass sound on Impending Bloom (Justice J0801-2)—a superbly recorded female vocal and double-bass compilation of what has been described as "Twin Peaks" arrangements (CG would have a seizure if he heard the version of "Heartbreak Hotel" here)—was dynamic and punchy, yet had an irresistible, full-bodied richness. The extended bottom end on the Jurassic Park (MCA MCAD-10859) and The Abyss (Varèse Sarabande VSD-5235) soundtracks was dramatically charged—particularly on The Abyss. The room was loaded up with bass I could feel and hear, adding real drama to the music. And the sense of space on Enya's Watermark (Geffen 24233-2) was nearly overwhelming—the bass almost roared that slab floor, particularly on "The Long Ships," in which the bass punctuation, deeply placed in the layered soundstage, provided a real foundation for the piece, notably near the end where the drum strokes are doubled. The Mini-Grands took no prisoners.

Was this the absolute best placement for the Mini-Grands in this room? Maybe yes, maybe no. But there's no escaping the irony of my initial efforts to optimize the placement of the Stages alone, only to find that a radical placement solution which never occurred to me earlier in the listening tests turned out to improve the overall performance. I still would have liked to have tamed the mid-bass a bit while also bringing up the bottom end a bit more, but the Rule of Thirds position turned out to be a very satisfying solution; I kept the Mini-Grands there for the duration of the tests. I did try reversing the subwoofers' electrical polarity again (back to all positive) in this new location, but found that this raised the level of the entire bottom end below 200Hz to an unacceptable degree.

This does not necessarily mean that this sort of positioning will be best for your situation, which is fortunate—it's not really practical for most rooms. Even if your room is big enough, such a setup pretty much turns the room into a dedicated listening room. But in most average rooms there'll be a reasonable solution. Experiment. And don't be afraid to try locations that might look a bit crazy. I would, however, take Apogee's 3' minimum spacing from the rear wall quite seriously.

**Power Problems**

I encountered one troubling problem with the Mini-Grands' subwoofer: power handling. With the admittedly very powerful KSA-300S driving the subwoofers, I encountered a few too many instances of woofer overload. I first noticed an alarming degree of very-low-frequency subwoofer driver pumping on a number of recordings. Those 8" cones do have an impressive excursion capability, however, and though they appeared to be working their little tushes off, woofer bottoming from this alone was rare. To ensure that something else in the system wasn't causing this problem—which only occurred with a recording playing—I swapped preamps, CD players, and amplifiers (initially swapping the KSA-300S driving the Stages and subwoofers, later substituting a Hafler 9500 as the subwoofer amp). The fluctuating continued. One of the subwoofer drivers in each cabinet seemed to be more prone to overloading than the other—though only on extreme excursions, and not to such a degree that I would suspect out-of-spec drivers.

But the overload didn't seem to be directly related to the driver pumping: it sometimes occurred on recordings which produced no pumping, and sometimes was no problem on recordings which did pump. It was only a problem on the most challenging recordings. (For instance: the lead-in drum attacks on Jurassic Park; the drum on "O Vazio" from Tropic Affair; Reference RR-31CD; the lowest bass growlings in The Abyss and Pictures at an Exhibition; the falling drumset on Dafos, Reference RR-12CD; and the final "Rhinefalls" cut on Staccato 2, German Audio magazine CD 101013. The last is a genuine torture test. I wouldn't fault any loudspeaker for failing.)

On these and similar recordings there was a restriction of available playback levels. What was happening seemed to be the result of a combination of the extreme low-frequency boost produced by the DAX (see "Measurements," below), infrasonic signals which were not attenuated but were reproduced in full and at high power by the KSA-300S, combined with the Mini-Grund subwoofer's reflex loading* and a large listening room. Because the Stage used alone was not subject to the DAX and its attendant LF boost, it actually played louder with some of the selections mentioned, though extreme low-frequency power handling is one of the Stage's few weaknesses.

**Amplifier Changes**

The subwoofer amplifier was amenable to change: In place of the KSA-300S, I substituted the Hafler Trans-Nová 9500, rated at 375Wpc into 4 ohms (vs the Krell's 600Wpc into the same impedance). I had to reset the DAX for unbalanced inputs and outputs (the Hafler only has single-ended inputs). The subwoofer level on the DAX was reset to account for the Hafler's different input sensitivity.

The Mini-Grands' overload margin greatly improved with the change in amplifiers. Some material was still out of bounds—"Rhinefalls" from Staccato 2 and the drum on Tropic Affair, each of which is problematic for many loudspeakers—but some was significantly improved. Dafos played considerably louder though still required some caution. The other recordings mentioned above sailed through without a hiccup. The pumping continued on the same recordings as before, though it may have been slightly less noticeable, I was beginning to feel that some sort of infrasonic filtering (perhaps in the DAX) might be appropriate, and might well cure the last vestiges of subwoofer overload. But with the Hafler, the bass finally had a more than acceptable dynamic range. Interestingly, the previous overload had been a combination of what seemed to be woofer bottoming and port noise (a "chuffing" sound). Although the latter is not truly overload, it can be confused with it. With the Hafler in place, the bot-

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*Reflex loading leaves the drivers unloaded below the tuning frequency.
toming was reduced significantly and the "chuffing" virtually disappeared. These two observations are both consistent with reduced workload on the woofers.

With respect to bass quality, however, there were some minor sacrifices with the Hafler. The bass was a bit less punchy, tight, and defined than with the Krell. The effect was not pronounced, however, and could easily be lived with—especially when you consider that the money you'd save with the Hafler would almost cover the price difference between the Mini-Grands and the larger Studio Grands. Of course, with the Studio Grands you might find the Krell's somewhat better bass performance more desirable. Who said life was easy? But for most of us who can't afford such options, the Hafler, in addition to putting less stress on the subwoofers, does a perfectly fine job driving them.

What about using less-expensive amplification all around? I had another Hafler amp on hand—a Trans-Nova 9300. Apart from the fact that the 9300 and 9500 have different input sensitivities which require a bit more jiggering around with the DAX's level controls, hooking up the Mini-Grand with all-Hafler amplification was no big production. Here I was also able to use Cardas Heclink all around, as four short, unbalanced lengths of it were available to run between the DAX and the amps.

The result was unsurprisingly effective, considering what we already know about the Haflers' performance. The main changes from the Krells: the sound was a little more forward, somewhat less divorced from the loudspeakers' locations; the sense of depth was less alarmingly real, but still effective; the top end was a bit drier and less liquid; and the bottom end, to repeat what I noted above, wasn't quite as tight and punchy. Individually, none of these differences is worthy of more than a passing comment. Collectively they add up to a somewhat less compelling performance.

That said, I have to note that the savings—about $15k—will buy you a packed-to-the-gills, completely tricked-out economy car, or, again, a complete Apogee Studio Grand. The Krell—particularly on the top end—is worth the difference for those able to pay for the added performance. But I wouldn't hock the Mercedes or auction off the mink for it. I loved the performance of the Mini-Grands (bass power handling, but not bass quality, excepted) with the Krells; I could live happily with the Haflers. And there are other cost-effective options as well. I haven't heard the complete Mini-Grand system driven with Aragon 4004 Mk.IIs, but I suspect, based on my experience with that amplifier driving the Stages, that it would be a good combination. And while we haven't yet tried the new Classé amps with the Stages, we found that earlier Classé models worked well with them. In this case, however, our usual caution about careful amplifier selection goes double, to ensure that the chosen subwoofer amp, in particular, won't override the Mini-Grand's subwoofer.

**MEASUREMENTS**

On the test bench, the dedicated active crossover (DAX) had a gain of 3.4dB ± 0.05dB in the unbalanced mode for either channel on both the high- and low-pass legs (taken at 1kHz and 40Hz, respectively). Its gain in the balanced mode was virtually the same (about 0.1dB higher). The balanced and unbalanced output impedance also measured the same: 50-51 ohms. The input impedance measured just under 7.4k ohms, unbalanced, and between 8k ohms and 8.2k ohms, balanced, for either channel, high- or low-pass. The latter is moderately low, but should only be a problem with those few preamps (generally tube designs, but not *all* tube designs) that have high output impedances.

The high- and low-pass level controls on the DAX altered the gain the specified amounts (+3dB in 1dB increments) with a variation of no more than 0.02dB.

Fig. 1 shows the frequency response of both the high- and low-pass sections of the DAX, with the low-pass reference level adjusted so that the curves cross at the specified 80Hz crossover frequency. Note that the low-pass section provides a boost to the extreme bottom end of the range. This is an acceptable technique for one particular type of ported woofer alignment (a so-called sixth-order alignment), but it's normally accompanied by some sort of infrasonic filtration. Here the boost continues well below 20Hz, reaching a maximum somewhere below our test equipment's 10Hz lower limit. This would explain the overload problems I encountered, particularly with the extremely powerful Krell amplifier. It should be noted that a level boost of 6dB, which does not appear extreme, requires *four times* the power. The Krell can accommodate this requirement.

The crosstalk of the DAX's high-pass section is shown in fig.2. The unbalanced mode is good, the balanced mode excellent, with only the slightest increase at the highest frequencies. The THD+noise for the high-pass section (fig.3) is very low in either mode, even at the 2V input used for the measurements. This level was chosen after I plotted out the THD+noise vs level at 1kHz (high-pass) and 50Hz (low-pass). This result (not shown) indicates an extremely low distortion up to 12V output on both sections (below 0.02% at 0.1V, below 0.003% at 1V, and below 0.002% at 12V). Distortion increases rapidly after 12V, but no amplifier I know of requires much more than 2V for its maximum output.

John Atkinson measured the Apogee Mini-Grand—the Stage and subwoofer—after I completed my listening. The B-weighted sensitivity of the Stage measured approximately 81dB/W/m, using the 82.5dB/W/m sensitivity of the LS3/5A as a reference point. While the Stage's sensitivity is quite low, it's important to note that with its low impedance, it actually draws more than 2W at the standard input used for sensitivity measurements (2.828V), rather than the 1W normally drawn by a hypothetical, standard 8 ohm impedance.

These measurements also indicated, interestingly, that doubling the distance from the Stage resulted in an sp drop of

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**Fig. 1.** Apogee DAX crossover, high- and low-pass output responses (right channel dashed, 5dB/vertical div.).

**Fig. 2.** Apogee DAX crossover, crosstalk in unbalanced mode (top) and balanced mode (bottom) (10dB/vertical div.).

**Fig. 3.** Apogee DAX crossover, high-pass THD+noise vs frequency at 2V input level in unbalanced and balanced modes (right channel dashed).
5.3dB. Normally, the expected drop for a line source would be 3dB—see the Audiostatic ES-100 review in this issue—6dB for a point source. Despite its use of a ribbon, the Stage appears to behave more like a conventional speaker.

The impedance of the Stage (fig.4) is very uniform, and also very low—the minimum magnitude is 2.9 ohms. Some care should be taken in selecting an appropriate amplifier—it should be one comfortable driving a 3 ohm load. The small ripples at 37Hz and 44Hz indicate the fundamental woofer panel resonances. The electrical crossover between the woofer-midrange panel and the tweeter ribbon is reflected in the increase in impedance magnitude centered at 350Hz. The impedance changes caused by the “Normal” and “High” tweeter-level switch positions, which are centered at about 10kHz, are quite small.

The subwoofer impedance (fig.5) shows a very low port tuning frequency—the “saddle” at 235Hz between the two spikes at about 13Hz and 37Hz—and a minimum magnitude of 2.8 ohms. A small ripple at 350Hz indicates a resonance—either in the port or the enclosure—but it's well above the crossover frequency in normal operation when the DAX is in use, and should be of no audible significance.

Fig.6 shows the nearfield responses of the Stage subwoofer drivers and port, driven without the DAX in-circuit. Despite the low port tuning, the actual maximum acoustic output of the port and minimum output of the woofers occur about an octave apart—at 33Hz and 17Hz, respectively. The output of the port peaks again at about 540Hz (corresponding to a dip in the driver response)—likely due to a resonance of some kind. This should be audibly innocuous when the DAX is used. Fig.7, which shows the subwoofer drive-unit and port outputs with the DAX in the circuit, illustrates that this is so. The boost in LF output provided by the DAX at the lowest frequencies is evident when comparing figs.6 and 7.

To the left of fig.8 is shown the vector sum of the responses of the DAX equalized subwoofer drivers and port (weighted in the proportion of the square roots of their areas). The center curve shows the response of the Stage's woofer-midrange panel with the DAX engaged, the right curve shows the response of the ribbon tweeter. (The subwoofer curve is a nearfield measurement; the Stage measurements are both a combination of a nearfield measurement for the lower frequencies and the response 45° from the vertical midpoint of the tweeter, directly on the tweeter axis.) The LF response holds up well to below 20Hz; normal room reinforcement should enhance the bottom-end response even further.

The two panel resonances of the Stage woofer-midrange at 37Hz and 44Hz, noted from the impedance plot, are visible. Note that the subwoofer begins reinforcing the response of the Stage's woofer ribbon at almost exactly the point where the latter drops off like a rock. The response ripple in the Stage's woofer-mid panel, visible in its top-end rolloff from about 2-3kHz, appears to be an acoustical anomaly—likely due to interference—rather than a resonance (it does not affect the impedance plot, for example). The acoustical crossover for the Stage itself lies just above 600Hz. The tweeter response, taken with the “High” setting of the tweeter-level control, shows some irregularity and moderate peaks in the low to mid-treble, reaching a maximum at 10kHz.

The overall response of the Stage alone, with the tweeter setting on “High” and the DAX out of the circuit, is shown in fig.9. Without the moderating effect of the DAX's high-pass rolloff, the Stage's rise below 50Hz is more pronounced. Some of the gradual downtilt in the overall response with increasing frequency is due to the proximity effect; when measuring a large panel, the microphone distance is not much larger than the overall driver dimensions, which adds a slight clockwise tilt to the mea-
sured response.

Fig.10 shows the effect of the tweeter-level control in its Normal setting on the overall response. (The curve shows only the changes due to the control.) Note that the control is actually a contour control, not just a simple level control. The response is very close to the inverse of the low-mid treble peaks seen in the previous curves, effectively compensating for them (though, of course, it cannot smooth the response completely). Note that I did most of my listening in this Normal mode, and while I still noted some brightness, it was clearly less obvious than in the High setting, which I felt to be too “hot.” The added brightness in the High setting might, however, be of help in a very dead listening room.

The lateral response plot in Fig.11 was taken toward the tweeter side of the Stage. That is, it shows the change in response as the listener moves off-axis toward center “stage” in a normal stereo setup. Remember, Apogee recommends, at maximum, a very small toe-in; the listener in this configuration will always be displaced slightly inward of the direct axis. The HF response rolls off as we move off-axis in this direction, but the rolloff is generally smooth up to and somewhat beyond 30° (though with a small peak cropping up above 15kHz). Note the progressively deeper dip at 800Hz at greater off-axis angles—the result of lateral interference between the woofer-midrange panel and the tweeter. The vertical-response family of curves is not shown, but indicates what is obvious from listening: The Mini-Grand, like the Stage itself, is a “sit-down” loudspeaker. Above the top of the ribbon, the high-frequency response drops drastically in level.

The impulse response of the Stage in Fig.12 is quite clean, with a fast rise-time and little ringing. The step response calculated from the impulse response (Fig.13) shows the initial rise of the tweeter, positive in polarity, followed by the negative-going response of the woofer-midrange panel. The latter is connected out-of-phase with the tweeter — the only way (without using digital signal processing) to obtain a relatively flat frequency response in the crossover region with even-order filters.

Though the impulse response for the subwoofer is not shown, it indicates that, as observed in the listening tests, the subwoofer is acoustically out of phase with the Stage woofer-midrange panel when hooked up as specified. This may well be intentional. Note that, in Fig.8, the maximum output of the subwoofer falls near the region where the Stage’s woofer—midrange panel has its resonance peaks. Because the Stage’s response drops off very rapidly below this, an acoustically out-of-phase hookup with the subwoofer might help cancel out this peak, at little apparent sacrifice to the extreme bottom end of the Mini—Grand as a whole. Note that when I connected the subwoofers in inverse electrical polarity in my listening tests—resulting in their being acoustically in-phase with the Stages—my rudimentary acoustical measurements at the listening position did indicate a peak at about 50Hz. And while I ultimately felt that the overall bass response was best in my room using this hookup, the elevated 50Hz response I encountered might be more of a problem in a smaller room, making Apogee’s recommended connection more appropriate. Experimentation here is mandatory—each room will respond differently.

The waterfall plot in Fig.14 shows a clean decay, with only a minor HF resonance at about 6.6kHz. There’s notably less hash here in the decay of the tweeter response than we’ve often seen in other planar loudspeakers, both electrostatic and electromagnetic.

Panel loudspeakers are generally difficult to measure, and the results sometimes differ from listening impressions. This is less true of the Mini—Grand and, by implication, of the Stage, which is a major part of the system. In many respects the system measures better than a number of pricier panels we’ve seen here in the past. The subwoofer, Stage woofer-midrange panel, and Stage rib-

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**Fig.11** Apogee Stage, horizontal response family at 45°, normalized to response on-axis midway up panel, from back to front: reference response; differences 5° through 90° off-axis.

**Fig.12** Apogee Stage, impulse response on-axis midway up panel at 45° (5ms time window, 30kHz bandwidth).

**Fig.13** Apogee Stage, step response on-axis midway up panel at 45° (5ms time window, 30kHz bandwidth).

**Fig.14** Apogee Stage, cumulative spectral-decay-plot at 45°.
bon tweeter—with the possible exception of the sometimes problematical extreme low-frequency boost applied by the DAX to the subwoofer—integrate effectively into a coherent whole.

FURTHER THOUGHTS
I believe that good old-fashioned infrasonic filtration—a single, small change—would greatly increase the Mini-Grand's practicality. Such filtration is merely good design practice with ported systems using boosted low-frequency response, yet my measurements of the DAX show no evidence of rolloff down to the 10Hz lower limit of our Audio Precision test set. A sharp rolloff below, say, 15–20Hz would most certainly increase the Mini-Grand's output capability and would probably eliminate the last vestiges of overloading at anything like a reasonable playback level.

And the infrasonic boost in the Mini-Grand makes such a filter somewhere in the system virtually mandatory if you plan on playing LPs (most high-end preamps, and especially solid-state designs, do not provide this). Though the woofers didn't bottom with any of the LPs I played through the system—probably because there's little program material below 20Hz on most LPs anyway—I was not reassured by the sight of the woofers pumping from common LP warps and other low-frequency groove garbage.

(And they did come very close to bottoming with the occasional higher-than-average-clone warps.) I used extreme caution—e.g., never raising or lowering the stylus except with the preamp in mute—to avoid extra strain on the system in this mode. But such efforts would be distracting and in the long run. Remember, I have a solid concrete floor; the thought of the acoustic feedback possible with footfalls on a suspended floor with this system is alarming.

The best solution might be a powered version of the Mini-Grand subwoofer. This would allow the manufacturer to optimize the performance and minimize the system's overall complexity. It would surely add to the cost, but you already need two more amplifiers for the system anyway. While full-range loudspeakers with integral amplifiers, despite their many advantages, have never caught on with the public, powered subwoofers have, and they make a lot of sense.

One final concern: In the owner's manual, Apogee cautions against turning the DAX on or off while the power amps are on, as this could send a pulse through the amplifiers and loudspeakers which could damage either or both. In light of my observations above, I had to see what would happen if the DAX was turned off while the system was operating. Even if this was done unintentionally, a power failure could have serious consequences.

Until just recently, I experienced brief power failures in my new house every week or two; to me, the risk of inadvertent shutdown is not academic.

To check out the possible risk, I tested both the low- and high-pass sections of the DAX separately, and began by placing another preamplifier between the DAX and the amplifier in use. This allowed me to creep up on the maximum level, watching for signs of stress in either the subwoofers or the Stages and allowing me to stop the test at any point short of unity gain. The pulse occurred at turn-on and didn't recur at turn-on. With the Stages, the maximum effect was a non-alarming "chuffing" noise. With the subwoofers, at worst the cones pulsed to a wide excursion with an audible plunk, but there was no sign that they actually bottomed out. Finally, I removed the precautionary preamp and drove both systems directly from the DAX as in normal use. There was no increase in the distress level, as the DAX was again disconnected from the line. Incidentally, for this test I used the Hafler 9500 to drive the subwoofers—I didn't want to press my luck. While this result does not mean that there'll be no risk in your system (there may be DAXes with stronger turnoff pulses than mine), it does make me breathe easier. Nevertheless, you should certainly not make a habit of disconnecting the DAX from the line.

CONCLUSIONS
The present glut on the market of good, powered subwoofers means that Stage owners thinking about enhancing that loudspeaker's bass performance now have several real options. But some caution should be exercised. While mating a separate, generic subwoofer with a panel loudspeaker is not, in my opinion, quite the hair-tearing exercise it's been painted as, it can still be a tricky proposition. It can work if carefully done and if the room is right, but the blend is not always seamless. A separate subwoofer does, however, give you more placement options with which to optimize the bass without sacrificing the soundstage integrity of the upper-range loudspeakers.

One combination which I haven't yet had the opportunity to try (but hope to) is the Muse Eighteen, for which there is a "personality card" designed for the Stage. For those unfamiliar with the Muse, the "personality card" is a plug-in card which helps to optimize the high-pass or upper-range crossover to the full-range loudspeaker selected for covering the upper ranges. Since the Muse is powered, this would be a less expensive alternative overall than Apogee's own Mini-Grand. And in my experience, the Muse has a greater dynamic range than the Mini-Grand's subs. Also, the use of a single Muse will, of course, give you a mono subwoofer, in contrast to the stereo subs of the Mini-Grand. There are advantages to stereo subs, though in my opinion the advantage has more to do with the placement of two subs in different parts of the listening room—thus smoothing the bass—than with the use of stereo subs per se.

On the other hand, there's an undeniable sense of unity, both physical and sonic, to the Mini-Grand's totally integrated design. I found its overall performance stunning. I'd recommend the Stages themselves, which cover most of the frequency range, without a second thought—not surprising if you've read what I've written about them here and elsewhere. I must qualify my recommendation of the Mini-Grand subwoofers in that I suggest a moderate-sized listening room and careful matching of driving amplifiers. But when used with intelligence and careful selection of driving components, the total Mini-Grand system is an exceptional performer.
Adcom GDA-600 D/A Converter

Robert Harley


It's almost become conventional wisdom that any new digital processor with a retail price of under $1000 will be based on low-cost, 1-bit technology. Most recently introduced products in this price range use the Crystal CS8412 input receiver and Crystal CS4328 two-channel 1-bit DAC. This chip set requires no separate digital filter chip (the CS4328 includes a filter), no "glue logic" chips, and minimal power-supply voltages. These factors make 1-bit technology very appealing to the designer trying to meet a low price point.

Conversely, a multi-bit processor requires a separate digital filter, more support chips, two DACs, separate current/voltage converters, more power-supply rails, and often MSB trimmers to fine-tune the DACs' linearity. This is why you don't often see multi-bit converters at the lower price levels.

As good as some of the under-$1000 1-bit converters are, however, they all lack the bass extension, authority in the low end, dynamics, and punch of good multi-bit designs. The 1-bit offerings tend to sound polite rather than visceral, working better on small-scale music and voices rather than reproducing drums and bass guitar. Although they're often smooth in the treble and have good soundstaging, 1-bit-based processors lack the immediacy and rhythmic urgency I hear in more expensive multi-bit converters. It seems that, if you want these qualities, you need to spend at least $1500 for a multi-bit processor.

The new Adcom GDA-600 digital processor may change all that. The $750 GDA-600 eschews the low cost of 1-bit technology in favor of a pair of high-quality 20-bit DAC chips, the Burr-Brown PCM63. The PCM63 is found in the $2500 Prodec PDP 3, the $4000 Theta DS Pro Generation III, the $2395 Lind Numenik, and other highly regarded units. To my knowledge, the least expensive digital processor using the PCM63s (other than the Adcom) is the $1500 Bitwise Musik System Zero.

But good DACs do not make a musical processor make. Power supplies, layout, associated parts quality, output-stage topology, jitter minimization, and a myriad of other factors influence a processor's musical quality.

Nonetheless, the Adcom GDA-600 appears to have a shot at offering the best attributes of good multi-bit designs at a price previously restricted to 1-bit technology.

TECHNICAL DETAILS

The GDA-600 is housed in a standard black Adcom chassis with a rounded front panel. The unit has an On/Off button and two rotary switches: one switch selects one of four digital inputs, the other inverts absolute polarity. An LED illuminates to indicate that the unit has locked to an incoming source.

The rear panel provides two coaxial digital inputs: one TosLink optical input, one AES/EBU input on an XLR connector. No provision is made for AT&T ST-type optical input; Adcom believes the AES/EBU input provides better sound at a lower cost than the ST-type connection. A digital output—handy for driving a digital recorder—appears on an RCA jack. Analog output is via a pair of RCA jacks. All RCA jacks are gold-plated.

Inside, the GDA-600 is a model of layout efficiency. There are fewer digital and analog components in the GDA-600's chassis than in other processors using the same chipset. This is undoubtedly how Adcom can offer this level of build and parts quality for $750.

Although the digital and analog stages are minimal, the power supply is quite large for a product of this price. The power supply is contained on a separate board on the unit's left side. Two transformers—one each for the digital and analog electronics—supply seven voltage-regulation stages. Each transformer has dual secondary windings to further isolate the power-supply stages. The seven three-pin regulators (all TO-220 types) are mounted on the power-supply board rather than distributed near the circuits they supply. Usually, the PCM63 DACs are supplied from two separate ±5V regulation stages rather than one. The other rails are ±5V for the digital circuits and ±15V for the I/V converter and analog output stage.

The incoming AC is filtered to remove noise. Unusually, this filter also protects digital noise from the GDA-600 from getting back into the AC line through the power cord. Such noise can enter your analog components and degrade the sound quality. This "bidirectional" AC filter also helps the GDA-600 meet the FCC's stringent "Rule 15" requirements for low radiated noise—a benefit when the processor is used near video equipment.

The input receiver is the now-standard Crystal CS8412, but is coupled to the digital input circuit via a tiny pulse transformer for lower jitter in the recovered clock. The CS8412 output feeds an 8x-oversampling Burr-Brown DF1700 digital filter chip, which is identical to the NPC 5813 filter. The 5813 has the same filter characteristics as the more commonly used (and more expensive) 5803, but has no digital-domain de-emphasis. Interestingly, the CS8412 and NPC 5813 (or 5803) aren't guaranteed to work together. The NPC filter needs a specific clock duty cycle which the CS8412 may or may not produce. To eliminate the possibility of failure, each GDA-600's clock duty cycle is hand-trimmed to meet the NPC's requirements.

The use of the Burr-Brown multi-bit DACs in a $750 product is unprec-
I examined the GDA-600— with music —within my usual reference system. The Adcom processor fed an Audio Research LS5 preamplifier via ARC's BL2 balanced line driver. Power amplifiers were primarily Audio Research VR-150 tubed monoblocks1 and a Krell KSA-300S. These drove a pair of Thiel CS3.6 loudspeakers in a dedicated, built-from-scratch listening room.

Transports driving the GDA-600 included a Mark Levinson No.31, Theta Data Basic, and a PS Audio Lambda. Most of my impressions were made with the Theta Data Basic, which was a better match for the GDA-600 than the PS Audio Lambda. Digital interconnects included the Aural Symphonics Digital Standard coaxial, and the new WonderLink AES/EBU cable from McCormack. The AES/EBU connection between the Data Basic and the GDA-600 was a slight improvement over coaxial connection. Analog connection between the GDA-600 and the preamp was Monster Sigma, AudioQuest Diamond, or Straight Wire Maestro, and the long run between the preamp and power amps was Expressive Technologies IC-1. An 8' pair of AudioQuest Sterling connected the loudspeakers. Power to the system was conditioned by a Tice Power Block and Titan.

I listened to the GDA-600 on its own and in matched-level comparisons with the $895 Meridian 263, a PS Audio UltraLink, an Audio Alchemy DAC-in-the-Box ($199, reviewed elsewhere in this issue), and a Mark Levinson No.35.

LISTENING

Once the GDA-600 had fully warmed up, it quickly established itself as a musically satisfying product—and one that offered much higher performance than I'd thought possible from a $750 converter. In fact, the GDA-600 was clearly better than anything I've heard under $1500. Moreover, the GDA-600 didn't sound like a typical Adcom product—forward-sounding with a bright, dry treble—but instead had a much more refined character.

What first struck me about the GDA-600 was its big, robust, and powerful presentation. The bottom end was extended, authoritative, and weighty. The bass had a flowing effortlessness that I found extremely involving. Low frequencies had lots of weight, but the presentation was never bloated or slow. Instead, the GDA-600 combined deep extension with a powerful midbass and good pitch articulation.

Kick drum had a satisfying solidity and impact at the extreme bottom end. Bass guitar was powerful, weighty, and warm. Moreover, the GDA-600 was adept at portraying the subtle dynamic qualities in the bass—I could clearly hear the individual attacks of bass notes. The bass playing on any of the three Bela Fleck and the Flecktones discs perfectly illustrated the GDA-600's prodigious bass performance. Further, the GDA-600 had a superb ability to differentiate bass drum from bass guitar—the two didn't smear into a blur.

As a result of these qualities, the GDA-600 infuses music with a powerful rhythmic expression. The rhythm locked in with a solidity and intensity I've never heard from a processor anywhere near this price. The GDA-600 had a big, upbeat, and physically engaging quality that was irresistible. The Michael Ruff CD, Speaking in Melodies (Sheffield Lab CD-35), has a terrific sense of rhythm that's easily diluted by a poor-quality digital front end—when this disc is reproduced correctly, you know it instantly: this music had tremendous pace and drive through the Adcom. The rip-you-out-of-the-seat rhythmic intensity of "G-Spot Tornado" from Zappa's The Yellow Shark (Barking Pumpkin R 271600) was powerfully portrayed, with expressive dynamics and a keen sense of rhythmic cohesion in the ensemble.

The GDA-600's superb dynamics weren't restricted to the bass. The entire musical spectrum was reproduced with wide dynamic contrast. On musical peaks the GDA-600 had an effortless quality that allowed the music a wider range of dynamic expression. There was a distinct sense of explosive physical force on transient signals—much as you hear in live music. The GDA-600 was the antithesis of compressed, lackluster, or slow. Microdynamics—the gentle attack of an acoustic guitar string, for example—were also rendered with a quickness and zip that added a sense of palpability. Although the GDA-600 was adept at portraying detail and transient snap, it was never etched or analytical. There was a nice balance between resolution of musical information and sonic sterility.

In comparison with the Meridian 263, the GDA-600 was clearly in another league. Bass and dynamics, however,

1 A review of the LSS and VT-150 will appear in a forthcoming issue of Stereophile, along with an interview with Audio Research founder William Z. Johnson.
were not the 263's strong suit. Consequently, I upped the ante by comparing the GDA-600 with the PS Audio UltraLink. Even against this excellent $2000 processor, the GDA-600 was clearly more dynamic, extended, and had more weight. Moreover, the GDA-600 was more involving rhythmically than the UltraLink. The GDA-600's bass, however, was just a tad on the fat side. The UltraLink's midbass was more taut and quick, but the GDA-600's bottom end was more extended and dynamic.

The GDA-600's next most impressive characteristic was its spatial presentation. The Adcom processor threw a huge sense of space in my listening room, with beautiful transparency and bloom. The music seemed to exist in huge, transparent space before me. I could hear deep into the soundstage, and was able to resolve subtle spatial cues. Reverb decay was smooth and extended, further adding to the sense of depth. The Muddy Waters Folk Singer CD (Mobile Fidelity UDCD 593) was particularly well-served by the GDA-600's openness, air, and transparency. I could easily hear the air and bloom around the instruments and voices and the spatial relationships between the musicians.

I've always regarded the UltraLink as the soundstaging champion in affordable processors. But to my surprise, the GDA-600 clearly had a more three-dimensional, spacious presentation. The Adcom presented more layers of depth, with finer gradations of distance between the layers. Moreover, the sense of size and air surrounding the music was greater with the GDA-600. On the Dorian recording of Ulrike-Anima Mathé playing Max Reger's sonatas for unaccompanied violin, the GDA-600 better presented the space and depth of the Troy Savings Bank Music Hall. There was more bloom and air around the violin, making the GDA-600 sound closer to the Mark Levinson No.35's rendering of this music. The GDA-600's openness, soundstage depth, air, and ability to present a coherent spatial presentation were unique in sub-$1000 processors.

You'd never mistake an Adcom amplifier for the bloom and ease of a tubed design—Adcoms tend to have a rather dry, forward midrange and treble. Fortunately, these characteristics weren't evident in the GDA-600. The treble was fairly smooth and well integrated with the music. Sibilance wasn't annoyingly exaggerated. In fact, I could even describe the treble as being very slightly subdued. Cymbals were noticeably more laid-back through the GDA-600 than the 263 or even the UltraLink. Overall, there was a nice impression of extension without brightness or forwardness. I found this combination of an almost laid-back treble and a relative lack of hash and grain greatly appealing. This is an area in which inexpensive digital usually fails—it was a revelation to hear this quality of treble performance from such an affordable processor.

I was also surprised by the GDA-600's midrange; it was a little on the laid-back and recessed side, particularly compared to the UltraLink. Vocals and some lead instruments were slightly set back in the soundstage—again, not what I'd expect from an Adcom product. The UltraLink seemed to have more clarity and presence in the mids, but this was probably the result of its more forward, immediate rendering. Nonetheless, the UltraLink's portrayal of timbre was slightly more liquid, smooth, and delicate than what heard from the GDA-600. The Adcom had a trace of hardness and grain in the mids—particularly in the upper mids—that could make instrumental textures less lush and lifelike. For example, the requisite Arturo Delmoni and David Bussell disc, Music for Violin and Guitar (Sonata SACD 102), was better served by the UltraLink's more natural presentation of timbre. The violin was cleaner and more pure through the UltraLink, although the GDA-600's less-forward perspective and greater resolution of ambience were pluses for the Adcom. This hardness wasn't present to a degree that constantly detracted from the music, but it was noticeable in comparison with the UltraLink.

This hardness was, however, exacerbated on transient signals. Snare drum, in particular, could take on a shrillness that was distracting. Interestingly, I heard this characteristic on only a few recordings, suggesting the GDA-600 may have a problem over a very narrow band of frequencies. For example, the snare drum on Robben Ford's CD, Robben Ford and the Blue Line (Stretch STD-1102), had a harder, more mechanical character through the GDA-600 than through the 263, UltraLink, or even the DAC-in-the-Box. The snare had a little of the character you hear from drum machines. But the snare on the Michael Ruff CD didn't have this metallic flavor through the GDA-600—undoubtedly because the snare drum's energy had a different spectral distribution. Another example of the GDA-600's hardness on some transient signals was the piano solo on

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2 PS Audio unveiled the UltraLink II—a complete redesign of the UltraLink—at the WCES in January. The new model uses the UltraAnalog AES520 input receiver, the UltraAnalog I20400A DAC, a new layout and cosmetics, and reportedly a better-sounding output stage.
the tune “Wishing Well” from the Michael Ruff disc. The high piano notes at 4:20 into the piece became hard and glassy through the GDA-600, a characteristic not heard through the UltraLink or 263. This is, however, a minor criticism, considering the $750 price tag and the GDA-600’s other attributes.

If I had to describe the GDA-600 by likening its sound to another processor, I’d compare it to the Theta DS Pro Generation III. The two processors share terrific bass, a great sense of pace, an open and spacious soundstage, and wide dynamic expression. The Generation III has much greater bass control and extension, tighter image focus, greater spatial resolution, and a more transparent soundstage, but the GDA-600 has a smoother, more refined treble. Although the Generation III is clearly the better unit, the GDA-600 shares many of its qualities. Not bad for a $750 converter.

MEASUREMENTS

The GDA-600 had a maximum output level of 2.246V when decoding a full-scale, 1kHz sinewave. Output impedance measured a low 77 ohms at any audio frequency, making it insensitive to preamplifier loading. Channel balance was excellent—less than 0.02dB difference in output level between channels. The GDA-600 had no trouble locking to 32kHz and 48kHz sampling frequencies in addition to 44.1kHz. The unit doesn’t invert absolute polarity unless the inversion switch is in the “invert” position.

I measured no DC at the outputs; if there was any DC, it was below my voltmeter’s 50µV sensitivity. The complete absence of DC is remarkable for a direct-coupled design that uses no DC servo.

Fig.1 shows the GDA-600’s frequency response and de-emphasis error. The processor rolls off nearly half a dB at 20kHz—slightly more than most units.

Fig.2 Adcom GDA-600, crosstalk (right—left dashed, 10dB/vertical div.).

Fig.3 Adcom GDA-600, spectrum of dithered 1kHz tone at -90, 31dBFS, with noise and spuriae (%-octave analysis, right channel dashed).

Fig.4 Adcom GDA-600, departure from linearity (right channel dashed, 2dB/vertical div.).

The de-emphasis error is minimal, considering it’s performed in the analog domain. Most analog de-emphasis circuits have some deviation from flat response due to loose capacitor tolerances. Channel separation (fig.2) was excellent, measuring greater than 110dB in both channels below 15kHz, and just meeting Adcom’s published specification of 106dB from 20Hz–20kHz.

Fig.3 is a spectral analysis of the GDA-600’s output when decoding a dithered 1kHz, -90dB sinewave. The overall noise level is very low, and there’s virtually no trace of power-supply noise in the audio signal (there is a hint of 60Hz noise, but it’s more than 120dB down). Also notice that both DACs appear to perform identically, indicated by the overlapping left- and right-channel traces. This is excellent performance for any processor, never mind one that costs $750. A wider-band (200kHz) spectral analysis with an input signal of all zeros (not shown) revealed that the GDA-600 has no spurious energy in or out of the audioband.

Fig.5 Adcom GDA-600, waveform of undithered 1kHz sinewave at -90,31dBFS.

Fig.6 Adcom GDA-600, noise modulation, -60 to -100dBFS (10dB/vertical div.).

Fig.7 Adcom GDA-600, HF intermodulation spectrum, DC–22kHz, 19+20kHz at 0dBFS (linear frequency scale, 20dB/vertical div.).

Fig.8 Adcom GDA-600, word-clock jitter spectrum, DC–20kHz, when processing digital silence (linear frequency scale, 10dB/vertical div., 0dB = 1ns).

Fig.9 Adcom GDA-600, word-clock jitter spectrum, DC–20kHz, when processing 1kHz sinewave at 0dBFS (linear frequency scale, 10dB/vertical div., 0dB = 1ns).

Fig.10 Adcom GDA-600, word-clock jitter spectrum, DC–20kHz, when processing 10kHz sinewave at –70dBFS (linear frequency scale, 10dB/vertical div., 0dB = 1ns).
The GDA-600's linearity was superb—and among the best I've measured (fig.4). The error is less than a few tenths of a dB all the way to −110dB where noise begins to dominate the measurement. This is about as good as a low-level linearity as is available from monolithic DACs—multi-bit or 1-bit. Another measure of the GDA-600's small-signal performance is the waveform in fig.5. This is the GDA-600's reproduction of an undithered, 1kHz sinewave at −903dB. The waveshape is excellent, with a minimum of noise overlaying the trace. The three discrete steps at this level (0, +1, −1) are clearly apparent and very uniform.

Noise-modulation performance, shown in fig.6, was also outstanding. The five traces show the GDA-600's noise floor with different input levels ranging from −60dB to −99dB. Tight trace groupings indicate that the noise floor doesn't shift in level or spectral balance as a function of input signal level. In this regard, the GDA-600's performance was exemplary.

Driving the GDA-600 with a full-scale mix of 19kHz and 20kHz—each of the two components therefore lies at −60dBFS—and performing an FFT on the output produced the plot of fig.7. The intermodulation products are very low in level, except for the 1kHz, 18kHz, and 21kHz first- and second-order difference components and the spike at 3kHz. These relatively low-level IM products with high input signals may correlate with my impression of hard-ness on transient-rich signals.

Jitter performance was good for a processor using the Crystal input receiver, measuring 156 picoseconds with no input (all figures are RMS, measured over a 400Hz–22kHz bandwidth). The spectrum is shown in fig.8; the only discrete component is the 7.35kHz subcode rate. With a full-scale, 1kHz sinewave input (fig.9), the jitter increased to 210ps. The spectrum became less clean (as might be expected), although there are remarkably few signal-correlated components. The 1kHz energy is moderately low, and there aren't a whole series of spikes at multiples of 1kHz. Driving the GDA-600 with a −70dB, 1kHz sinewave produced the clock-jitter spectrum of fig.10 (the RMS level was 200ps). As is expected at low signal levels, theitter became more correlated with the audio signal, seen as spikes at 1kHz intervals.

The GDA-600's jitter performance was almost as good as that of any product I've measured that uses the CS8412 input receiver (except the Meridian 263, which uses a dual PLL scheme). Overall, the GDA-600's bench performance was exemplary. There was nothing in its technical performance to indicate that this is a budget product. In fact, it measured as well as—or better than—some products costing nearly 20 times as much.

**Conclusion**
The $750 Adcom GDA-600 is nothing short of a steal. It vastly outperformed every converter under $1500 I've heard, and even challenged the $2000 PS Audio UltraLink, itself a bargain. In many ways—bass, dynamics, and soundstaging—the GDA-600 was clearly a notch above the UltraLink. Had I heard the GDA-600 without knowing its price, I would have guessed that it cost at least $2000.

Finally there's a processor that does it all for under $1000. What's more, the GDA-600 doesn't have any sonic or technical quirks that would make it unsuitable for some systems or tastes. The GDA-600 is quite neutral sonically and has excellent technical performance, making it a safe recommendation for a wide range of musical tastes and playback systems.

I can't recommend the Adcom GDA-600 highly enough. This level of sound quality in such an affordable product is a significant achievement—and perhaps one not likely to be surpassed for some time.
In the January 1994 Stereophile I reviewed the $6300 Krell KRC remote-control preamplifier as a line-stage-only device. While most preamps these days do not come standard with a phono stage (sad but true, according to manufacturers I’ve surveyed), most do make some provision for customers who still value analog reproduction.

Such is the case with the KRC. For an extra $500 (a reasonable price for this option among today’s high-end preamps), the KRC owner may obtain the KRC Phono Module at any time. Installation doesn’t appear to be difficult, though I recommend you have the dealer do it. Once the module is on board, the KRC becomes a full-function preamp, ready to handle all audio sources, with the phono stage appropriately input #1 (unbalanced).

The module consists of one very large circuit board which fills nearly one-third of the width and the entire depth of the KRC chassis. DIP switches allow gain adjustment. Another row of DIP switches allows the user to select load values ranging from 10 ohms to 47k ohms.

**Sound**

I inserted the KRC with Phono Module into the same system I discuss elsewhere in this issue—Apogee Mini-Grand loudspeakers bi-amped with two Krell KS-300S power amps. The source was a VPI HW-19 Mk.1V turntable (not a recent sample) with an SME V toncarl (also an older sample) and a Lyra Clavis cartridge. I limited my listening to the MC mode—the mode most likely to be used with such a product.

I found the Krell Phono Module’s sound to be excellent from the start. The overall balance was less weighty than that from CD through the KRC, but this is a not-unfamiliar quality of the Clavis cartridge. Openness, detail, and transparency were all convincing. Depth, when present on the program material, was all I could ask for.

This wasn’t a tube sound, but it wasn’t a lean, antiseptic sound either. Swee recordings were reproduced sweetly; inherently crisply detailed recordings were rendered that way. If the recording lacked some of the lush three-dimensionality that tube lovers cherish, the KRC Phono Module made up for it in its clean, clear reproduction. Or if it had a fault, it would have to be a slight tendency toward brightness, a bit of “analytic” character. But that was only evident on a small percentage of program material. Through old favorite after favorite I was impressed by the performance of what is, in high-end terms, a moderately priced phono stage. On the superbly recorded choral recording *Flöjten spelar—dansen går...* (Proprius PROP 7759), the overall balance was sweet, yet it in no way sounded veiled. The top end was subtle here, with plenty of detail within the chorus and an effective sense of depth. Tuxedo Cowboy’s *Woman of the Heart* (AudioQuest AQ-LP1002) was similarly compelling. The guitar in this recording was warm, rich, yet had precisely detailed transients where called for. The cello, despite the slightly lightweight balance, was full-bodied, and the vocals were convincingly suspended in space. Particularly notable was the rendition of layered depth on “Makoshika Dance.”

One of my most effective phono test discs is, appropriately, the *Ortofon Pick Up Test Record* (Ortofon 0003)—a strikingly well-recorded compilation of everything from organ to jazz band to vocals to guitar, with tracks taken largely from the Opus 3 and Prophor catalogs. Through the KRC Phono Module, the result was superb: a layered sense of depth and a wide soundstage on chorus and organ, three-dimensional solo vocals, naturally rich classical solo guitar sound—nothing here sounded wrong.

Despite a balance favoring quickness and a spacious airiness over weight and drama, the sound didn’t lack for extension. One of my favorite bass torture-test LPs is *The Rhythm Devils Play River Music* (Wilson Audio W-8521), which has all sorts of grumbly, growling, low bass. (The music is very atypical of the usual Wilson Audio fare—sort of a downbeat Díaz—and the bass extension is exceptional, even for self-proclaimed bass freak Dave Wilson.) The KRC Phono Module had no problem handling it.

**Venetta**

With this review I had no truly familiar phono front-end—a disadvantage. For a number of reasons, including malfunctions of a turntable and an arm, and the return of another arm—my long-term reference Graham—for updating, the VPI/SME/Clavis system was gathered together for this review. I was familiar with each of these items—arm, turntable, and cartridge—individually, but not in concert. There were only two things which marginally bothered me about the performance: the lightish balance and a tendency toward brightness with a small percentage of difficult program material. The latter may well have been exacerbated by the Clavis’s overall balance combined with the Mini-Grands’ tendency to be unforgiving in this region. However, the only way to be certain that these qualities weren’t in the KRC Phono Module was to try a different phono
stage. I planned such a comparison in any event, and to that end rounded up the Vendetta dedicated phono preamp with its line-level output.

With the latter plugged into one of the KRC's line inputs, the games began. There were two objectives here: first, determine if the two characteristics I've noted were in the KRC Phono Module; second, compare the overall sound of our long-term reference Vendetta (the source of an ongoing custody battle between RH, JA, and me) with that of the Krell's own phono stage.

The first thing I noticed was that while the Krell KRC Phono Module was very quiet at any normal listening level (no hum, and only a very slight rushing sound audible very close to the loudspeakers), the Vendetta was awesomely silent sans music playing, with noise totally inaudible at any distance from the loudspeakers. It was more like a line stage than a phono stage in this respect. The Krell was completely satisfactory, but the Vendetta was simply spooky in its lack of noise.

Sonically, the Vendetta didn't substantially change the overall system balance — the sound was still a bit light rather than rich, but not unacceptably so. This was clearly not an inherent characteristic of the KRC Phono Module. With respect to the top end, the differences weren't profound, but did favor the Vendetta. The latter was a trace sweeter, though no less detailed, and was also marginally less up-front. The net result was a bit more delicacy and a more self-effacing character, with a more subtle rendition of ambiance and inner detail. Some of the brightness noted remained — though no more than I've noted from the Mini-Grands elsewhere.

What was probably happening was a pileup of trends — the light balance of the phono, a slight brightness in the KRC Phono Module, and a bit of the same in the Mini-Grands — in my listening room. While the net impact didn't affect most program material, it does argue for careful matching of the turntable/arm/cartridge, KRC Phono Module, and loudspeakers for best results — always a good procedure.

**Measurements**

The measurements presented here for the KRC Phono Module phono preamplifier were performed with a 47k ohm load in the MM configuration, and a 250 ohm load in the MC position (the latter chosen because it's 10 times the 25 ohm source impedance of our Audio Precision test set). In accordance with our normal practice, all phono-stage measurements were taken at the KRC's tape outputs. For logistical reasons, and because two KRCs with phono modules were available, the unit measured was not the one auditioned. However, the MC RIAA frequency response and overload margin were rechecked for the auditioned sample with no significant differences. The measured gain with the loading specified above was 36.2dB, MM, and 62.8dB, left channel, 62.9dB right channel, MC. The MC gain did increase to 64.4dB with a 47k ohm load — virtually the same as the specified value of 64.5dB. The input impedance, as configured, measured just over 47k ohms, MM, and 288 ohms (L), 275 ohms (R), MC. The Phono Module is non-inverting, a positive-going input pulse emerging as positive-going at the tape output.

The Phono Module's RIAA response is shown in fig.1. It's unnecessary for me to comment here, except note the roll-off above 20kHz in the MC mode. This won't be of any audible significance, and may help tame ultrasonic peaks common to most MC cartridges. The crosstalk in fig.2 is good, better in the MM mode below 3.5kHz, with the MC somewhat superior at higher frequencies.

The THD + noise of the Phono Module is also very low. Note that while we generally try for a 0.5mV input in measuring an MC input and 5mV for an MM, this level is rarely used, as noise generally dominates the readings at these levels. Thus, the reading doesn't indicate the actual distortion performance. We therefore find an input level at which the THD + noise at 1kHz drops to a minimum, rising with lower inputs due mainly to noise and rising again with higher inputs due primarily to THD. For the Phono Module, that point was 30mV for the MM configuration, 4.3mV for the MC. (These input levels were also used for the crosstalk measurements.)

Since the latter is a high value — almost 19dB above the typical 0.5mV output (at 5cm/s) of an MC cartridge — there's the risk that this technique will show unrealistically high distortion at higher frequencies. Such a rise is visible in the topmost curve in fig.3. In order to determine if the high input was indeed responsible for this, I remeasured the MC THD + noise at 0.5mV, this time with a 400Hz high-pass filter in the circuit. The result indicates a much lower distortion above
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10kHz, all the way to the test's 50kHz limit. Even at the higher input level, however, the rising distortion above 10kHz shouldn't be of audible significance; remember, the first harmonic distortion component of a 10kHz tone is at 20kHz. The THD + noise for the MM configuration was lower yet, and even at the high 30mV input used here, it doesn't really start to rise until about 35kHz.

The Phono Module's MM overload margin was excellent. The 1% THD+ noise level was reached at 113mV input at 1kHz, 12.64mV input at 20Hz, and 650mV input at 20kHz! equivalent to margins of 27.1dB, 28.1dB, and 22.3dB, respectively. The MC results were less impressive: 5.27mV at 1kHz (visible signs of clipping were evident at 5mV), 0.59mV input at 20Hz, and 28.4mV input at 20kHz. The latter values are adequate, but the 20.5dB overload margin for the MC input at 1kHz is lower than that of many other high-end preamps we've measured. (For comparison, the American Hybrid Technologies measured 26.5dB, the MFA MC Reference 37.4dB, and the Rowland Consummate 27.4dB—though all of these phono preamps are notably more expensive.) Although I'd like to see a slightly better MC overload margin in the Phono Module, those measured here are unlikely to cause any difficulty with typical, low-output MC cartridges.

**Conclusions**

If carefully matched with its associated components, the KRC Phono Module is capable of very fine performance. It shouldn't be surprising if the KRC Phono Module wasn't quite up to the Vendetta's level in a head-to-head match-up—before the Vendetta was (unfortunately) discontinued, it was five times more expensive than the Phono Module. This is not to say, however, that the Phono Module is unsuitable for cost-no-object analog front ends—far from it. It'll certainly hold its own in such company. But while the KRC in its line-stage configuration belongs in Class A of Stereophile's "Recommended Components," I would put the KRC Phono Module in Class B.

This is nothing to be ashamed of, and no mean feat at its price. Krell is to be commended for keeping the Phono Module in its line, giving KRC owners a real incentive to retain superior LP playback capability in their systems.

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1 All overload readings were made with an unequalized input signal; the differences with frequency are due to the inherent nature of the RIAA curve (a much lower-level signal is engraved at 201z in the equalized groove than at 20kHz).
From Holland with Love

Dick Olsher auditions the Audiostatic ES-100 electrostatic loudspeaker

Thanks to Ben Peters, there's an electrostatic lifeline in Holland. Founded about 25 years ago, his company, Audiostatic, struggled through the '80s, but with distribution by SOTA Industries, it's now on firm footing in the US. In fact, SOTA's Jack Shafton told me that all assembly and some manufacturing are now conducted in the US. My ES-100 samples came from the first US production run.

The speakers arrived on my doorstep via motor freight. Despite the crate they arrived in being made from wood, I discovered a narrow hole in its side—apparently the result of a forklift-blade attack. As destiny would have it, the blade pierced the crate exactly between the speaker panels, so no harm was done.

Technical Details

The ES-100's essence is one elegant electrostatic panel. This is a full-range transducer—a single diaphragm reproduces the entire musical spectrum. The Audiostatic's diaphragm is not physically segmented. As a result, it has a noticeable "drum-head" resonance at about 50Hz. The panel frame is made of 1.5"-thick MDF and is quite sturdy. A thin, conductive-plastic diaphragm just 5um thick is sandwiched between stationary sta-
tor electrodes, these insulated wires running from top to bottom. A bias DC voltage (in the thousands-of-volts range) is applied to the diaphragm, while the audio signal is stepped-up in voltage and applied in opposing phase to the two electrodes, creating a push-pull force on the diaphragm. (Electrostatic speakers have a significant advantage over other types of planars—ribbons, for example, whose diaphragms must be more massive because they have to conduct high currents.)

The electronic interface is mounted on the panel's backside. A tiny 12V AC wall transformer provides the bias voltage. The interface back plate is adorned with the bias voltage jack and a single pair of binding posts. No bi-wire options here. There are no user controls on the interface, which lacks both bias-adjust and tone controls. The interface's size, with its small step-up transformer, doesn't suggest no-compromise high-end standards. Rather, it gives the impression that the ES-100 is an entry-level product. The panel/interface assembly is not light as a feather, but I had no trouble hoisting the speaker into my listening room.

As far as assembly goes, I only needed to attach the floor plate to the bottom of each panel. Since this plate is lightweight and only a square foot in area, it does little to stabilize the speaker, which tended to rock back and forth on the carpet. I weighed the base down with a Bright Star Audio Little Rock Isolation Pod. A more substantial base, perhaps one filled with sand or lead shot, would greatly improve the assembly's overall structural integrity.

Such a superbase would work well with spikes or Tiptoe-like feet to anchor the speaker to the floor. While the standard floor plate doesn't come with any sort of spikes, SOTA did send me a set of six Isocoins Vibration Dampers ($120) —Audiostatic's aftermarket accessory for controlling vibrational energy. The Isocoins is a multi-layered sandwich of two outer polyamide (hard plastic) "coins" with a springy plastic vertical layer in the middle. A small metal ball is wedged in the upper coin. The instructions state that these dampers were designed to maximize the performance of Audiostatic ESLs by "effectively de-coupling the speaker system from the floor." You should use three Isocoins per speaker—two in front, one in the rear. They should be positioned under the speaker base with the ball facing down.

On my listening room's carpeted floor, the Isocoins further destabilized the speaker assembly—to the point where I was afraid the speaker would tumble. With basic physics in mind, I can't see how this product can work at all when it's sitting on carpet-covered foam. The Isocoins may work well between two hard surfaces, but there's nothing in the instructions cautioning against using them on a carpet. Needless to say, the Isocoins went back in the box.

Preliminaries

A search for a new loudspeaker should
never be consummated with disregard for a matching amplifier—the quest usually hinges on finding a synergistic speaker/amplifier interface. People often ask me for loudspeaker recommendations. Of course, my answer depends on whether or not the person asking is willing to get a new power amplifier. If not, then we must consider what’s optimum for the user’s existing amp. So it goes with the ES-100. This is a fairly insensitive speaker, and its impedance resembles that of a capacitor, with a magnitude that’s large in the bass but which decreases with increasing frequency. Fortunately, the minimum impedance is specified as 6.5 ohms. Overall, this speaker needs an amp that can dish out at least 100W into a capacitive load without complaining. For tonal balance, a tube amp would do better here than would a solid-state design. From my ample collection of tube amps, the Fourier Components Sans Pareil Mk. II OTL (Follow-Up—In progress) emerged as an awesome partner and allowed me to flesh out this speaker’s full potential. The excellent TARA Labs RSC speaker cable was used throughout.

RADPATS

A basic performance aspect of any loudspeaker is its radiation pattern. “Radiation” may be a distressing term to anyone who grew up during the Cold War, but it can also be used generically to describe energy in motion—in this case, the term refers to sound waves launched by the speaker’s diaphragm.

A multi-way dynamic speaker’s radiation pattern is pretty messy—a number of lobes or sound streams trying to cohesively blend together. But for a full-range planar, the radiation pattern is characterized by two main lobes: one toward the front and another (180° out of phase) toward the back, with little radiation to the sides. This is the classic figure-8 pattern typical of dipole speakers, but with the Audistatic the figure-8 is more of a three-dimensional entity running the panel’s full length. If the panel is narrow and tall (which is the case here), it acts as a line source, minimizing early reflections from the floor and ceiling. The ES-100s should therefore image well, even in small rooms.1 As with other planars, the backwave must be carefully controlled by a combination of absorption and diffusion. Absorption taken to the limit, as in a live-end/dead-end room, rarely works well with planars. A seamless soundstage is best achieved by dissipating the backwave with RPG Diffusors, RoomTunes, or other such devices.

For any given speaker, the radiation pattern is a function of frequency. Typically, dispersion becomes narrower with increasing frequency—a consequence of the diaphragm dimensions becoming equal to or larger than the wavelength of sound being radiated. The sound becomes directional at this point, as if it’s being radiated through a flashlight. The ES-100’s lateral dispersion of sound is tied in to the diaphragm’s width—about 7′. Above 2kHz, therefore, the sound became quite beamy. Even small head movements resulted in significant soundstage shifts. In order to enjoy stable imaging, I needed to sit fairly still in the sweet spot. I could reduce image shift by reducing the panels’ toe-in angles, but that also reduced the high-frequency response at the sweet spot. Audistatic recommends you experiment with a toe-in angle between 15° and 25°, as shown in the User’s Manual.

CLARITY

The ES-100’s most startling sonic aspect was its absolute clarity. Speaking as it does with a single voice and so little moving mass, its innate flair for speed and control was unmistakable. Transient attack and decay were so clearly delineated that I could unravel musical phrases down into the hall’s noise floor. Ambience clues were so accurately resolved that the distinctive aura of each recording space bloomed to fill the soundstage.

This Dutch treat was a refreshing change from a typically poor box speaker with its battery of squeaking, honking drivers—the Audistatic spoke with an organic integrity that allowed detail to flow freely from the music’s fabric. Lesser speakers add sizzle and etch to low-level information. As a result, you hear details that Mother Nature never intended you to hear, and you pay the price of early listener fatigue—also known as NSS, Neural Stress Syndrome.

There’s a simple cure for NSS: sell your box speaker, take control of your audio future, and embrace an ESL. No speaker on this planet unravels detail as well while preserving the music’s delicacy.

DYNAMICS

The partnering power amp critically influences how easily this speaker can be pushed to play loud. Switching from a nominal 160Wpc transformer-coupled tube amp to the Sans Pareil OTLs, I was surprised at how much more dynamic the sound became with orchestral music. Dynamic bloom from soft to moderately loud was exquisite, as each instrument’s harmonic envelope surged forward from the depth of a hushed passage to full voice. Dynamic gradations weren’t compressed during the transition, so it was easy to discern each “gear shift.” While it can safely sink a lot of power (up to 250W), the ES-100 did compress while navigating the dynamic scale from moderately loud to very loud.

The bottom line is that the ES-100 is a “small” speaker (at least in terms of its radiating area), and, as with other small speakers, it suffers from dynamic-range limitations. Don’t expect it to play very loud in a large room. Compared with the old Quad ESL, however, the ES-100 played much louder without distress and could be pushed hard without physical damage. Practically speaking, with their insulated stators, the Audistatics are indestructible under overdrive conditions. (I’ve arced my old Quad 5s to the point of total destruction.)

AWESOME IMAGING

Whenever I close my eyes at a live performance, irrespective of seat location, and try to form a mental image of the soundstage, I never get the spatial impression of pinpoint imaging. Rather, I perceive instrumental outlines with breadth, height, and depth—whether it’s a piano, violin, or human voice. The audiophile myth of a soundstage composed of image outlines the size of ant tracks must have been created by someone suffering from chronic overexposure to minimonitor sound.

If you’ve read my recent reviews of planar speakers, you won’t be surprised when I tell you that only planars get image-size presentation right. Box speakers are inherently unable to develop the proper surface loudness or intensity typical of large instruments such as the piano. Characterized by a large acoustic output spread over a large sounding board, a piano’s wave launch is obviously going to be all wrong when it’s squeezed through an 8” woofer—after all, pianos aren’t built with 8” sounding boards.

I experienced the most awesome believable reproduction of piano sound I’ve ever heard during a recent visit to Miami. Peter McGrath of the Sound Components store and I listened to a sampling of his superb digital tapes through his in-store setup of the Wilson Audio WATT/Puppy/WHOW speakers. Lots of space, I thought, but tonal balance and spatial outlines struck me as being definitely audiophile (read: unreal) in character.

Peter then invited me to his home to audition Magnepan’s MG-20 loudspeakers. Assisted by a pair of Snell THX subwoofers, a Bryston power amp, and an

1 For a somewhat controversial discussion of this subject, see J. Gordon Holt’s “Space: the Final Frontier” elsewhere in this issue. —JA

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Stereophile, March 1994
Audio Research LS5 line-level preamp, the MG-20s fed with some of those same master tapes were astonishing. It was as if someone had snuck up to the piano image with a tire pump and inflated it to realistic proportions. The power and majesty of a real piano were suspended before me in space—maybe not the original piano image as it existed in the recording venue, but a piano nonetheless. Of course, the MG-20s realistional balance from the lower midrange to down considerably enhanced the illusion of a live performance.

While the ES-100s didn’t have the MG-20’s tonal balance veracity through the lower octaves, the pair still managed to project some of that same kind of imaging magic into the stage. Instrumental outlines bloomed to realistic size, yet retained an exceptional sense of focus and individual identity. It was easy to resolve individual voices within the fabric of a chorus because outlines didn’t blend or smear, as they often do with lesser speakers.

**Timbre**

In general, the Audiostatist’s accuracy of timbre was right-on for instruments spanning the soprano register. In fact, the range above 1kHz was harmonically the most accurate of any electrostatic I’ve heard to date—with the possible exception of the old Quad and the Stax F83.

The upper registers of soprano voice were absolutely convincing. Loreena McKennitt sounded more like herself than ever before on *The Visit* (Warner Bros. 26880-2). If you like a sweet, pure violin tone, try Arturo Delmoni’s latest on the Sonora label—*Music for Violin and Guitar* (SACC 102)—through these speakers. Delmoni’s violin ebbed and flowed harmonically with lovely bloom and timbral precision.

On Joni Mitchell’s *Blue* (Reprise MS-2038), the harmonic nuances of Joni’s voice sparkled like diamonds in the sun. The Symphonic RG-8 Gold cartridge partnered with the Graham Model 1.5 arm and Ovation turntable helped, but the ES-100 was able to keep pace, even when confronted with a world-class front end.

**Leaning Towers**

The ES-100 sounded deficient in the range from 100–300Hz—it could’ve used maybe another 3dB of lower-midrange juice. The resultant tonal balance was decidedly lean—piano, double bass, and cello all lost body and heft. The lightweight bass lines interfered little with my enjoyment of Baroque music. For example, Handel’s Sinfonia (track 1, Grundig’s Fine Arts sampler, MDG L-3322) sounded deliciously sweet and full of life, while the piece’s inherently anemic bass lines were simply rendered a bit weaker. The midrange itself sounded rather full, which at least partially compensated for the lack of bass.

Beethoven and jazz proved to be entirely different stories, however. Romantic orchestral music, relying as it does on fuller bass lines, did not fare well on these speakers. When the orchestra dug down, the sense of menace was diminished. The hall’s flavor was also reduced, because much of a hall’s warmth resides in the 100–300Hz range.

The ES-100’s lean tonal balance also resulted in a tendency toward brightness. But the problem was definitely not rising frequency response. Rather, it’s well known that instrumental timbre is heightened by a reduction in the intensity of the fundamental (at least in the octave from 200–400Hz). Thus, the Audiostatistic’s lean balance served to brighten its character. I objected to this effect only when the program material tended toward that direction in the first place, or when something in the chain pushed the ES-100 over the edge. Take care not to match the ES-100 with bright gear.

**Woofing**

Deep bass below 40Hz was almost totally lacking. However, the ES-100’s bass output was clean, detailed, and well-integrated in terms of speed and character. Unlike most hybrids where the transition between the dynamic woofer and the electrostatic panel is easy to spot, the Audiostatistic sounded seamless from top to bottom.

A powered dynamic subwoofer with the appropriate outboard passive filters is available from SOTA. But at around $1000 per sub, the system’s cost increases substantially.

The SW-100 electrostatic woofer is available for and designed to be wired in parallel with the ES-100 (so a crossover network is not required). The SW-100 is visually identical to the ES-100 and augments the system’s output below 300Hz. Note that the speaker’s low-frequency extension isn’t affected, rather its upper- and midbass regions are augmented. We only heard the ES-100/SW-100 combo at a dealer’s showroom, but I got the feeling at the time that I wouldn’t want to do without thewoofer. However, the SW-100 woofer doubles the system’s price to $6000.

**Bob Young’s Bylux line filter**

Bob Young’s Bylux AC line filters have been sold through The Cable Company under the Wave-Perfect name. They’re mainly intended for use with front-end gear: turntables, preamps, CD transports, and DACs. I’ve lived with some of these filters for the past several months, and I can tell you that they work. Harmonic textures sound cleaner, as if a layer of dirt and grime has been hosed away.

One of the filter’s practical problems is that it’s designed to be used with a specific piece of gear with a particular current draw. Therefore, it’s effectively dedicated to that piece of equipment. Bob told me that a Wave-Perfect filter had been custom-designed for a number of ESLs, including the ES-100. However, the Bylux is more than just a line filter—think of it as a Mod kit for the ES-100. The BYLUX package includes new AC bias transformers which replace the factory transformers and plug directly into the BYLUX filter box; the box, in turn, is plugged into the wall.

In addition to its line-filtering action, the BYLUX allows some adjustment to the ES-100’s bias voltage. A three-position switch allows for selection of bias voltages above the nominal factory setting. The highest setting (switch position C) increases the bias voltage by 2 Bylux costs $585 and is worth it. Contact Bob Young at 116 Cleveland Ave., Colonia, NJ 07067. Tel: (908) 381-6190.
70%, increasing the speaker's sensitivity by a full 3dB. This is a good thing for the partnering amp, because its headroom will be doubled.

The downside of operating at higher voltages is that the air in the gap between the diaphragm and stators has an increased tendency to break down. When this happens, electrons punch their way from the stators to the diaphragm. The discharge sounds ugly—cracking much like that of a miniature lightning bolt. This "corona" discharge becomes more of a problem at higher altitudes, because the reduced air density facilitates the passage of electrons through the gap. According to Bob Young, position C works well in New Jersey (sea level). However, at my 6800', I couldn't get beyond position A. At this setting, corona only rarely set in, typically during heavy bass transients.

Only with Jack Shafton's full blessing (he actually encouraged me to try the BYLUX), and his assurance that I wouldn't be held liable for any damage to the speakers, did I actually try it.

Although the ES-100 performed quite well on its own, the BYLUX propelled the sound quality forward several notches. The purity and transparency of harmonic textures increased dramatically. Musical passages became easier to unravel, as if the stage sound had been cleaned with Windex. The depth perspective improved such that the soundstage took on a more convincing 3-D presence. Finally, the amp/speaker system sounded more comfortable scaling the full dynamic range of high-powered music.

**Measurements from JA**

The Audiostatic's impedance magnitude (fig.1) only drops below 10 ohms in the mid—treble and above, reaching a minimum value of 5.7 ohms at 14kHz. It lies above 20 ohms in the midrange and bass—note the expanded scale on this graph—implying that the speaker is a very easy amplifier load, even considering the high capacitive phase angle below 100Hz. Its sensitivity, however, as DO suspected, is very low. Its B-weighted output on noise lies some 2.5dB below that of the already chronically low LS3/5a, implying a sensitivity of 80dB/W/m.3 Small amplifiers will be turned away at the door.

Fig.2 shows the ES-100's overall response on an axis midway up the panel (42.5° from the floor), averaged across a 30° horizontal window at a distance of 45°. This is spliced to the nearfield panel output below 300Hz. The trend drops throughout the treble, due to the speaker's very limited horizontal dispersion; on-axis, the output is maintained into the high treble. In the bass, the output is dominated by the panel's "drumhead" resonance centered between 40Hz and 50Hz. There's effectively no bass output below 40Hz, while the notches between 50Hz and 60Hz and at 225Hz are perhaps due to some kind of anti-resonant behavior.

Measuring the on-axis response of physically large speakers is far from trivial, due to the proximity effect present when the microphone distance is not significantly larger than the largest dimension of the speaker. This will tend to add a clockwise tilt to the response. To investigate this aspect of the ES-100's performance, I measured the on-axis response at microphone distances of my standard 45° and 90°, the farthest I could easily get away from the speaker and still get a reasonable time window before the first reflection of the speaker's sound from a room boundary arrived. Fig.3 shows these responses, plotted from 200Hz to 20kHz. The cancellation suckout at 1700Hz is deeper at the closer distance, but other than that and a few other minor peaks and dips, there's no significant difference in the response shape. (The difference in apparent bass rolloff is not real, and is due to the difference in time windows used to derive the frequency response from the windowed impulse response.) Note that doubling the measuring distance only results in an average 3dB drop in sound-pressure level, a clear indication that the speaker acts as a line source. (With a point-source speaker, doubling the distance drops the level by 6dB.)

Laterally (fig.4), the speaker's top two treble octaves drop off significantly with each 5° increase in off-axis angle. At extreme angles, both midrange and treble are significantly depressed—not surprising, given the ES-100's dipole nature. Note, however, that even to the side of the panel, there's an obvious peak at 1770Hz. Vertically, the Audiostatic's response changes little for listening positions between 30° and 50° from the ground—again, line-source behavior.

In the time domain the Audiostatic's step response (fig.5) has an excellent, if 3 Despite this low voltage sensitivity, the Audiostatic is actually quite efficient in the midrange and below, due to its very high impedance. Driven with 2.83V, which will result in 1W power dissipation in an 8 ohm resistor, the ES-100 actually draws much less than 1W from the amplifier to achieve its 80dB spl.

---JA

**fig.1 Audiostatic ES-100, electrical impedance (solid) and phase (dashed) (5 ohms/vertical div.).**

**fig.2 Audiostatic ES-100, anechoic response on axis midway up panel at 45°, averaged across 30° horizontal window and corrected for microphone response, with nearfield panel response below 300Hz.**

**fig.3 Audiostatic ES-100, anechoic response on axis midway up panel at 45° and 90°.**

**fig.4 Audiostatic ES-100, horizontal response family at 45°, normalized to response on axis midway up panel, from back to front: reference response; differences 5° through 90° off axis.**
inverted, shape, though some HF ringing can be seen. The cumulative spectral-decay, or waterfall, plot (fig.6) is very clean for a panel speaker—this presumably associated with the very low diaphragm mass. Though some low-level and probably inconsequential hash can be seen in the very high treble, this clean decay is the reason for DO's positive comments on the speaker's treble. The suckout just below 2kHz, noticeable in figs.2 & 3, which presumably ties in with the off-axis peak at the same frequency, is associated with some delayed energy.

—John Atkinson

**FINAL THOUGHTS FROM DO**
The Audiostatic ES-100 offers a slice of sonic heaven. Its performance in the range above about 1kHz was about as good as it gets—cost being no object. If you think of it as a "planar minimonitor" and are willing to accept its lean tonal balance, then sonic happiness can be yours. Overall, it isn't as balanced a performer as the old or new Quad ESLs, though its timbral accuracy through the soprano range is clearly superior to that of the Quads, and I prefer the Audiostatic's sound to that of the Martin-Logan CLS II. But its stiffest competition comes from the Martin-Logan Arierus, which also sounds lean to my ears, but retails for $1000 less.

If you decide later to do something about that tonal balance, the SW-100 will double the system's cost, meaning that both the M-L Quest and the Sound-Lab Pristine will loom as serious competition.

Frankly, I wouldn't mind a factory upgrade with a beefier interface, a better-engineered (i.e., more stable) base plate, and bias-adjustment capability. I think we deserve as much at the $3200/pair price point. Even so, the ES-100 deserves a serious audition—you might just fall in love with it.

—Dick Olsher

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**10 SECOND AUDIOPHILE QUIZ**

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I t seems to me that it’s possible to make a perfectly jitter-free CD transport without resorting to elaborate, expensive mechanical structures. This idealized transport would ignore all mechanical considerations of disc playback—vibration damping and isolation, for example—and simply put a jitter-free electrical driver at the transport output. If such a circuit could be made, it wouldn’t care about how bad the signal recovered from the disc was (provided the recovered data were error-free). The circuit would just output a perfect, jitter-free S/PDIF signal. The result would be the sound quality of the $8500 Mark Levinson No.31 Reference CD transport in $200 machines. Such a scheme would provide an electrical solution to what has been considered largely a mechanical problem.

But back in the real world there’s no doubt that attention to mechanical aspects of transport design affects sound quality. Examples abound: Listening to Nakamichi’s 1000 CD transport with its Acoustic Isolation door open and closed; playing the Mark Levinson No.31 with the top open; and putting any transport on isolation platforms or feet are only a few of the dozens of experiences I have had that suggest that mechanical design is of utmost importance.

But do these examples prove that elaborate mechanical design is a fundamental prerequisite for good transport sound—or only that the currently used electrical output driver circuits are less than perfect?

I suspect we may one day see great-sounding transports at bare-bones prices. But until that day—if it arrives—the stunning new Theta Data Basic transport may be the next best thing.

TECHNICAL DESCRIPTION
From the outside, the Data Basic looks very similar to the PS Audio Lambda I reviewed in last October’s Stereophile (Vol.16 No.10, p.203). The display, functions, and even the front-panel button layout are identical. The main difference is that Theta’s disc-loading drawer is in the center of the front panel rather than on the left-hand side.

The Data Basic’s front panel is made from ¾”-thick aluminum. A row of transport control buttons runs underneath the green display. The rear panel holds the standard RCA output jack and a balanced AES/EBU jack; ST-type optical adds $300 to the price, and Theta’s Single Mode optical-fiber output costs $800 more. Note that the Single Mode output option requires a Theta processor with Single Mode input! Also note the price change: the Data Basic was first offered for $1500 without AES/EBU output as standard.

The Data Basic and Lambda are even more alike inside. Both use the same display, decoder, transport control, and power-supply boards. The transport mechanisms are also identical. Even the same four chips painted over to obscure their identities in the Lambda have been similarly painted in the Data Basic. It’s obvious both are made in the same factory.

There are, however, a few differences. The three power transformers aren’t the same, and the Data Basic uses a different brand of filter capacitor on the power-supply board. Other distributed electrolytic caps are different between the two units, and Theta says the other parts are also different. In addition, the board material looks different: the Basic has blue boards, the Lambda’s are green. The output timing circuit isn’t identical, and the Data Basic uses Theta’s custom wire between the pcb and the output jack. Finally, I’ve been told that the two products are voiced differently.

The main story inside the Data Basic is the huge power supply. It uses three transformers, about 20,000μF of supply capacitance, and 13 regulation stages. Almost every chip has its own power-supply regulation stage to prevent interaction between circuit sections through the power supply. Even the front-panel display has its own transformer. Each transport servo (tracking, focus, rotational) is supplied from a separate regulation stage. The incoming AC is also filtered.

The transport mechanism is the popular Philips CDM9 Pro controlled by a Philips chipset. The CDM9 Pro is an expensive mechanism for a $1750 transport. As with the Lambda, the Data Basic is fitted with the ASM spatial filter—the tiny, doughnut-shaped ring that fits over the objective lens to narrow the aperture. Theta says the spatial filter improves the sound slightly, but meaningfully.2

Build quality, overall appearance, and fit ‘n’ finish are outstanding. I like the Data Basic’s look more than the Lambda’s, although the Lambda’s top cover fits its chassis better.

SYSTEM
I listened to the Data Basic driving the PS Audio UltraLink, Adcom GDA-600, Meridian 263, and Mark Levinson No.35 processors. The processors fed an Audio Research LS5 preamp, which drove Audio Research’s VT-150 tubed monoblocks. Loudspeakers were Thiel CS3.6es, connected by 8’ runs of AudioQuest Sterling. Interconnects included

1 I’ll be reviewing Theta’s Single Mode transmission system along with the new DS Pro Generation V processor in an upcoming issue.

2 ASM’s Armando Martinez explained that this is partly due to less back-scattered light making its way through the detector to the laser diode. (This device’s output is sensitive to light of the same wavelength falling on it.) The result is said to be a higher carrier/noise ratio and a correspondingly cleaner eye pattern in the data signal.

Robert Harley
AudioQuest Diamond, Monster Cable Sigma, and Expressive Technologies IC-1.

LISTENING & COMPARISONS
A natural point of comparison for the Data Basic was the similarly priced PS Audio Lambda transport. For an absolute reference, I had on hand the Mark Levinson No.31 Reference CD transport. Digital interconnects included Aural Symphonics Digital Standard (coaxial) and McCormack’s new Wonder Link AES/EBU cable. Although the Data Basic review sample was fitted with Theta’s Single Mode optical system, I didn’t have a processor equipped with a Single Mode receiver. Consequently, the auditioning was restricted to coaxial and AES/EBU.

I wondered just how similar—or different—the Data Basic would sound compared with the nearly identical Lambda. In my review of the Lambda last October, I concluded that it offered terrific performance for the money. From the listening, it was clear that the Lambda and Data Basic resembled each other in their musical presentations yet were decidedly different in other areas. First, the similarities.

The Data Basic had a clean, open, and very dynamic character. The transport’s clarity, excellent bass, and transparent soundstage were very much like that of the Lambda. Starting with the bass, the Data Basic had a full, robust, and well-defined bass presentation. Bass drum had a nice solidity, acoustic bass was warm and round, and the presentation had a good sense of weight. The Data Basic’s bass tended to be a little leaner, tighter, and better defined than the Lambda’s, although both were similarly impressive. The Lambda seemed to have a little more extension at the very bottom end, giving more heft to bass drum. The Basic, however, sounded quicker and had better pitch definition in the midbass. Overall, the Lambda had a slightly stronger sense of pace, but not by much. Both transports were superb in conveying the music’s rhythmic elements.

Dynamics were equally impressive from both the Data Basic and the Lambda—this is one area in which both transports are hard to beat. Music had a powerful, dynamic expression that was extremely compelling. Bass drum had plenty of slam and weight, and musical climaxes were reproduced with a sense of effortlessness.

Despite these similarities with the Lambda, the Data Basic had its own sound. First, the Data Basic had a more laid-back perspective. The Lambda tended to be drier and more forward by comparison. I heard a greater sense of ease to the music through the Data Basic as a result of its more relaxed presentation. Instrumental images were more set back in the soundstage through the Data Basic, a quality that I found greatly appealing.

The Data Basic’s less aggressive perspective was enhanced by its wonderful resolution of space and air. The Data Basic was superb at revealing space, depth, and subtle spatial cues. Moreover, a beautiful bloom surrounded instrumental outlines. In comparison with the Lambda, the Data Basic was more spacious, three-dimensional, and had greater resolution of spatial information. Reverberation decay was well portrayed, with the impression of hanging in space longer. The wealth of spatial detail on the Three Way Mirror disc (Reference RR-24CD) was conveyed without the music losing its immediacy. The Data Basic was among the best I’ve heard from any transport in its ability to portray bloom, space, depth, and air around instrumental outlines.

Treble information was presented with smoothness and a high degree of refinement. The top octaves were noticeably cleaner through the Data Basic than through the Lambda. Sibilance was less pronounced, cymbals were smoother, and strings had less grain when reproduced by the Data Basic. This treble purity greatly added to the Data Basic’s sense of case and smoothness. Although the Data Basic’s treble was more incisive and forward than the C.E.C. TL 1’s (reviewed in Vol.16 No.7, p.91), it was decidedly less up-front than the Lambda’s. In comparison to the reference Mark Levinson No.31, the Data Basic’s musical perspective was closer than the Lambda’s to that of the remarkable ‘31.

The Data Basic’s resolution of recorded detail was exceptional by any measure. The music was infused with a wealth of information and low-level detail—this is one area in which the No.31 has yet to be approached. Remarkably, however, the Data Basic closely approached the No.31’s high-resolution presentation. I thought the Data Basic revealed more information than the Lambda did, with more nuance, subtlety, and finely filigreed treble detail, despite the Data Basic’s softer treble. When I switched to the Data Basic I felt as if I was hearing more of what was going on in the music. The Theta transport’s combination of a high-resolution presentation and clean treble allowed the Data Basic to be highly revealing of musical information, yet still sound smooth and engaging.

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Stereophile, March 1994

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I ended up preferring the Data Basic over the Lambda with each processor I auditioned it with and over a wide range of music. The Data Basic's softer, more refined treble, less forward perspective, and greater resolution of spatial detail made it the more musical product.

Taking a broader perspective, the Data Basic was extraordinarily musical by any measure. In fact, the Data Basic is among the four or five best transports I've heard. The fact that it costs significantly less than the other contenders makes the Data Basic a tremendous bargain.

**Measurements**

The Data Basic's S/PDIF jitter measured from the RCA jack was very low, measuring 30 picoseconds with an input signal of all zeros, 36ps with a full-scale 1kHz sinewave, and 123ps when outputting a −90dB, 1kHz sinewave. Fig.1 shows the jitter spectrum with these three test signals. With music (fig.2), the Data Basic's jitter was 71ps (a very quiet passage—the first 30 seconds from Sheffield's recording of The Firebird Suite) and 42ps (with full-scale music).

Overall, the Data Basic's jitter performance was excellent, and nearly identical to—but slightly higher than—that of the PS Audio Lambda. Incidentally, the Data Basic's AES/EBU output had slightly higher jitter, measuring 44ps with a full-scale 1kHz sinewave, 165ps with a −90dB, 1kHz sinewave, and 32ps with digital silence.

The Data Basic's tracking ability, as revealed by the dropout tracks on the Pierre Verany Test CD, was better than average. The transport played track 36 (barely), but faltered on track 37.

**Conclusion**

The Data Basic's treble purity, somewhat laid-back mids, terrific dynamics, and wonderful resolution of spatial information made for a very involving musical experience. The transport had many of the qualities I value in the Mark Levinson No.31. Although the Data Basic didn't have the resolution of fine detail, soundstaging, or musicality of the No.31, it was not embarrassed by this $8500 reference transport. In comparison with the similarly priced and nearly identical PS Audio Lambda, I found the Data Basic more musical—sounding.

The Data Basic is very attractive, well made, and friendly to use. It is an outstanding transport, with a sound quality far above what I would expect at this price range. Although I haven't listened to Theta's Data transport (the videodisc-based machine) for some time, I would venture to say that the Data Basic is at least as good as the $2800 Data transport—and is much more convenient to use.

The Data Basic was a particularly good match for the $750 Adcom GDA-600 (reviewed this issue), making the pair a very satisfying digital front end for $2500. I spent many enjoyable hours with this combination, never feeling musically shortchanged.

If you're in the market for a CD transport, don't buy until you've auditioned Theta's Data Basic—one of the great bargains in high-end audio.

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After 32 years, it’s hard to get excited about reviewing another power amplifier,” J. Gordon Holt said to me the other day. Amen. Even though I’ve written about audio for only ten years, I already find it increasingly difficult to come up with fresh, new angles for amplifier reviews. It’s also gotten harder to critique power amps, because amps—especially solid-state power amps—have gotten so much better over the years that the differences between the crème de la crème and the “merely” very good have been reduced from Grand Canyon-sized gulfs to tiny crevices.

Thus the days of sitting down with a couple of amplifiers, spending time with each one, and writing an articulate review about their differences are long past. Differences between good and great transistor amps are no longer a matter of gross harmonic and soundstaging differences, but rather nuance and fine detail. While I’d be the last person to suggest that such differences no longer justify the differences in price, it’s heartening to find that a middle-class audiophile like myself no longer has to take out a second mortgage on his house to afford a musically satisfying amplifier.

When Robert Harley reviewed the original Parasound HCA-2200 (Vol.15 No.4, p.203), his usual disgustingly thorough review had a somewhat Damon Runyon-esque edge to it. To paraphrase RH, the HCA-2200 had prodigious bass, but was a wee bit on the fat side—“reminiscent of an underdamped loudspeaker.” Pitch articulations “weren’t up to the standards set by other solid-state units” he’d auditioned at that time. Mids had “a slight grain overlaying the midrange textures,” and voices in particular “had an edge not heard through the VTLs, McCormack DNA-I, and Boulder 500AE.” He found the treble to be “a bit more hard than the McCormack, with a trace of grain.” Soundstaging was “flat and congested.” The portrayal of acoustic space was “smaller and narrower than the VTLs or the [McCormack] DNA-I.”

On the positive side, he found that the HCA-2200 had “a sense of unlimited power and effortlessness.” RH wrote that he never really warmed up to the HCA-2200’s sound: “The amplifier didn’t involve me in the music, especially in comparison to the McCormack DNA-1.”

RH’s wasn’t exactly the sort of review that would make another reviewer want to rush out and listen to the Parasound HCA-2200—unless he had a few stiff drinks under his belt. But instead of letting it get the better of him, Richard Schram, president of Parasound, checked in with John Curl, the HCA-2200’s designer, to see what could be done to improve it.

The result was the HCA-2200 II. According to Parasound’s ads, the HCA-2200 II was improved in 30 different ways—sort of like Wonder Bread squared³ Since I’m a sucker for wowie-zowie advertising claims and am always looking for a reasonably priced, high-power, high-current stereo amplifier (so I can afford two of ‘em to drive my Apogee full-range speakers), I called Richard Schram and asked him to send me a pair for review.

ERGONOMICS

The Parasound HCA-2200 II has the same 5mm front panel as the HCA-2200, with a classy rectangular, gold Parasound label on the faceplate’s middle. The front panel also sports two beefy front handles and two LEDs on the left side marked “Standby” and “Normal,” while the right side has four LEDs for right and left “Current Overload” and “Overheat.” The back of the HCA-2200 II has two more carrying handles (for those of us with four arms), a centrally located mono/stereo switch, balanced XLR and unbalanced RCA inputs, a pair of input selector switches for balanced or unbalanced operation, two pairs of speaker terminals on each channel for biwiring, a standard IEC AC cord receptacle, the main AC fuse-holder, and right- and left-channel voltage-rail fuse holders. The HCA-2200 II is available in a special Henry Ford–memorial black-anodized finish and has large, side-mounted heatsinks and slotted top and bottom plates.

The HCA-2200 II has all the features and flexibility any audiophile could want (unless said audiophile is addicted to brightly colored meters). It accepts balanced or unbalanced inputs and can be used in stereo or mono. I’m especially impressed by the amplifier’s hair-trigger protection circuits. Since the Parasound’s
entire amplification circuit is directly
coupled and brutally powerful, any nasty
sounds—like when you accidentally pull
out an input cable—could obliterate your
speaker cones. The protection circuit on
the HCA-2200 II has saved me from my
dark, stupid side at least a dozen times
in the past six months. I also like the
HCA-2200 II's delayed-on standby fea-
ture. Apogee full-range speakers are very
sensitive to anomalies resulting from
turning on amplifiers, but with the
HCA-2200 II there was never a tick or a
pop when it came on-line—only a faintly audible click from the amp itself.

The HCA-2200 II's build, parts
quality, and exterior layout are generally
very good, but I don't like the current
five-way binding posts. With any
standard spade lug, you must choose
between trying to spread the lug's legs
around the large-diameter center post
or slipping a leg into the large center hole
and mangling it as you tighten the
binding post. Both options suck. Also,
the distance between the two hot binding
posts (connect the speaker across the two
houts for bridged mono operation) is so
great that many audiophile speaker wires
can't span it without some serious and
possibly destructive at-home modifica-
tions.

In the six months I used the HCA-
2200 II, the only problem was when,
after about four months, one of the five-
way binding posts worked itself loose,
breaking its internal connection—
Parasound repaired the terminal in about
two weeks. This problem might be
eliminated if the speaker terminals were
epoxied as well as screwed into place. It's
also quite possible, if you're not careful,
to snap off a five-way binding post while
screwing it down—the hole is pretty big
and the sides of the post are awfully thin.
If I were a tweaker, I'd look into replacing
the five-way binding posts with some-
thing better.

**SYSTEM SUMMARY**

The following equipment was used dur-
ing the preparation of this review:
Preamplifiers: Dennonese JC-80 Mk.2
gold; Atma-Sphere MP-1; Quicksilver;
and Encore Electronics 102.2. Loud-
speakers: Green Mountain Audio Dia-
mantes; Apogee full-range; and Vision
Acoustics Soloists. Analog front-ends:
VPI HW-19 Mk.V on a Bright Star TNT
base with a Souther Tri-Quartz tonearm
and Denon 103/van den Hul and vDH
MC-1 cartridges; Thorens/Chadwick
TD-125 Mk.II with a Graham I.5 tone-
arm with AudioQuest BH-200 and
Fidelity Research FR-1 Mk.3 vDH car-
tridge. Digital sources: Sota Vanguard
II CD player; EAD 7000 Mk.II D/A
with PS Audio Lambda CD transport;
Quad 67 CD player; Musical Concepts
CD-1 CD player; and Teac VRDS-10
CD player. Other sources: Sony PCM
ES-700 digital recorder with Sony SL-
900 VCR; Dynalan Etude tuner; Fanfare
FT-1 tuner; and Pioneer CT-91 Dolby S
machine. Interconnects: Straight
Wire Virtuoso; AudioQuest Diamond;
Virtual Audio ART; Esoteric Artist; and
Wire World “Eclipse” (the last two both
balanced and single-ended). Speaker
cables: Straight Wire Maestro bi-wire;
Virtual Audio ART; and Wire World
“Eclipse.” Other accessories: Roomlines
Cornerlines; EchoTunes; Ceiling Clouds,
and Just-a-Rack; Acoustic Sciences Tube
Traps; Arcici Superstructure IIs; Audio-
stream equipment rack; Sorbothane pucks
and Target speaker stands for amps;
Fluxbuster, Shun Mook wooden pucks;
The Original Cable Jackets; Music and
Sound ferrite beads; AudioQuest ferrite
clamps; Chang Audio LightSpeed model
CLS 6400 ISO power-line filter; Audio-
Quest record brush; Nitty Gritty record-
cleaning machine; Radio Shack sound-
pressure-level meter; and the collected
works of C.S. Lewis.

**SOUND**

I never heard the original HCA-2200, so
I can't give a blow-by-blow compar-
sion of the old and new HCA-2200s.
However, I've lived with the McCor-
mack DNA-1, the Boulder 250AE, and
VTI's 300s with triode option, and the
Parasound HCA-2200 II gave them all
a run for their money, and even beats 'em
in flexibility and price.

While the HCA-2200 II has virtually
unlimited brute power, it has enough
finesses to let the music come through
largely unscathed. Over the last six
months it has proven, with a variety of
speakers in both my listening rooms, that
it's a benchmark product against which
other amplifiers can be measured. If an
amp of equal or greater price isn't at least
as good as the HCA-2200 II, it doesn't
cut it.

The HCA-2200 II has the same pro-
digious bass output and sense of un-
limited power and effortlessness that RH
noted with the Mk. I HCA-2200. But
unlike the original design, the low fre-
cuencies don't have a slow, under-
damped quality. On JA's bass-guitar
tracks on Stereophile's Test CD 2, a pair
of HCA-2200 IIIs performed with Apo-
gee full-ranges on a par with a pair of

3 If you want to get nervous quickly, watch a "poorly
mannered" amplifier make the Apogee midrange and
tweeter ribbons billow and quiver during the turn-on
transient.
Boulder 250 AEs and four VTL Deluxe 300 amps. Dynamic impact and attack were excellent, with no overhang or bass boat. Compared with the McCormack DNA-1, the HCA-2200 II's bass was slightly leaner and tighter, especially in the midbass region, where the DNA-1 sounded slightly "plummy."4

The HCA-2200 II's midrange was good, but not as liquid as that of the VTL Deluxe 300 or as grainy as that of the Boulder 250 AE. While the HCA-2200 II wasn't harsh or grainy, it wasn't quite as laid-back as the McCormack DNA-1, whose midrange had a more relaxed character. On Wendy Maharry's first album (A&M CD-5283), "All That I've Got" begins with the various back-ground vocalists telling each other to "look out now" just before Wendy begins the song. The HCA-2200 II excellently retained the delicacy and proper vocal qualities of these whispers. While the HCA-2200 II didn't sound rough, it still wasn't quite on a par with the Boulder or VTL amps.

Although the HCA-2200 II's treble was a bit more tizzy than the Boulder 250 AE's, it was never excessively tizzy or dry. Compared to the VTL 300, the HCA-2200 II had a greater sense of extension that, by comparison, made the VTL sound a hair rolled-off. The McCormack DNA-1 also sounded slightly softer than the HCA-2200 II. Through the HCA-2200 II, the bells and percussion "tinkles" on "Beat Angels," from Rickie Lee Jones's new Traffic from Paradise (Geffen GFED-24602), sounded very good, with clean, quick transients and attack.

The HCA-2200 II's overall harmonic balance was remarkably similar to that of the Boulder 250 AE's. With mono sources—Amahl and the Night Visitors (RCA LM-1701), for example—it was very hard to discern any major differences between them. Compared with the HCA-2200 II, the VTL 300 sounded a bit dark, as if I was listening through a one-stop neutral-density filter. The VTL was also a bit more lush in the lower midrange than the Boulder and Parasound amps. Compared with the HCA-2200 II, the McCormack DNA-1 seemed a hair recessed in the upper midrange, giving it a slightly smoother, more distant harmonic balance.

The pair of VTL 300's really showed what they're made of—tubes—when it came to soundstaging: they outclassed all of the solid-state designs. The VTL's 3-D imaging was better than the Boulder II's, the latter's depth and placement within the soundstage were right, but without flesh and bone backing up the illusion it was all just slightly better than basis-relief. The HCA-2200 II and the McCormack were slightly inferior to the Boulder, with slightly truncated back-to-front depth and less clearly defined edges to the instruments. The drum solo on Stereophile's Test CD 2 was clearly three-dimensional through the VTLs. With the Boulders, the solo was well-placed, and there were clear spaces around each piece in the kit, but no 3-D illusion. With the HCA-2200 II and the McCormack, the spaces between the drums weren't as clearly defined; when the drums increased in level, I couldn't track the "bloom" as easily as I could with the VTL and Boulder amps. The HCA-2200 II's soundstage width was on a par with all the other amps I compared it to, but there was a tiny bit of depth reduction at the soundstage's extreme outside edges; the overall stage was more oval than rectangular.

While "neutral" has to be the most overused word in the hack audio-reviewer's list of adjectives, I have to say that the Parasound HCA-2200 II sounded remarkably neutral. Since it's so basically characterless, the Parasound certainly won't help overly analytical systems sound more "musical." The Parasound also isn't recommended for driving thin, screamy minimonitors. It'll do absolutely nothing to curb the upper registers of speakers that sound tipped-up, nor will it add warmth or ambience to dry, analytical transducers. It's also not recommended for speakers that tend to start screaming above 95dB, since its nearly unlimited power will quickly drive such screamers past your (and their) comfort zone. Don't even think about coupling the Parasound HCA-2200 II with original Quad ESLs—you'll be left with nothing but smoke. I found that Green Mountain Diamantes and Apogee full-range speakers both worked very nicely with the HCA-2200 II.

Conclusion

Certain audio reviewers (who shall remain nameless) seem to insist on fostering an attitude of "it's good enough" toward electronics. They pooh-pooh the idea that anyone other than a spendthrift ninny would bother to own a state-of-the-art amplifier. This attitude could be regarded as misplaced, idealistic, democratic zeal, or possibly mean-spirited empirical laziness. Regardless, it's in direct opposition to all that the High End stands for: to always try to achieve more today than was thought sonically possible yesterday.

One of the nicest things about listening to the Parasound HCA-2200 II amplifier by itself, when it wasn't engaged mano a mano with other, pricier amplifiers, was that I rarely felt as if I was missing any music when I returned to it. With some "reasonably priced" amps, I often feel a sense of loss and discontent when I go back to them after listening to their higher-priced competition.

Not so with the Parasound HCA-2200 II. While the Parasound is certainly not the ne plus ultra of amplifiers, it is the sort of amplifier that many audiophiles may find "good enough" for their systems—not just today, but for several years to come. Even I, in my ivy-covered, ivory-towered cat-bird seat, can live quite comfortably with the Parasound HCA-2200 II—and I consider it a benchmark product for its price. It isn't the sort of amp for which people will claw out each other's eyes (or pocketbooks), but it is, in the words of my old friend Micha Shatter5 "a goooood amplifier." $
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JADIS JA 200
POWER AMPLIFIER

Kathleen and I were catching up on our favorite “Mystery” detective one evening. Agatha Christie’s Hercule Poirot, in an episode in which Inspector Japp taps his nose, gives Poirot a look, and says, “Better to let sleeping dogs lie, eh, Poirot?” Poirot twitches one of his immaculately cared-for moustaches and delivers a wonderfully charming malapropism, “Non, non, non, mon ami,” between reviewers, there should be no sleepy dogs!” Well, he didn’t actually say “reviewers” . . .

The Sleepy Dogs I refer to are the gorgeous, $18,990/pair Jadis JA 200s and the somewhat negative review they received at the hands of DO (Vol.16 No.11, p.153). After reading his words, I feel compelled to say, “Non, non, non, mon ami . . .”

Le setup: Because the JA 200s are very sensitive, setup is critical. In my system, the tube-bearing output sections sit on sand–filled Bright Star Big Foot D–7 bases with no footers under them. When I place the importer–recommended Harmonix RF–66 Large Tuning Feet under the chassis, the 200s shout in the highs in a most unbecoming fashion. In fact, Kathleen walked into the loft after they were placed there by the importer, Victor Goldstein, and said, “What happened to the highs, cheri?” (She calls me cheri. [blush]) The Harmonix feet work, but not automatically to best effect under everything. They do work wonders under the Jadis JP 80 preamplifier, and should be thought of as required equipment under that suave boulevardier. Perhaps they’d work under the 200s mounted in another fashion than we have them here. You must experiment. Required too for the JP 80 is a full complement of Ensemble Tubesox to damp the microphonics of those top–mounted, out–in–the–breeze glass bottles. If you run this preamp, don’t skimp on the details: use a quartet of Harmonix RF–56 Tuning Bases at the corners of the chassis top.

The power–supply chassis of each 200, supported on Arcici SuperSpikes (points removed), sits behind the output section on the floor—but not just plopped down anywhere, mind you. The tubed output section of each channel sits on its stand angled in toward the other at the front in a “V” configuration to minimize amusical magnetic–field interference. The power supplies and output sections should never be located next to each other in parallel fashion together on the stand, or even perpendicular to each other—except possibly for photography, where all those tubes and transformers in such close proximity look so attractive. Angled, that’s the trick. The power supplies sit in a “V” fashion relative to each other as well, but the “V” is at a different angle of incidence than the output sections.

Stop glaring at the page and crumbling the edges of the magazine—this isn’t just my imagination. How and where you mount high–end equipment of this pedigree and capability is of paramount importance. At first I placed the power supplies and output chassis next to each other on the Bright Star stands. They looked good but didn’t sound great. Separating and arranging them in the described fashion immediately improved the sound, both in soundstaging and in the highs, where an unexpected but slightly hard quality had been disturbing me.

Not long ago, a heavyweight, hot–running solid–state Eurocruiser amp arrived chez nous. Thinking I might arrange the amps to easily change back and forth between them, I moved the output sections of the 200s from their “V” configuration and placed them parallel to the outside right and left edges of their stands, plonking down the European Hernia Inducer between them, its feet straddling the stands. Forget it. First of all, nothing is easy about swapping wired XLO, but more importantly, the 200s sounded simply dreadful with that huge chunk of foreign matter sitting between the output sections. In fact, even the solid–state amp sounded better when the 200s were moved away from it.

I’ve also ordered a pair of Maple Butcher Blocks to drop onto the tops of—or to replace completely—the Big Foot’s top plinth. I’m sure this will have as positive an impact on the sound as it had on the Forssel CD Air Bearing transport, which received similar treatment. Tuning Tip for the ’90s: Maple Butcher Block!

Le powair cord: The JA 200s are just as sensitive as the rest of the Jadis line about the quality of electricity they’re fed. Just as you wouldn’t offer a beautiful, alluring Frenchwoman a peanut–butter–and–jelly sandwich for lunch, you’re obliged to give the 200s the best juice possible to extract the glorious sound they’re capable of. Power from my two 30–amp, dedicated–line, hospital–grade outlets is carried to the 200s via TARA Labs Affinity solid–core power cords, which have been in my system for some time. I consider the Affinity one of the better–sounding power cords on the market. I’ve popped their casings and lifted the grounds at one end, as the 200s sound best when floated—otherwise, an annoying buzz intrudes. Similarly, the JP 80 MC sounds best with the ground floated. These cords are available from Matthew Bond at TARA Labs, with a switch to disconnect the ground. In my experience, power cords can make an enormous difference in sound, and not just on tubed equipment. This is especially true for front–end components: CD transports, DACs, preamps, and turntables—they’re all candidates for experimentation until you find the right combo for your system and ears.

I’ve had excellent results with the Affinity, Marigo, XLO, MAS, T&G, Grace, and even some old Tiffany cords that I use in emergencies—all produce easily perceived changes in sound. It’s simple enough these days to try power cables at home, so experiment and decide for yourself. In any case, with the TARA Labs cord (and other treatments covered shortly), I noticed no grit or grain in need of cleansing or hosing down, as was apparently the case for DO, and which prompted him to use line conditioners. Harmonic textures were as rich as is possible without being positively gaging!

During a visit in which we discussed arm setup on the Forssel Air Force One turntable, Peter Forsell said the 200s had “lots of body.” It may be true, as DO aver, that RF in the power cord injects grunge into the sound—the Affinity power cord’s solid–core weave is designed to reject such effects (to which braided power cords may also be subject). Whatever the case, experiment and trust your ears.

Le conditioning: About line conditioning: If you own the JA 200s, or are lucky enough to be contemplating buying them—in fact, if you own any Jadis products—Don’t do it! I’ve tried several different types of power conditioners with the 200s, the JP 80 MC, and my Defy–7 before them, and the best conditioning for any Jadis product is no conditioning.

This is no trivial matter. I’m not condemning all line conditioners in general—I believe in them. The MIT Z–Stabilizer works wonders here with the stereo
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DIGITAL INTERCONNECTS - RCA. In the world of RCA coaxial digital connects, I have found one to consistently reveal more of the music than any other. It's the Tara Labs RSC ($295). This cable sounds considerably better than any other RCA that I have run into... It's, as you may have guessed, made of rectangular solid core conductors. The result is a digital cable that does not restrict dynamics and it's a clearer window to inner detailing and timbre. It clearly out-performs all glass in the known universe. This is the first digital connect to surpass the performance of the Cogan-Hall EM overall. I think that I can speak for Bob Sireno on this one, and tell you that he, a Cogan-Hall EM devotee, is fully enamored with the results obtained when using the RSC in his system. (The RSC has been bouncing between our homes like a ping-pong ball; now he wants it back.) I have to wonder how incredible this cable might sound if it were available terminated BNC.* Anyway, I consider it just about perfect as it is, and a must audition.

*Note from Tara Labs: Now also available with BNC adaptors and AES/EBU configuration.

Audition RSC Digital in your own system. Most Tara Labs dealers have a home trial program available. For the location of your nearest authorized RSC dealer, call 503 488 6465 or fax 503 488 6463.
Euroamp, cleaning up the overall presentation and moving the image back a good foot or two. If I had access to a second Z-Stabilizer, I might try it with the monoblock 200s, but I can't imagine them sounding any better than they already do. The API Power Wedges were mandatory in my system until I installed two dedicated, 20-amp quad sockets for the front-end and two 30-amp quads for the amp. It's highly system-dependent—I know some audiophiles with dedicated lines who wouldn't consider their system complete without one or more of the ubiquitous API power packs in place (they also do wonders for video). I've also used some Tice TPI-treated "adjustable" extension cords and power extenders to good effect. But for all this, the 200s are best left alone, save for one SRMMT (Scull-Recommended Major Mandatory Treatment): Andy Chow's Original Cable Jackets.

To tweak to absolute best effect, and to overcome the truly overwhelming New York RF I Nasties, we've installed the wonderfully effective grounded Original Cable Jackets (see JE's review in Vol. 16 No.11, p.143) on the umbilicals between the power-supply chassis and the output sections, on the power cords from wall to amps, on each of the three pairs of the XLO tri-wire setup, and on the long run of XLO Signature interconnect from preamp to amps (as well as throughout the rest of the system). RFI doesn't stand a chance—its absence is keenly noted. Take 'em out and noise; hum, grunge, grit, and other unappealing environmental and line-sourced gremlins rear their ugly little heads.

**Les dots:** Another possible source of grunge to be concerned about is microphones. While it's true that these amps are simply magnificent to look at in gold-accented, polished stainless steel and black, with double rows of glowing output tubes, imagine the micro-level vibrations taking place in all those glass bottles. In my efforts to wring from them their very best, I got down on my hands and knees and added a Marigo Labs 6mm VTS white Circuit Tuning Dot to the bottom of each output tube—placed on the bottom, plastic plate in the "empty," 6th-pin position. These little sandwich-like damping dots pushed images back even farther than before, and reduced a trace of sibilance on a couple of otherwise reference-quality CDs. I was a little shocked by the change they made.

When experimenting with these dots, you must take care not to overdo it (as I did), or you'll wind up overdamping the highs. I'd been warned by Marigo's Ron Hedrich (after I'd applied the larger dots, of course) that the 6mm dots might be too much. And so they were: an entire layer of upper-octave information disappeared with their application. Back on my knees before the French Audio Icons, I popped out each of the 20 tubes, pried off the 6mm dots, and replaced them with the smaller 4mm dots. These did the trick—the highs were restored, and the images continued to form well back in the soundstage. The slight sibilance was still nowhere to be found, and the transparency was definitely enhanced. I also added small dots to the center bottom of the 12AU7 input and to the 12AX7 drivers on each side. I'll be trying more of these dots on the preamps soon, and will report on the results in a future issue.

For the last smidgen of tweakishness, I added an Ensemble Tubesox over the input 12AU7 at the rear of each amp and placed one Mpingo Disc between the twin sets of binding posts. But in spite of all the efforts I've made to wring the last smidgen of performance from the 200s, those opposed to such terminal tweaking should still get fabulous and musical performance with a little attention paid to power and placement.

**Le build et le son:** The Jadis JA 200s are magnificent amplifiers. The Poirot analogy works once again. Think of a time when greater care was taken with design and construction—no matter what they say about parts quality or measurements, when I see their beautiful, architectural forms allied with those glowing tubes and imposing transformers, I realize they're objects of beauty that even the ever-faddicious, Art-Deco Poirot would've approved of. When I gaze into the open bottom of a JA 200 and see the point-to-point wiring and copper bus bars all laid in by hand—not a circuit board to be found—I know I'm looking at something special.

And the sound. They throw a fabulous, wall-to-wall soundstage. How perfectly they developed the original acoustic. How deep behind the Avalon Ascents the oh-so-solid and palpable images formed in the room. How those big, imposing speakers just disappeared. How natural the sound. How easy it was to follow the musical line and fall into the music. How deep, controlled, tight, and satisfying the bass. How magnifique the midrange—the traditional strength of the Jadis presentation. How full and satisfying the lower midrange. How open, airy, how right the highs—not at all hard, but very extended and natural. How involving their presentation. How full, how harmonically correct, how wonderfully compelling. How magical.

**Le point-counterpoint:** As you can see, I agree with Monsieur Deck on many points: The JA 200s do excel at recreating and lighting up all the nooks and crannies of the soundstage, back to its farthest recesses. We agree that their detail retrieval is without peer, with a wealth of information presented to the listener without resorting to an over-etched treble range. We agree that they cover transient leading-edge attacks with elan and sparkle, but avoid any general sense of upper-octave aggression. We also exhibit no sibling rivalry when it comes to the bass, agreeing that, for a tubed design, bass definition and extension are excellent. We further agree on their magical presentation of bloom, with no apparent congestion or stress under duress—well, almost no stress. As TJN's measurements show, the 200s aren't 200—if you push 'em to the wall with Nina Hagen or some other high-decibel headbanger, you can make 'em yell uncle, but you'll wind up in McL Brook's High Anxiety Sanitarium if you listen to 'em for long at that volume.

We start crossing lines when we trip over that esoteric power cord lying on the floor. It's not that I think RFI and power-line-born grit and grain are not issues (with any component)—they certainly are, especially here in New York, the Electrical Hash Capitol of the World. DO and I just choose to go about dealing with Grungus dignissides in different ways. Largely because of the electrical sensitivity of these French Wonderamps, I think careful power-cord selection and the application of a number of strategically placed Original Cable Jackets are the more subtle and effective ways to go. Although line conditioning seems to have dealt with DO's grit 'n' grain issue, it seems that this approach had a disastrous effect on the lower mids, the midrange, and the upper midrange, which DO found wanting in his experience with these amps. Operation a success—patient dead as a doormat! The use of planars rather than classic dynamic drivers and a different overall system balance may account for the obvious discrepancy in sound we experienced.

I heard the 200s' praiseworthy abilities in the lower midrange while listening to "Get Out of Town" from the Great Jazz Artists Play Compositions of Cole Porter LP (Riverside RS 93515)—Herbie Mann doing his thing on bass clarinet, hitting the lower midrange (and the midrange) in spades! I played this little number through the JP 80 MC for JA and RH
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The power transformer is mounted externally to eliminate power-supply noise and interference. The BP-20 is housed in a steel cabinet for shielding to reduce electromagnetic interference effects. Buffered inputs provide for lower distortion and improved linearity from source components. A ground plane has been incorporated in this new design to further reduce crosstalk and noise throughout the internal circuitry.

Our feeling is that Bryston’s BP-20 is one of those fortunate circumstances when the long hours and extended listening pay off. The sense of transcending the recording medium and experiencing the original performance is captured with exceptional realism.

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nothing I've heard has struck me as being as much of a harbinger of the future of loudspeaker design as the NHT 3.3. With the 3.3, I hear a whole world of detail and spatial information in familiar recordings which I had never been even vaguely aware of with other high-end speakers. The big NHT is the only speaker I've heard that can essentially match the resolution of a pair of Grado headphones driven by the Melos SHA-1 headphone amplifier—my Ultimate Resolution Rig. For example, in "Rape Me" on Nirvana's In Utero, Steve Albini's excellent and fairly off-the-cuff recording includes a fair amount of studio chatter and other room noise buried beneath Kurt Cobain's vocal at the beginning of the tune. In addition, listening with the Grados/Melos reveals the vocal track to reside mainly in the left channel, although most speakers on which I've heard this track played interact sufficiently with the room's own acoustics that the voice sounds centered.

The 3.3's radiation pattern was designed to be different from that of most other high-end speakers to date. All other speakers, from forward-firing models like the Wilson Watt/Saceous to dipole speakers like Magnepan/Apogee/Quad panel jobs and bipolar dynamic systems like the various Mirage and Definitive Technology speakers, have a very high ratio of reflected to direct sound when the speakers—and the listener—are located optimally in a room to minimize room modes in the bass range.2 This means that with any of these speakers, the listener hears as much or more sound that's been reflected off the walls, ceiling, and floor before it reaches his ears than he does direct sound from the speaker itself. And this is with a best-case setup. With the typical listening setup featuring speakers close to the wall behind them and the listener a good ways away on the other side of the room, nearly all the sound the listener hears is reflected sound that's bounced off one or more room surfaces before reaching his ears. Does that sound like a perfect window on the recording to you?

The 3.3 achieves a higher ratio of direct to reflected sound with two design features: the front panels are angled in 21° toward the listener to reduce the intensity of sidewall reflections that screw up imaging, soundstaging, and overall resolution; and there's a strip of thick open-cell foam mounted to the cabinet face just to the outside edge of the midrange and tweeter drivers, to further reduce their radiation off-axis toward the sidewalls.

To be sure, it's possible to approximate this aspect of the 3.3's design with many conventional direct-firing speakers. Positioning them well away from the rear and side walls, as well as toing them in toward the listening position, will do much to increase their ratio of direct to reflected sound, especially if you also sit close enough to the speakers that you move out of the far-field, where the reverberant field predominates, and listen in the near-field, where you will hear, and I mean really hear, your speakers at their best.

But even so, this doesn't solve all the problems. Because once you set your speaker up in this manner, you'll probably find that, while the sound they produce is markedly more detailed and spatially focused, their bass range is now much less neutral than it was before you moved everything. The NHT 3.3 avoids this problem because it was designed to be located with its rear end right up against the wall behind it, in order to create optimal loading for its side-firing subwoofers.

So basically, with every other speaker, you have to choose between accurate bass and accurate everything else—with the NHT 3.3, you get both, and you get it no matter what kind of room you happen to have. Ken Kantor tried his damnedest to get me to grok this aspect of the 3.3's design, but it only sank in after I spent seven dog-years mulling it over in my 8-Track mind. With every other speaker I've ever lived with, the entire room played a big role in determining the speaker's overall sound—that's why it took days to find the optimum position for all these speakers, with little nudges in an inch here and an inch there going on for weeks, sometimes months afterward. By virtue of its design and much clever rethinking of the room/speaker interface, the 3.3 basically renders much of the room inconsequential in terms of affecting its sound.

Tied into this is a design feature: NHT calls "Optimal Wave Loading": The amount of speaker diaphragm area each frequency range "sees" around it is optimized to minimize diffraction while maximizing even reinforcement. With the 3.3s against the rear wall and describing an equilateral triangle with the listening position, they will largely attain exactly the same level of accuracy as I've got right now in my own He-Man listening room. Unless your room is so narrow that your sidewalls are within a few feet of the speakers, or it's so small that you have to sit against or close to the wall behind you, the 3.3 reduces your room's contribution to the sound you hear—and once you hear your favorite recordings so utterly clear and free of detail-obscuring additive room effects, as I did with these NHTs, any other speaker in any other room will sound muddled and confused by comparison. Unlike most high-end speakers, which give the impression of detail by tipping up the treble range, the 3.3 achieves its high resolution of detail by minimizing the kinds of room/speaker interactions that normally obscure low-level detail.

Soundstaging: One area in which TJN found the NHTs lacking with the occasional recording was their soundstaging. Even Ken Kantor admits that, with some recordings, the 3.3s can sound like headphones—closed-in, confined between the speakers, and not very open or spacious. TJN also noted that the 3.3s didn't seem to present images to the outside of the speakers, as some other speakers can do with some recordings.

All of this is true. I noticed a much greater difference in soundstaging and "outside imaging" between different recordings when played over the NHTs than I did with other speakers I had on hand or have used in the past. But what I found was that while some recordings did sound closed-in, as they did over headphones, others sounded so much larger and more realistically rendered over the 3.3s that I was stunned. Purist-miked recordings designed to preserve the natural recorded acoustic—like the Ry Cooder/V. M. Bhatt A Meeting by the River Water Lily Acoustics CD—were absolutely startling in their realism of reproduction when played via the 3.3. I heard layers of spatial detail I didn't hear even with the terrific ProAc Response 2s. I was able to close my eyes and "see" the entire layout of the chapel in which the recording took place with much more precision and ease than ever before.

Unlike TJN, I did hear plenty of beyond-the-speaker imaging with the 3.3s, but only when the recording actually featured this kind of effect. The Roger Waters QSound-soaked Amused to Death went way beyond the 3.3s, extending much wider than the Spicas and ProAc's had been able to in the same system. The 3.3s also had far greater focus of these "outside" images—the way-right piano on "Perfect Sense, Part I," for example, sounded just as focused and dimensional as any of the images between the speakers. The NHTs had the ability to unravel complex phase relationships that deter-

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2 This is somewhat too broad of a generalization. In three of the rooms I listen in regularly—the Stereophile room, Robert Harley's room, and my own—MLSSA measurements reveal the direct sound to be stronger or as strong as the reflected, without the listener having to sit particularly close to the speakers. Only in Larry Archbold's large room does the reflected sound dominate, which is why LA arranges to sit closer to the nearfield for critical listening.
mined spatial placement in recordings that were purposefully produced to achieve this kind of effect. One recording I’ve listened to at least a thousand times before revealed itself to possess a wild phase effect which I had never once heard on this track before. The intro to Jimi Hendrix’s classic ‘Electric Ladyland’ is a short snippet of sound-painting called “...And the Gods Made Love”—basically 1:21 of Jimi and producer/engineer Eddie Kramer trying to produce the sounds of the Almighty gettin’ it on with His lovely lady with the use of Echoplex tape loops, overdubbed guitar noise, and some extremely precocious use of out-of-phase information to put some of the sounds not only all across the soundstage, but inside your head as well!

That’s right—the sound begins swirling as it builds into a ball of flanged hiss that then comes right up to you and enters your head, where it sounds as if it’s recombing your DNA before exiting toward the speakerline and dying off as the track fades into “Have You Ever Been (To Electric Ladyland).” In the roughly 1000 times I’d listened to this track before I got the 3.3s, I’d never heard the swirling flanged hiss traveling up to my face, enter my head, swirl around inside it for a few moments, then exit. I mean, I never even heard a hint of this effect before the NHTs, and let me tell you—there is nothing as startling in this entire pursuit than casually listening to a totally familiar record and hearing the sound travel toward the listening seat and literally enter into your skull. Nothing.

The bad news: That’s the good news. The bad news is that many—no, I’ll say most—recordings, be they LP, CD, or 8-Track, did sound confined to the space between the speakers, sounding smaller and less open than they do with conventional speakers. Whereas with these other speakers the sound would always be at least biggish and sometimes huge, the NHTs rendered recordings all the way from very small to insanely, unfetteredly gigantic.

This tells me that, rather than making all recordings sound larger than life due to the soundstage-enhancing effects of room reflections and the reverberant field, the NHTs present recordings in a much more accurate manner—and if the recording is small, it’s going to sound small, and that’s all you can ask a high-fidelity speaker to do. Maybe this is a hard concept to swallow, but you really have to hear these speakers to understand the implications, because the implications are that speakers which always present a large soundstage with every recording are inaccurate; that speakers which don’t sound small when you feed them a small-sounding recording are inaccurate; and maybe, just maybe, everything you think you know about what an accurate loudspeaker sounds like is wrong.

Bottom line: Sad but true, most recordings don’t have big soundstages. If you’ve been unknowingly compensating for this by using speakers that fudge the size of the image up so that most recordings sound more like what you would like them to sound like, you’ll probably need some time to adjust to how most of your recordings sound via the 3.3s. But once you start hearing recordings for what they really are, your appreciation of those recordings which do offer a large and realistic soundstage, both purist and not-so, will greatly increase once you’re able to hear the difference between real soundstaging and the room/speaker fish-eye lens thang. When I insert a piece of gear into my rig and the overall sound is far less “samey” on a wide variety of recordings, I know that I’m hearing a more neutral component than what I was using before it—and that’s what I hear with the 3.3s.

Ah lahs mah rock’n’roll: Finally, the area which means the most to me personally: If you’ve been following my reviews these past few years, you know that Ah lahs rock’n’roll. And you also know that Ah lahs mah rock’n’roll loud, which is how rock’n’roll sounds when you hear it live. Now, there have been speakers available since the late ’50s that could give you loud—the various Altec professional horn systems, Cerwin-Vega industrial beaters, Infinity IRSes, JBLs, and the fabled Klipsches from Hope, Arkansas, among others—but none could give you accurate. That is, clean loud. Linear loud. Loud that doesn’t change the sound of the speakers at all from when they’re not loud. Above all, loud that doesn’t fatigue.

I learned my lesson with the Spicas. John Bau never claimed his speakers were for headbangers, but I loved what they did in the midrange so much that I bought both the TC-50s and later the Angeluses anyway—and dozens of blown woofs’n’tweets later, I finally had to admit the fact that, while I loved these speakers under 95dB, I needed that extra 30dB like I needed to breathe air into my lungs. Adding the mighty Muse subwoofer did much to extend the Spicas’ dynamic range—replacing the Spicas with the ProAC Response 2s topped it off even further. But still there was a clearly discernible ceiling of operation above which things got pretty wry—and that ceiling was quite a bit lower than I needed.

Now that I have the 3.3s, I have a pair of speakers in my listening room which can play louder than I can stand, while remaining clean, clear, and as uncongested as if they were whispering along at 80dB. Yes, you read that right—driven by the 200W Aragon 4004 Mk.II muscle amp, the 3.3s are capable of playing louder in my 1800sf listening room than I can stand for very long before I finally cede that I’d like to hear the word “Grandpa” someday and turn the volume down to a comfortable 110dB or so. I just had never heard this kind of ability to play insanely loud while staying clean, clear, and unruffled in a high-end loudspeaker that can fit inside a Real World room. But the big NHT does it, and does it all day long without blowing drivers, your amp, or even its momentary cool. If you don’t often listen to rock music, or any other kind of music at high levels, this aspect of the 3.3’s performance will be meaningless to you. But if your listening diet is anything like mine, these speakers will be like manna from heaven to you. They rock!

NHT vs Thiel: Around the time I took delivery of the 3.3s, I welcomed a pair of the similarly priced $3900 Thiel CS3.6 loudspeakers into my He-Mah room for audition? Having been greatly impressed with the Thiels at CES, I was looking forward to hearing them in a more familiar environment to get to know them better.

Well, the Thiels certainly gave up some fine sound in my listening room, but I became aware of several potential drawbacks to their performance that ultimately ruled them out for me as long-term references. For starters, the 3.6 exhibited a pretty fat midbass that refused to flatten out no matter where I positioned the speakers and my listening chair in the room. While Robert Harley enjoyed the subjective “purring” effect this midbass fatness lent to electric bass lines, I found it to obscure bass detail, as well as serve as a constant reminder that I was listening to a fat-sounding loudspeaker instead of the illusion of a live performance.

But before I could even get to hearing this midbass fatness, I found soon after I’d unboxed the Thiels that none of the many amps I had on hand were able to drive the 3.6es to any kind of realistic levels with any kind of control in the bass. Worst match was the VTL Deluxe 225 tube amps (KT90 version), but even

3 Reviewed by Digital Lad in Vol. 16 No.5, p.94.
the solid-state Muse, Adcom, and Forté amps I had on hand couldn’t do much better than the VTLs. Since I knew at the time that RH’s review of the 3.6 was in the can but yet to be published, I called Stereophile to ask them why I was having so much trouble driving the Thiels. The answer was that the 3.6 presents a load not unlike a 2.5 ohm resistor across its entire range—one of the toughest and most demanding speaker loads currently on the market, and certainly one which only the most iron-fisted muscle amps can properly drive. True enough, it was only when I got ahold of the iron-aplenty Aragon 4004 Mk.II that I was able to really hear the Thiels at their best, the Aragon’s large current reserves and ultra-low output impedance being ideal to deal with the Thiel’s unreal load.

In many ways, the Thiel 3.6 typifies the best that current conventional high-end loudspeaker design has to offer—it was voted Stereophile’s “Loudspeaker of 1993.” Offering extremely good time-domain behavior due to the use of first-order crossover slopes and a slanted front baffle, as well as extremely pristine imaging and tonality (aside from the inescapable midbass hump), the Thiel can truly offer superlative sound when driven by one of the select group of high-current, low-output impedance amplifiers capable of handling its demanding load.

But the NHT 3.3 is a whole ‘nother world.

The Thiel can play just loud enough to almost reach minimum Rock-Approved levels before its midrange starts squawking and its passive-radiator-assisted woofer bottoms out—my cars gave out long before the NHTs even began to sound distressed, which I was only able to hear with foam earplugs stuck in my ears, and I’m not sure I wasn’t actually hearing the 200W Aragon reaching its limits rather than the 3.3s reaching theirs. The Thiel’s difficult load requires at least the likes of the $1850 Aragon, and, more appropriately, the likes of Krell and Mark Levinson. With its easier load, averaging between 4 and 6 ohms over most of the band, the NHT can be driven with just about any good-sounding amplifier, tube or solid-state, on the market.

The Thiels go down to around 30Hz and then abruptly drop off the map due to the radiator-assisted woofer loading. The sealed-box NHTs have a usable response to below 20Hz, and possess the deepest, tightest bass of any speaker I’ve ever heard. The Thiels present the kind of imaging and soundstaging I hear from many conventional high-end speakers; the NHTs tell me exactly what the recording actually sounds like. The Thiels are extremely fussy about room positioning; the NHTs go up against the wall behind them, you make sure they’re exactly parallel with each other, and you’re done.

The Thiels I listened to for a few weeks and then shipped back to the manufacturer; the NHTs I’ve been using as my reference speakers for well on a year now. To my ears, there was just no contest.

Shameless fawn-jizz: To sum up what began as a short Follow-Up but got longer as I kept coming up with things I really dig about this speaker, the NHT 3.3 is the one for me. It does everything I want a He-Man reference loudspeaker to do, and, a year later, I find myself without a single area of performance I’ve heard bettered by any other speaker. While the 3.3 is sufficiently without character to well serve any kind of music fed it, I do believe that rock-loving audiophiles should consider the 3.3 the best-equipped on the market to deal with the special requirements of our chosen tunicage.

I don’t consider many high-end products worthy of this kind of shameless fawn-jizz, but the 3.3 is just plain the most impressive high-end speaker I’ve ever heard at any price.

—Corey Greenberg

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Although Jean Sibelius (1865-1957) was a frequent conductor of his own music in his own country, it was his compatriot, Robert Kajanus, who first put his music on the European map with a tour in the summer of 1900 with the orchestra he had helped to rebuild in the 1880s, the Helsinki Philharmonic. Together, they introduced to an eager and appreciative international audience Finlandia, two Lemminkäinen pieces, the incidental music for the play King Christian II, and the First Symphony.

The Second Symphony was written in Italy in the following year, and it was Sibelius himself who directed its first performance in March 1902 in Helsinki, to resounding success. Several performances followed in Berlin in the same year and, in 1905, the Symphony was taken to London, Manchester, and Milan. Sibelius's fame and popularity were firmly established.

The First and Second Symphonies were the only works Sibelius had written at that time that did not follow a pre-ordained program, but critics and public alike insisted that they heard the powerful statements of the Second as an evocation of the struggles and triumph of Finnish Nationalism. Whatever the inspiration, Sibelius was still content to follow the traditional four-movement symphonic structure: a first movement (here an Allegretto) in sonata form, albeit using rather fragmentary themes, followed by an Andante, a Scherzo and Trio (here Vivaceissimo—(attacca)), and a sonata-form Finale. But Sibelius's unique method of juxtaposing and combining tiny motivic fragments into immense works of thematic unity transformed the very nature of the genre.

Fortunately, we can still experience the impact of Kajanus's pioneering work thanks to the Finnish government's commissioning of English Columbia to record him with the LSO in Symphonies 1 and 2 in 1930. Two ADD transfers from the original 78s are extant in the catalog, a single disc (Koch 3-7131-2, coupled with Belshazzar's Feast and the Karelia Suite) and a 3-CD set (Finlandia FACD 81234, coupled with the above works, Symphonies 1, 3, and 5, Tapiola, and Pohjola's Daughter). I find the Finlandia remastering brighter and more
immediate than the Koch, with slightly less obtrusive hiss, but it is a more expensive choice. However, you must hear one of the two: Kajanus’s excitement at breaking new ground is absolutely intoxicating. This is such a vigorous performance, Kajanus driving the first movement faster than any of his competitors, and the orchestra in complete control, imbuing the music with a breathtakingly vibrant and momentum. Surprisingly, most modern performances have remained reasonably faithful to this interpretation, although many lack its fervor.

After Kajanus’s death, Sibelius looked to Sir Thomas Beecham as the most reliable advocate of his works, both in the concert hall and in the recording studio. Yet from the evidence of his live recording from 1954 with the BBC SO, captured and remastered by EMI (CDM 7633992, with Dvorák Symphony 8/RPO), Beecham seems uncharacteristically earthbound. There are also annoying inaccuracies and some quirky changes in tempi, as, for example, when the bassoons are forced to speed up after the delicate pizzicato that introduces the second movement. This, of course, was not Beecham’s orchestra, and it shows. The string sound is not sonorous enough and, although it’s obvious that Beecham is driving, the BBC SO just cannot respond. Given the ludicrous shouts (6 minutes into the first movement and 20 seconds into the Finale) that have also been captured here, and the nasty, pumpy sound, this recording is to be avoided at all costs.

Koussevitzky was a great champion of 20th-century music, commissioning works—by Stravinsky, Bartók, and Prokofiev, among others—for his Paris concerts in the early 1920s, and from 1924 for his own Boston Symphony Orchestra. It was around this time that he became very interested in Sibelius’s music, often giving it in performance and later recording it. He set the Second Symphony down twice, in 1935 and 1950, the earlier still available in the UK in a 2-disc set (with Symphonies 5 and 7, Swanwhite, Tapiola, and Pohjola’s Daughter, Pearl Gemm CDS 9408). It is very different from Kajanus’s interpretation, the whole work inhabiting a much larger space. The opulence of the BSO also rubs off the Symphony’s angularity and breathes a warmth into its icy wastes. Koussevitzky was, undoubtedly, dedicated to this music, and was often in contact with the composer, but I feel that Kajanus was probably truer to Sibelius’s intentions.

Between 1938 and 1940, Toscanini made four recordings of this Symphony. Two are still available, the first from a concert with the NBC SO given in 1939 (Dell’Arte CD DA9019, coupled with Atterberg’s Symphony 6), the second—again with the NBC—of a broadcast performance from 1940 (RCA GD 60294, Vol.21 of The Toscanini Collection, including Pohjola’s Daughter, The Swan of Tuonela, and Finlandia). I find neither particularly endearing, the earlier being rather a protracted performance full of what the liner-note writer calls “innovations,” but which seem more like indulgent deviations from the score. The RCA performance is equally drastic, with a destructive, staccato approach that breaks the work into brusque episodes.

It would seem a good idea, then, to turn in hope to Scandinavian orchestras for a more authentic and approach to the work. Four such recordings are currently available. The oldest is from Neeme Järvi and the Gothenburg SO, recorded in 1983 by Bis (available singly as CD 252, with Romance in C, or as part of a 4-disc set of the Symphonies and Kullervo, 6221624). Typically, Järvi opens the work with great confidence, making bold statements at a brisk but well-controlled pace. But then he seems to lose steam, much as he did in his reading of Symphony 5 (Vol.16 No.7). The pizzicato opening to the Andante has little shape, and a similar lack of rhythmic tension in the Vivissimo strings of the Scherzo make the beat aurally ambiguous. I’m surprised that Järvi didn’t capitalize on the heroic stance of the Finale either: rather, he sounds relaxed and laid-back, joyous but not spine-tingling—a lost opportunity.

The youthful Säraste with the Finnish Radio SO (RCA 7919-2, with Kuolema, Valete triste, and Nightride and Sunrise) has the breadth and architectural structure of this Symphony in his blood. He is able to point detail while never losing momentum or halting the flow of the music. His clean, straightforward approach rather reminds me of Rattle’s, managing to build the climax that leads the Vivissimo into the wonderfully uplifting Finale with exemplary control. The recording is very good, too, but somehow the whole production fails to move me as a result of its very neatness.

I can’t summon any enthusiasm for Leif Segerstam and the Danish National RSO (Chandos 9020, with Finlandia). He is a thorough conductor who searches out detail and draws some beautiful, precise playing from his orchestra, but here he indulges himself, particularly in the over-extended Andante. There are moments in the Symphony that can be breathtakingly beautiful if sensitively handled—the Andante Sostenuto before C in the second movement, and the Lento e suave oboe solo in the Trio—but Segerstam leans just a little too far and over-balance into sentimentality, breaking the Symphony down into sections of hugely contrasted emotion. This is surely ana-thema to the wide-ranging sweep of this music.

Turning to Mariss Jansons with the Oslo Philharmonic after the disappointment of Segerstam was a thrilling experience (EMI 7 54804 2, with Swan of Tuonela, Vale triste, and Andante Festivo). This performance, new to the catalog, is quite wonderful. Everything here is so clean and airy: the opening is lightweight and delicate, and although the Poco affrettando before C has more than a hint of Tchaikovsky about it, it works beautifully within the context of the performance. The opening of the Andante is slow and dramatic, the two bassoons in unison playing with a difference in tone that makes this lugubrious melody an even more moving dialogue. Horns and timpani interject with icy blasts, keeping the texture clear and uncluttered despite the mounting climax. The Andante sostenuto is the calm after the storm. I love Jansons’s handling of the solos—the antiphony between trumpet and flute in the second movement, the optimistic, rather than doleful, oboe in the Trio—no hint of sentimentality here. The Finale is simply massive while still managing to keep parts distinct. Here is a noble account that most clearly outlines the parameters of this immense architectural structure, while never losing sight of the small-scale events that happen within it. The recording is exemplary, too, with depth and spread in the soundstage mirroring the music’s sentiments.

I also have great admiration for Simon Rattle and the City of Birmingham SO (Angel CDM 64120, coupled with Symphony 3). In many ways—its clarity, lack of sentimentality, and stature—it is very similar to Jansons’ account, but it’s bleaker, Rattle interpreting Sibelius’s score with clinical accuracy. Sadly, at
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times, the orchestra is shown to be the weak link, as in a slight lack of coordination in the *Finale*. There is also a very nasty edit nine minutes into the second movement which just won't go away. On the whole I like this performance, but nagging doubts spoil it for me.

Yet more British conductors and orchestras have served this work well. Alexander Gibson has two recordings in the catalog at present: the older is with the Scottish National Orchestra (Chandos CHAN 6556), coupled with a highly recommended version of Symphony 5. I was disappointed with this, given the excellence of the coupling. Although lending a careful ear to detail, Gibson is middle-of-the-road here, never quite pushing the music on with the urgency necessary to lift it from the score. His more recent account with the RPO on Collins (1105-2, with the *Karelia Suite*) has greater sonic clarity and focus but little more to say about the music.

Sir John Barbirolli made four recordings of this Symphony; that from 1966, with the Hallé Orchestra, has only just been deleted from the UK catalog in its latest dusting-down on EMI Eminence (CD-EMX2157), but it is far surpassed by the extant Chesky disc (CD3). This exciting performance was also set down in the '60s, but this time with the RPO: there is great fervor and drive here, Barbirolli forcing every note through with an almost impatient voluptuousness and warmth, and a wonderful spontaneity, similar to Kajanus's reading; here, the recording is good too, with a body that belies its age. But there is no coupling on this 44-minute CD—you might well want more for your money.

A very good midprice recording by Sir Charles Mackerras and the LO in the UK catalog, though not in *Schwan Opus* (Pickwick PCD 927, with the *Swan of Tionela*). I like this performance for its business and air of optimism, its straightforward but involved view, and the brightness and presence of its recording, but you may not be able to get hold of it.

Vladimir Ashkenazy recorded Symphony 2, *Finlandia*, and the *Karelia Suite* digitally with the London Philharmonic in 1979 (London Jubilee 430 737-2), eventually going on to set down the complete cycle of Symphonies in the '80s. There may be more than a pinch of Russian spice to this performance—Tchaikovsky often springs to mind during the course of it—but it works well all the same, the degree of passion and momentum running through it knitting the parts into a very satisfying whole.

Lorin Maazel also completed the cycle, with the VPO (available in the UK as a 3-disc set on Decca/London 430 778-2), but his idiosyncratic tempo shifts and overblown gestures are too self-indulgent. His performance, and Bernstein's—also with the VPO from a live recording made in 1987 (DG 419 772-2, no coupling)—say much more about their conductors than about the composer. The second movement of the latter is tortuously slow, the third needlessly aggressive, but, as ever, Bernstein ends the work in a blaze of glory. His analog recording with the NYP (CBS MYK 38477) is as predictably extreme: at times breathtaking in its beauty and power, at others annoyingly quirky. Yet one never feels Bernstein is manipulating the music to his own ends—this is how he feels it, and it is never less than exciting for that very reason.

So to other American orchestral performances: I would put Zubin Mehta and the NYP at the opposite end of the spectrum to Yoel Levi and the Cleveland. Levi conducts with a spring to his baton: everything has shape, thrust, and amazing rhythmic lift; textures are clean, and the Telarc team (CD-80909, with *Finlandia*) maintains this to perfection. Mehta gives the most Romantic, unpretentiously subjective performances I've ever heard (Teldec 2292-46317-2, also with *Finlandia*). It's gentle, passionate, sad, beautifully imaginative in some of its sounds, and hugely ripe in the *Finale*—but it's not Sibelius. It's a rounded, performance when it should be craggy, and the recording is set at a very low level.

Another recording to enter the catalog last year was from Herbert Blomstedt and the San Francisco SO (coupled with *Tapiola* and *Valse triste*, London 433 810-2). As ever from this team, there are no excesses: the performance has been carefully thought-out, prepared, and rehearsed, and the orchestra sounds as cultivated as ever, but it leaves me cold—frankly, I was bored. (This negative response also applied to Leaper/Slovak PO, Mata/Dallas SO, and Nanut/Ljubljana SO, although all, undeniably, had interesting points to make along the way.)

Such a tepid response could not apply to Colin Davis with the Boston SO, however, in an analog recording made in 1976 by Philips (420 490-2, with *Finlandia*, *The Swan of Tionela*, and *Valse triste*). This opens gently, and builds to one of the most expressive performances on disc; it has shape, beauty, and innate understanding. But more than that, it enchants its audience, creating that joyful feeling of being in harmony with life. If only the remastering were better—the treble has been lopped and the recording level is extremely low—I would have had no doubts about recommending this version.

This only leaves two more recordings currently extant in *Schwan Opus*, both by veterans in vintage performances: Paul Paray/Detroit SO from 1960, now on Mercury Living Presence 434 317-2 (coupled with Dvorák's, and Eugene Ormandy with the Philadelphia on RCA 60489-2 (with *Valse triste*, *The Swan of Tionela*, and *Pohjola's Daughter*). The former is remarkably vivid sonically, but Paray is impetuous, and although he conducts the work with affection, he chides it, overlaying it with unnecessary tensions and stresses. Ormandy has a curiously unsettling effect on the score, too: little surges of tempo, and whipped-up excitement in both strings and brass at times, make this a recording that would be hard to live with on repeated listening.

And so to a choice. Of the new recordings, I find Jansons/Oslo PO the most rewarding. It has everything: subtlety, grandeur, commitment, and, above all, a mesmerizing hold, for Jansons often pronounces in a fresh and totally convincing manner. Of the older masters, I'd choose Barbirolli for his warmth and fervor. But don't forget to hear Kajanus for his exciting first impressions.

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To describe Arvo Part, I am forced to adapt his own metaphor. I am not a Christian, but I believe that the Holy Spirit must move through this man as light is refracted through a crystal; its nature is discovered, but its essence is unchanged. His music requires, I think, to be spoken of in such Renaissance terms. Here we have four pieces, each written on commission and each a gem of compositional style. The *Te Deum* is drawn out of silence, as the composer himself suggests, and represents a genuine and simple hymn of praise, with the words of the text beautifully framed by the music. *Silouans Song* struck me as suggestive of Vaughan Williams, with the melancholy sound of the lower strings supported by a powerful bass line characteristic of Part, who more and more shows himself as an superb orchestral colorist. His *Magnificat* is very beautiful in spirit and structure, simple and yet enormously evocative.

The *Berlin Mass* is extraordinary, very probably the finest modern Mass setting, representing a return to the concerns of early Renaissance composers, with each added layer of polyphony in the *Veni Sanctus Spiritus* resounding like a new color added to the spectrum. Part resists entirely the temptation to dwell overlong on any one phrase; there is no desire here to embellish anything. I am struck once again by the fact that Arvo Part appears to write music that is completely and transparently to the glory of God. For myself, I am sometimes certain that the Cathari must be right: that this sublinear world must be no less than Hell itself. Listening to Part might well convince me otherwise.

This is very close to a purist recording, sonically as well as musically. The session photos show that accent mikes were used, but the soundstage is deep and natural. There is no sense of harsh spotlighting or許多 vocalists or instruments, although detail is precisely rendered throughout. (Listen, for example, to the prepared piano in the *Te Deum* with its curiously arched tonalities.) I suspect that the composer is involved with the recording as well as the performance; they are entirely of a piece.

—Les Berkley

**CLASSICAL**

**BACH: The French Suites, BWV 812-817**  
Keith Jarrett, harpsichord  
ECM 1513/14 (2 CDs only). Manfred Eicher, prod.; Peter Laenger, eng. DDD. TT: 100:56

**BACH: The French Suites, BWV 812-817**  
With: Italian Concerto, BWV 971; French Overture, BWV 831  
András Schiff, piano  
London 433 313-2 (2 CDs only). Christopher Reburn, prod.; Jonathan Stokes, eng. DDD. TT: 2:02:07

With these two sets of *The French Suites*, we have represented two of the three current schools of Bach keyboard performance. Jarrett’s version is, of course, the more or less authentic one, played on the instrument for which Bach (probably) wrote, while Schiff plays on the modern instrument, but without attempting to transform Bach into a Romantic composer by overly pianistic devices. To get to the point as quickly as possible, both of these sets can be confidently recommended. Although Keith Jarrett appears to start off a bit hesitantly, he gets into the swing of things by the *Courante* of Suite 1, and from there proceeds confidently through the works, with plenty of spirit and a fine sense of the music’s breath. Gone is the slight timidity of his *WTC* Book I (on piano), replaced by a polished sense of the possibilities of the harpsichord. He gets close but very tonally rich sound from his usual ECM colleagues, and there are no liner notes, which is also usual but unfortunate. To be honest, if you already have this music in a harpsichord version you like, Jarrett is not a must-have; on the other hand, if you have the ECM you won’t need to rush out and buy anyone else.

My wife loves the harpsichord and tests the piano; it says a great deal that she voluntarily came upstairs to listen to An-
András Schiff: My own tastes are similar, but you'll take this CD away from me when you pry my cold, dead fingers from the jewelbox. András Schiff's dexterity is remarkable, his pedaling is restrained but not absent, and he uses the advantages of the modern instrument to better maintain the flowing through-line of the music. To be sure, this style of playing can lose some of the rhythmic character of Bach's writing, even in the most capable hands, but Schiff ensures that we never feel that loss. It's awfully pompous to write lines like, "the Bach pianist for our time," but I will anyway. To my mind, András Schiff is the Bach pianist for our time.

London's sound is not up to ECM's standards, being a bit too diffuse and very slightly veiled, but it's more than good enough to listen to. There are also two extra works on Schiff's CD, but that shouldn't make a difference. With all due respect to the artist, I don't think the Italian Concerto (unquestionably written for a large double-manual harpsichord) works on piano very well, and the French Overture, while perhaps more "French" than the Suites, is not sufficient to be a deciding factor. Think of it this way: If you buy both these sets, you'll never need to agonize over which French Suites to acquire.

—Les Berkle

BRAHMS: Piano Trio, Op.8; Piano Quartet, Op.60
Boston Chamber Music Society: Arturo Delmoni, violin; Marcus Thompson, viola; Ronald Thomas, cello; Mihac Lee, piano
Northeastern NR 244 (CD only).

These are splendid performances of glorious music beautifully recorded. Purely on sonic grounds, both releases can stand as models of how chamber music should be engineered: moderately close but never claustrophobic, with considerable air around the performers and with just enough "buzz" on the cello to create an illusion of reality.

Interpretively, everything is equally commanding. From the initial soaring measures of Op.8, played expansively but never languidly and with remarkably subtle inflection, it is clear that these are going to be sensitive performances. In none of the four works is anything forced or mannered. Tempos are sometimes a bit broader than usual, most notably in the second movement of Op.8 and the opening movement of Op.60, but the music still surges forward owing to the clarity of articulation, aptly biting accents, and superbly gauged balances. Rarely has the Clarinet Quintet sounded so much of a piece in its tight organization, while retaining requisite autumnal glow. Indeed, both in this work and the Clarinet Trio, Thomas Hill's reedy (but never raspy or breathy) tone shines as a prime virtue. And both performances clarify how, in these late works, Brahms became increasingly masterful in the economic use of thematic material.

The two other scores are earlier, but they make ideal pairings in that both were reworked by the composer (their opus numbers do not indicate accurate chronology). Op.8 is a late revamping (involving extensive pruning) of an early effort, and Op.60 draws upon material Brahms had composed several years before completing the piece. The main theme of its finale, incidentally, is one of the most hauntingly beautiful melodies in all of his music, and that beauty is underscored by the unaffected projection it receives here. Similarly, the finale of Op.8 has just the right suggestion of grimness without ever becoming sentimental. All in all, these two releases offer four of Brahms's finest chamber works in performances that one can live with for quite a while.

—Morritmer H. Frank

Britten: Gloriana
Josephine Barstow, Queen Elizabeth I; Philip Langridge, Earl of Essex; Della Jones, Lady Essex; Jonathan Summers, Lord Mountjoy; Yvonne Kenny, Penelope; Lady Rich; Alan Opie, Sir Robert Cecil; others; Orchestra & Chorus of the Welsh National Opera; Sir Charles Mackerras.
Argo 440 213-2 (2 CD's only).

Britten: A Midsummer Night's Dream
James Bowman, Oberon; Lillian Watson, Tytania; Dexter Fletcher, Puck; John Graham Hall, Lysander; Henry Herford, Demetrius; Della Jones,
Hernia; Jill Gomez, Hernia; Donald Maxwell, Bottom; Roger Bryson, Quince; others, Trinity Boys Choir, City of London Sinfonia; Richard Hickox

Virgin Classics 7 59305 2 (2 CDs only). Andrew Keener, prod. DDD. TT: 2:34:26

BRITTEN: Peter Grimes
Anthony Rolfe Johnson, Peter Grimes; Felicity Lott, Ellen Orford; Thomas Allen, Captain Vere; Patricia Payne, Auntie; Stafford Dean, Swallow; Sarah Walker, Mrs. Sedy; others, Orchestra & Chorus of the Royal Opera House; Covent Garden; Bernard Haitink

EMI CDC 54832 (2 CDs only). Simon Woods, prod. DDD. TT: 2:24:41

GAY/BRITTEN: The Beggar's Opera
Philip Langridge, Machaëth; Anne Collins, Mrs. Peachum; Robert Lloyd, Peachum; Ann Murray, Polly; John Ransley, Lockit; Yvonne Kenny, Lucy; 12 instrumental soloists; Stuart Bedford Argo 436 650-2 (2 CDs only). Michael Woolcock, prod. DDD. TT: 10:20

This has been a very British-filled year. There has been an impressive psycho-sexual biography by Humphrey Carpenter which somewhat slights the music, but to make up for that, we have these four new releases, all of them welcome to varying degrees.

Gloriana has been a vastly underrated work since its 1953 premiere. Composed to celebrate the coronation of Elizabeth II, it startled and disturbed royals and commoners alike. That a piece that fuses inextricably with the Princess's taste: She seems to love both the English National Opera presented it at the Met in 1984 can attest to that. Britten manages to evoke Elizabethan music without actually reconstituting it, we get splendid fanfares, courtly dances, rounds, songs, complicated ensembles— all of it colored by the music composer conducts during the 350 years since.

The work receives a fabulous performance here, with Josephine Barstow's remarkably complex portrait of the Queen at its center, and Philip Langridge's vivid, troubled Essex a perfect foil. There's not a weak link in the cast, and Sir Charles Mackerras holds the work together beautifully. The crowd scenes are busy but clear, and the intimate moments poignant and telling. The recording allows us to hear it all, without artifice. Don't miss this one.

The new Midsummer Night's Dream does not replace the 26-year-old London recording conducted by the composer. This opera relies heavily on atmosphere, and John Culshaw's production was almost tactile: branches, trees, mists, and a full moon were practically visible, and Puck's wanderings were presented as if stereo were a game (what a shock, sort of is)

Virgin's new recording is also sonically marvelous, but the performances are not as persuasive as on the old London. The chorus, is excellent, creating real, dislikeable characters. But the best things about this set are Haitink's conducting and the Covent Garden Orchestra. You can feel the song's cruelty and moral ambiguity, and you hear the calls of the birds. The interludes have been excerpted frequently, but I've never heard them played with this kind of ferocity. Throughout the opera, Haitink catches the grimmness, the wind, the claustrophobia. If you've never heard Pears or Vickers, this recording will knock your socks off. And sonically, this is way ahead of the two competing readings. Go for it—you won't be disappointed.

Finally, if you're close to convinced, as I am, that The Beggar's Opera isn't quite worth the time people put into it, try this new Argo recording of Britten's arrangement. He uses 12 players in a chamber orchestra in clever combinations, each suited—mostly ironically—to the song's situation. The singing is picturesque and doesn't sound too operatic, and the delivery of the text is pointed. Britten makes it work for me; if you actually love the work to begin with, you'll appreciate the new sounds even more.

—Robert Levine

BRUCKNER: Symphony 7 (1884 version)
Günther Wand, North German RSO, Hamburg BMG 09026-61398-2 (CD only). Karl-Otto Bremer, eng.; Gerhard Götze, recording supervisor. DDD. TT: 64:07

BRUCKNER: Symphony 2 (Nowak edition)

In the October '93 issue I wrote a review of a Günther Wand-conducted Bruckner 3. Looking back, I conclude that, while not one of the transcendent recordings of the work, I condemned a basically competent and sympathetic performance with too much faint praise.

Wand's Bruckner 7 engenders no such wafting. It is, quite simply, one of the best recorded performances of the work, and there are a lot of performances on record. The first movement is the least notable of Wand's performance, yet it's still very good: while perhaps no great ideas are invoked during its course, the reading has great understanding of the movement's warm, humane nature. In the matter of orchestral technique, Wand takes his ostensibly provincial band into the lofty realm of such organizations as the Vienna Philharmonic, his terracing of dynamics here is so unsualable. This is especially remarkable in a recording made in concert.

The second—movement Adagio, where one might expect Wand to be heterosexually unexpectedy mellow—while broad, even, slow, the movement breathes real life under his direction. He omits the famous cymbal crash, as the CD's booklet takes great (and rather moralistic) pains to point out. I like the cymbals, but I very much like Wand's approach as well. The Scherzo has excellently terraced dynamics: Wand starts slow and restrained, leaving more room for nuance and detail along the way to a climax that explodes. Especially praiseworthy
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is the trio section, with lots of repose but absolutely no sentimentality.

Wand’s Finale portrays plenty of struggle—note the serious low-brass perfor-
ations at 3:20. It still has plenty of spunk, though. (After all, this movement is based on energetic and occasionally whimsical variations to a theme stated broadly and reverently in the first movement.)

Though this is one of the best Bruckner 7 performances on record, it’s hardly one of the best recordings. The “live” sound is flat and diffuse. It can get loud, but this mainly shows overloading of the sound and distortion of the soundstage’s dimensions. Bass is almost absent: the rocking string basses of the Gesangspériode at 6:30 of I are almost indistinct.

In another part of my earlier article I didn’t so much damn Georg Solti’s recent Bruckner 8 with faint praise as just plain damn it. That performance deserved it. I’ve pleased to write here that Solti does a splendid job in this new recording of Bruckner 2.

It would be a cliché to say that this symphony molder better to Solti’s style than the Eighth because it lacks the latter’s depth and spirituality. It would also be wrong and unfair. Unfair to the symphony because, though low in number, it was actually the fourth symphony written by a seasoned 47-year-old composer of the deepest religious experience. It is fully a Brucknerian work, and perhaps more clearly than 8 reflects the cross between Schubert’s fulsome beauty and Beethoven’s inevitable process that is the essence of the oeuvre. Unfair as well to Solti because, though he brings the familiar masculine traits to the work (crispness, vigor, powerfully differentiated counterpoint in I and IV, heart-on-sleeve lyrical passages in the Andante), all these attributes here demonstrate not only understanding, but belief in this under-appreciated symphony.

In fact, this Symphony Hall recording may now be the CD of choice; perhaps better was Karajan/BPO, which I owned before my house burned down. Clearly Karajan also believed in the work (he programmed it during his last US tour with the BPO in the 1980s), but unfortunately his recording comes down to us in the worst early digital-era DG sound. Painful indeed.

This Solti would be a good introduction, though perhaps not initiation, to Bruckner for the uninitiated. —Kevin Conklin

FAURE: Piano Quartets 1 & 2
Emmanuel Ax, piano; Isaac Stern, violin; Jaime Laredo, viola; Yo-Yo Ma, cello
Sony SR 48066 (CD only). Kevin P. Boutote, eng.; Steven Epstein, prod. DDD. TT: 66:56

In all respects, including the transparent, very natural, unspoil pip quality, this coupling of the early (1876–79, with the revised finale of 1883) and later (1887) Faure Piano Quartets is an absolute winner. The blend of the instruments, the sweep, the silkiness of the strings (especially Stern), and, perhaps most of all, the elegance and refinement of the stunning playing, are all one could hope for. Very highly recommended. —Igor Kipnis

HOLST: First Choral Symphony, A Choral Fantasia*
Heather Harper, soprano; BBC Chorus & Choral Society; Malcolm Sargent, BBC SO; Janet Coster, mezzo; John Alldis Choir*; Adrian Boult, LPO* Intaglio INCD 7401 (mono CD only). ADIV TT: 72:16

Don’t be put off by the fact that these are mono recordings of live performances given in the ’60s—if you want authentic performances that express commitment and the joy of simply “taking part” rather than the all-too-common clinical vacuity of a multi-take digital recording, then look no further. I was thrilled to rediscover the kind of vivid music-making that we used to be accustomed to, and though the constant coughing through the Choral Symphony is slightly annoying, its removal would result in the loss of so much more. Malcolm Sargent does a wonderful job in the first work, and I thought the difficult balance of chorus, soloist, and orchestra was extremely well handled. The Choral Fantasia also has organ to be accommodated, and while I found the Albert Hall a less comfortable venue than the Festival Hall of the Choral Symphony, and the dark tones of the mezzo less uplifting than the sweetness of the (then) young soprano, Heather Harper, Boult’s leadership is every bit as inspiring as Sargent’s. These may be
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Stereophile, March 1994
very insular, very English performances, but they reach to the heart of this music and, I believe, transcend national and cultural boundaries.

—Barbara Jahn

**WAGNER: Das Rheingold**

John Tomlinson, Wotan; Günter von Kannen, Alberich; Graham Clark, Loge; Linda Finnie, Fricka; Hilde Leidland, Woglinde; Annette Küttenbaum, Woglinde; Jane Turner, Flosshilde; Eva Johansson, Freia; Matthias Höhle, Fasolt; Philip Kang, Fafer; Helmut Pampuch, Mime; Johannes Brinkmann, Donner; Kurt Schreibernayer, Froh; Birgitta Svenden, Erda; 1991 Bayreuth Festival Orchestra, Daniel Barenboim

Teldec 4509-91185-2 (2 CDIs only). TT: 2:29:09

**WAGNER: Die Walküre**

John Tomlinson, Wotan; Anne Evans, Brünnhilde; Paul Elming, Siegmund; Nadine Secunde, Sieglinde; Linda Finnie, Fricka, Sieglinde; Hölle, Hunding; Valkyries: Eva Johansson, Ruth Floren, Shirley Close, Hitomli Katagiri, Eva-Maria Bundschuh, Svenden, Hebe Dijkstra; 1991 Bayreuth Festival Orchestra, Daniel Barenboim

Teldec 4509-91186-2 (4 CDIs only). TT: 3:53:08

Both: John Mordler, prod.; Gernot R. Westhäuser, eng. DDDD.

As if there weren't already enough recordings of Wagner's immense tetralogy, *Der Ring des Nibelungen*, here is half of a new live cycle, with a new studio recording—from Christoph von Dohnányi—about to begin.

What conductor Daniel Barenboim and stage director Harry Kupfer together bring to the *Ring* is even more commitment to the dramatic side of this music—drama than we have so far seen or heard elsewhere. Barenboim climbs yet another rung on the seemingly topless ladder of the Bayreuth orchestra's quality of ensemble playing (remember that this is, technically speaking, a pickup band), blending Wagner's encyclopaedic orchestral palette with what sounds like effortless intuition. This is in stark contrast to another recent conductor of this work, Pierre Boulez, in his own Bayreuth *Ring* recording of a little over a decade ago. In his drive to strip the *Ring* of what he saw as a century of interpretive kitsch, Boulez made a point of not "leaning into" the usual climaxes, as it were, and just as pointedly eschewed what he called "overemphasizing" of the leitmotifs, not to mention anything even hinting at traditionally "Wagnerian" nobility or grandeur. His *Ring* came out quite well, and, wedded as it was to Patrice Chereau's epochal staging, which exploded one operatic tradition and started its own, achieved the seeming impossible: a remarkably self-conscious *Ring* that was also a brisk and exciting one.

But passionate it was not. The Wagnerian world embodied by Barenboim's orchestra on the one hand, and the mammoth on the other, is inextricably concerned, passionately committed to the characters who fight their blind battles through its knowing vastness. Barenboim applied this same means to very different effect in his studio * Parsifal* of several years ago, which I found unique in its representation in sheer sound of the spiritual impulse. So seamlessly, so convincingly does Barenboim achieve this in *Rheingold* and *Walküre* that I find it difficult to focus on the orchestra as a hundred or so individual musicians doing what they're told, blowing and bowing and pounding away on their various instruments. Instead I am constantly carried away by the headlong sense of *drama* that explodes out of the speakers. Barenboim achieves the Wagnerian ideal: an orchestra surrounding and commenting on its own story with a rhythm and poise so perfect that it becomes dramatically invisible, suspending the listener's disbelief for hours at a time. (And in stark contrast to James Levine's recent *Ring*, which, no matter how awesome a feat of playing and singing, I could never think of as anything but a feat.)

I doubt if I've heard the primordial *Rheingold* prelude better or more limpidly played. There is a flawless rhythm of development in the terraced dynamics of this primer in the musical syntax of the *Ring*, but with no lack of orchestral strength or weight. Barenboim never once falters in his control, although I wish he had lingered a bit longer over the Magic Fire Music, and at least one moment—the prelude to Act 1 of *Walküre*—I think, over-acted: the storm sounds more like a swarm of giant hornets than wind whipping old-growth forests. But I have never heard the quietly grandiloquent brass—choir variations on the Valhalla motif in the "Todesverkündigung" in Act II, of *Walküre* so perfectly played—they float in the Festspielhaus acoustic like a golden cloud. Barenboim takes this scene with as slow a reverence as Reginald Goodall's, but without the Englishman's lagging portentousness. Throughout the 6½ hours of this first evening and day of the *Ring*, strings, brass, and woodwinds are perfectly balanced, the ensemble almost relentlessly well-blended—to the point where the *Tristan*-like tension was sometime almost unbearable as I awaited a muffled entrance, off-key note, or French-horn clam that never came. Impressive for any recording, something for a live performance, however meticulously edited.

Meanwhile, on stage, another Wagner ideal—that of "actors who can sing" rather than singers who can act—seems finally to have been realized in this cast of voices mostly new to the international recording scene. Here is a crew of gods, demigods, dwarves, and giants betraying and manipulating each other left and right, with hardly a drop of nobility or honor to split among them—at least as nasty a crew as populated Haitink's recent *Rheingold* on EMI. This is Wagner's mythic world in all its ambitious, grasping youth, feeling its oats and power, intent on action, not wisdom. *This Rheingold and Walküre are text-driven to an extent I have never heard before, which leads me to say that though I've certainly heard better—Svenden, Alberichs, Loges, and Fasolts, I've never heard better inhabitions of the roles.*

Graham Clark's bitter, derisive Loge simply takes charge here; more than in any other recording of this work, this Loge drives *Rheingold*; for the first time, I found myself thinking of the work as "Loge's Revenge." Alberich is the closest thing *Rheingold* has to a "hero," but never so strongly as here. Günter von Kannen evinces a dementedly desperate honor in the part—an Alberich scarred so deeply by betrayal and rage that all he has left are the reflexes of survival. Von Kannen is the first actor/singer to seriously challenge Gustav Neidlinger's 30-year monopoly of the role. Matthias Höhle's Fasolt is a bit stronger than Philip Kang's Fafer, which is too bad; we need to hear Fafer's cagey, controlling nature more than we do here. Eva Johansson sings Freia with wonderful innocence and clarity, although it's hard to make more of this role than that of a generic damsel in distress (she doesn't). Birgitta Svenden reverses a century-long tradition of casting as Erda the heaviest-voiced contralto available. This Earth Mother is a youthful one, Svenden's mezzo bringing a refreshing clarity and lightness to the role. Bodo Brinkmann and Kurt Schreibernayer, as Donner and Froh are acceptable if little more. Helmut Pampuch makes a lasting impression in a tiny role—his Mime is complex and strong, sounding more genuinely aggrieved than the usual whining and sniveling allow for; his fantasies of revenge on Alberich actually sound like plans to be reckoned with. And Hilde Leidland, Annette Küttenbaum, and Jane Turner as the Rhinemaidens work equally well together and separately: sounding off the text as committedly as the rest, their explanations to Alberich of the nature of the Rhinegold and what one must do to gain its power sound like entirely sincere storytelling and not the usual rote exposition.

John Tomlinson is so finely attuned to Wotan's quickly shifting moods and thoughts, and gets so much of that into his voice, that I kept mistaking him for other
characters. Throughout *Rheingold* his voice is chameleon-like in its complete adaptation to whatever emotional surface it finds itself on. There is a seamless flow of character between his *Rheingold* and *Walküre* Wotans—the latter is clearly only a few years further on in the growth of his ambition, a bit more hardened and embittered but still aggressively hopeful that his tangled schemes will work. Much is revealed in his laughter, at the opening of *Walküre’s* Act II, at Brünnhilde’s war-whops: joy, pride, and bloodthirstiness mixed in equal parts. This is the head of a universe in which battle and revenge are duties to be fulfilled joyfully and without guilt. The only passage I found disappointing was Wotan’s long narration, which Barenboim takes almost too briskly. Though many find this scene the most tedious of the entire *Ring*, it’s certainly one of the most dramatically important—only here do we find out exactly what Wotan feels and thinks about all that has gone before and all that is to come. Tomlinson’s Wotan here rails and lashes out against his inevitable fate; we get anger, not anguish; rage, not reflection. Still, this remains the most exciting performance of this passage that I have ever heard—as is II, ii, in which Wotan lectures Brünnhilde and her sisters with such uncontained rage that I found myself pressing back into my listening seat to avoid his ferocity. By the time he bids farewell to Brünnhilde in III, iii, Tomlinson has audibly tired—but, all things considered, a gripping, bravura performance. To compare Tomlinson to our other reigning Wotan, James Morris: Morris has greater vocal strength, stature, and stamina, but Tomlinson makes him sound stiff as a stump.

Linda Finnie is the most erratic of the singers as Fricka, sometimes bringing great sensitivity of interpretation to the part, at others seeming to flounder, at still others simply running out of voice. Typical is what might have been a gorgeous moment toward the end of *Rheingold’s* final scene, when Finnie’s entrance on “Wo weilt du, Wotan?” is ritarded and given a long, slow crescendo from which Finnie’s voice was obviously intended to emerge, thus giving added depth to a moment too often missed with a clinging-wife cliché. It never happens: Finnie’s voice is there, but it never rises above the not-too-loud orchestra. In the crucial Fricka/Wotan scene in Act II of *Walküre* Finnie is breathless and out of control, though at no time does she abandon her character. Barenboim rushes this scene somewhat, perhaps to spare Finnie (who does little better as Siegrune in Act III).

Matthias Hölle, an excellent Hunding, easily negotiates the shifting clouds of guarded curiosity, gruff hospitality, and mounting suspicion that pass through the scene with his wife and her brother; his full bass is expressive and darkly powerful.

Paul Elming’s Siegmund is so fresh-voiced and impassioned that he may now be the world’s finest exponent of the role—I don’t envy the soprano who must share *Walküre*’s first act with him. Elming is the exemplar of what must now be the greatest era of Wagnerian acting. He seems incapable of singing a single note by rote—no syllable goes uninterpreted. Though he began his career as a baritone, there is not a shade of darkness in Elming’s clear-ringing tenor—something that always bothered me about Ramon Vinay and even Lauritz Melchior. And, yes, I’d love to hear Elming as Siegfried; his strengths may be too lyric for that punishing part, however.

Elming is ill-matched by Nadine Sejund as Sieglinde, a more pedestrian talent whose dark, half-swallowed tone and heavy vibrato make Siegmund’s twin sister sound twice his age. This is not nearly as much a problem in Act II as it is in I’s love scenes, which simply do not catch fire, whether with flames torrid or tender, unless Elming is singing.

The same is true of the “Todesverkündigung.” The Brünnhilde, Anne Evans, has a perfectly adequate voice, but Elming sings her under the table in this difficult scene. Evans in general seems to lack an emotional dimension, however consistently she hits her vocal marks. Her voice is smallish, if quite accurate and pleasant enough in quality, but she doesn’t do half as much with this role as the underrated Rita Hunter did for Goodall with a similar set of strengths and limitations. In fact, listening to “War es so schmählich” in...
Ill, iii, it occurred to me what a perfect replacement for Finnie's Fricka Evans would make—not the sort of thing one wants to think of a Brünnhilde. She simply lacks the vocal or expressive stature for this role. The rest of the Valkyries make a well-balanced octet, but get a bit squally at the height of the “Ride.”

The Teldec team have captured the famous blended Bayreuth sound with considerable fidelity, though with a top end a bit more biting than I remember, some glare on male voices, and a slightly heavier orchestral/vocal balance than the hall itself provides. I'm not complaining—so many who have conducted at Bayreuth have remarked (and I agree) that it’s impossible to get “enough” orchestral sound into the hall itself.

What makes this recording so valuable is that Wagner's drama palpably takes place before the listener's ears. These are real people with real problems. This may be a drawback for those who want to hear only the music: Harry Kupfer's very kinetic staging has the actors moving a great deal, with a lot of foot steps and pounding of spears (Wotan) and tables (Hunding). Those whom it might offend should get the laserdiscs of these same performances; seeing the action puts such stage noises in proper synesthetic perspective.

With the vocal limitations noted, highly recommended—I look forward to the fall release of Siegfried and Götterdämmerung. In just a few years, with his recordings of Tristan, Parsifal, and now the Ring, Daniel Barenboim has proven himself one of our most important Wagner conductors. And the Bayreuth “workshop” continues to reinvent itself almost annually as a consistently churning revolution-in-place in the staging of Wagner's works. More than a century after its establishment in Bayreuth, Wagner's original concept of music-drama seems finally to have been realized.

—Richard Lehnert

CLASSICAL COLLECTIONS

ALICE ARZT TRIO: American Music of the Stage & Screen
Bernstein: Suite from West Side Story, Gershwin: Ballet from Porgy & Bess, Prelude No.3; "Summertime" (arr. Raymond Burley). Chaplin: Songs, Dances, & Film Music (arr. Sergio Abreu)
Alice Artz Trio: Alice Artz, Raymond Burley, Michel Rutscho, guitars
GRI Music GRICD 003 (CD only). Sergio Abreu, Arthur Johnson, prod.; Bruce Lawton, Frank Rodriguez, engs. PP. TT: 56:45

Arrangements for guitar duos, trios, and quartets of music written for other media, much less single guitar, are not particularly unusual. One listens to the skill of the transcription and, most of all, to the quality of the performance. The Bernstein and Gershwin pieces work extremely well here, but the repertoire surprise is the music of Charlie Chaplin, eleven of whose pieces, mostly from film scores, are presented here. “Terry’s Theme” from Limelight and “Smile” from Modern Times are best known by far, but the others, all tuneful and brief, slightly sentimental, and perhaps a bit naïve but always charming, are a really pleasant discovery. All these arrangements sound expertly crafted, and the highly effective performances are most enjoyable, the music-making rhythmically sprightly and gently mellow as required. The three members of the ensemble, playing precisely as though they were one, have been recorded with appropriate, unexaggerated spread and a nice sense of air around the instruments. A very minor labeling error (correct in the notes) interchanges Gershwin's third Prelude with "Summertime.”

—Igor Kipnis

CAMBRIDGE SINGERS: Ave Gracis Plena: Music in Honour of the Virgin Mary
John Rutter, dir.
Collegium COLCD 116 (CD only). James Hamilton, eng.; Jillian White, prod. DDD. TT: 71:27

This is a disc of sacred music arranged not chronologically by composer but by seasons of the liturgical year. This judicious mix of periods and nationalism adds further interest to an already very special group of performances. The Cambridge Singers are consistently excellent, and with the same producer and recording venue (the Lady Chapel of Ely Cathedral, England) as always, sonic qualities of the highest order are also guaranteed.

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Gregorian chant as with Stravinsky’s Ave Maria, having not only an unvarnished technical prowess but also a broad palette of colors and timbres at their command. And there is no lack of emotion here; if Victoria and Palestrina have to be played straight, the Cambridge Singers bring a passion to Bruckner’s and Holst’s Ave Maria that is quite entrancing. Another Cambridge Singers disc wholeheartedly recommended.

—Barbara Jahn

YOLANDA KONDONASSIS: Scintillation

Yolanda Kondonassis, harp; Joshua Smith, flute; Franklin Cohen, clarinet; Martin Chalfour, Wei Fang Gu, violins; Stanley Koponoka, viola; Richard Weiss, cello; Thomas Steri, double bass (instrumentalists in Introduction et Allegro and Danses sacrée et profane)

Telarc CD-80361 (CD only). Jack Renner, eng.; Elaine Martone, Erica Brenner, prods. DDD. TT: 58:26

Oklahoma-born, Cleveland-trained, and New York-based, Yolanda Kondonassis has assembled a nicely varied program of French impressionists (Gershwin excluded) in which clarity, transparency, and mellower sonics are among the attractive features. Both the ensemble and the soloists are appropriately sensuous tonally, and Kondonassiss’s excellent drive and dynamic range are nowhere more apparent than in Salzedo’s Scintillation. What I do miss is some tenerness in the Ravel Pavane, and a little more atmospheric magic might have been elicited through a rhythmically less straightforward approach. The harp, excellently balanced with the other instruments in the familiar ensemble pieces by Debussy and Ravel, has been effectively captured with good imaging, a natural soundstage, and a nice sense of space.

—Igor Kipnis

CONCERTS UNDER THE DOME
Bartók: Romanian Folkdance. Boccherini: Adagio & Allegro from Sonatina in A. Brahms: Trio for Piano, Clarinet & Cello in A. Mendelssohn: Octet for Strings in E-Flat

Blondel: János Starker, cello; Reiko Shiyouka-Neriki, piano. Brahms: John Bruce Yeh, clarinet; Marc Johnson, cello; Andrea Swan, piano. Mendelssohn: David Taylor, Blair Milton, Jeannie Wagner, Susan Synkela, violins; Robert Swan, Catherine Brubaker, violist; Wyatt Sutherland, Walter Prucel, cello

Naim named 003 (CD only). Ken Christianson, eng. TT: 71:07

With a name like Naim on the label, I expected a sonic presentation of the first order. And with a roster of largely unheralded musicians, I expected rather run-of-the-mill performances. Neither expectation was met. Although the sound quality of the disc is very good, it’s not quite up there with the best of the audiophile outfits. Its shortcomings are an overall sense of airlessness and a lack of dimensionality, both laterally and from front to back. Tone colors are faithful, but a lack of natural sparkle in the upper frequencies imparts a slightly lifeless quality to the sound.

The performances were recorded in separate concerts held in Ascension Church, Oak Park, Illinois, hence the title of the collection. János Starker is by far the most recognizable name among the performers, and his playing of the Boccherini and Bartók pieces is superb. These are not Starker’s most technically accomplished recordings, but they are spirited and affecting.

The Brahms trio, as performed by Yeh, Johnson, and Swan, receives a rich, warm reading that only occasionally lapses into salon-music prettiness, the avoidance of which is sometimes too great a challenge for performers of Brahms.

Mendelssohn’s Octet for Strings is played rather well, considering this is probably a “pick-up” group of musicians without a great deal of experience playing together (we are not informed in the liner notes). Intonation and ensemble work are impressive for a live recording, and the soulful spirit of the music is well portrayed. Lacking in the performance is the dynamic force and emotional ebb and flow expressed by such performers as the Academy of St. Martin-in-the-Fields’ Chamber Ensemble (Philips 420 400-2), and especially by the combined Cleveland and Tokyo String Quartets (RCA Real Seal LP ARL 1-2532).

As fine as they are, the performances on this recording do not make them a “first choice,” but they will reward frequent listening to this very good, but not great-sounding CD.

—Robert Hesson

A QUARTET FROM KRONOS
FELDMAN: Piano & String Quartet
Elektra Nonesuch 79320-2 (CD only). Kronos Quartet, Judith Sherman, prods.; Bob Edwards, Judith Sherman, Craig Silvey, engs. DDD. TT: 79:40

GÖRECKI: String Quartets 1 & 2
Elektra Nonesuch 79319-2 (CD only). Judith Sherer, pro.,; Bob Edwards, Judith Sherman, engs. DDD. TT: 46:06

LISTZ: At the Grave of Richard Wagner
BERG: String Quartet, Op.3
WEBERN: Five Pieces, Op.5
Elektra Nonesuch 79318-2 (CD only). Kronos Quartet, Judith Sherman, prods.; Bob Edwards, Judith Sherman, Craig Silvey, Tony Eckert, engs. DDD. TT: 33:10

OSTERTAG: All the Rage
Elektra Nonesuch 79332-2 (CD only). Kronos Quartet, Judith Sherman, prods.; Paul Zimm, David Merrill, engs. DDD. TT: 16:10

These four CDs exemplify the Kronos Quartet’s tremendous stylistic range. Unfortunately, compelling music is in rather short supply here, as two of these CDs can only be called “singles.” The Ostertag composition is timely, but only intermittently focused; the Görecki disc is disposable; the Feldman is provocative but unconvincing; not surprisingly, the Berg and Webern recordings are the most satisfying.

Of recent recordings of Berg’s Op.3, the Arditti Quartet’s recording on Disques Montaigne, and the Artis’s on Orfeo, are particularly strong. The Artis is perhaps marginally preferable due to its pointed dynamics and articulation of inner detail. Kronos zips through the first movement with aplomb, but seems to run out of steam during the second.

The 1970 Juilliard Quartet recording of Webern’s Five Pieces (available in the Boulez 3-CD box of the complete works on Sony) offers a more dynamic, albeit muted, reading than on their early—60s RCA Living Stereo LP. To their credit, Kronos observes Webern’s dynamic markings almost fanatically, but their choices are sometimes extreme, as in the fourth movement’s breathing: the violins’ pungent phrases are nearly inaudible. The 1970 Quarteto Italiano on Philips remains this work’s boldest, most dramatic recording. Kronos does manage to succeed, however, largely due to their cohesion and feeling for the work’s moody textures. Their gentle sensitivity with the calmly lucid second movement, for instance, left me breathlessly anticipating the pensive ending. The opening Liszt piece, At the Grave of Richard Wagner, sounds inconsequential by comparison —this brief work, with piano and harp added, comes off monochromatic, despite a committed performance.

Feldman’s quartet with piano is an exercise in patience for composer and audience. With a skeletal structure of piano arpeggios and muted string chords, this subdued music never really goes anywhere; indeed, it’s not intended to. Rather, it’s a slowly evolving work that never quite evolves—hypnotic, but on the whole unsatisfying. Still, Kronos’s single-minded focus and dedication can hardly be faulted. Feldman’s advocates will likely greet this work with jubilation; the rest of us can pass it by.

Bob Ostertag’s dramatic, declamatory All the Rage can likewise be little faulted for its seriousness, but the musical rewards are slim. Rage effectively conveys the horror of AIDS and the inhumanity of homophobia, but argues Ostertag’s musical case less compellingly. Again, Kronos plays it with all the intensity one could ask for, but Rage sounds patched together despite the emotional acuity of Sara Miles’s text.

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Last, and by all means least, it’s no surprise that the music of Henryk Górecki is enjoying a moment of classical “crossover” success these days—it’s simple and accessible. It’s also derivative, rhythmically stilted, and harmonically conventional. Kronos’s vaunted virtuosity is all but wasted on these two simplistic exercises in pseudo-Shostakovichian angst and minimal, conservative tonalism. Dark and brooding? Hardly. Yapping of the usual unimaginative & unproductive! Yes. That Kronos chose to record these works—both apparently written for them—represents a serious lapse in aesthetic judgment. Coupled with these is the second release of Kronos’s July 1990 recording of Górecki’s Quartet 1 available on an earlier CD for some time now.

—Carl Baughner

JAZZ

ORNETTE COLEMAN: Beauty is a Rare Thing: The Complete Atlantic Recordings

Ornette Coleman, sax; Eric Dolphy, bass clarinet; Don Cherry, Freddie Hubbard, trumpet; Bill Evans, piano; Charlie Haden, Scott LaFaro, Jimmy Garrison, bass; Billy Higgins, Ed Blackwell, drums; The Contemporary String Quartet; Gunther Schuller, cond. Rhino/Atlantic RZ 71420 (6 CDs only). Stephen Innescenti, digital remastering; Nouhi Eregun, John Lewis, prod. AAD/TT 7:06:30.

I vividly remember my introduction to Ornette Coleman’s music. It was the mid-’60s and I picked up his 1960 recording, This is Our Music, at the library. On the cover was a photograph of four almost morbidly serious young men; they looked avant-garde with a vengeance. But Coleman’s notes were literally inviting. They began: “You probably have heard or read something of the music we are playing and if you haven’t we would like to invite you into our musical world.” I had listened to another serious avant-garde figure—John Coltrane—and expected from Coleman something comparable: a hard-driving beat or overlapping rhythms, and long, intense, densely packed solos.

What I heard instead was startling in a different way: it was a loose, playful ensemble performing—in a spacious, lively, unimposing and yet plaintive way—compositions that seemed to me almost whimsical. The musicians were daring: although they typically played with some kind of tonal center, they had abandoned the usual chord changes. They were also humorous, even genial. (I wasn’t surprised to find a Coleman composition named “Congeniality.”)

Thirty years later, presented for the first time complete in chronological order and with six previously unreleased pieces, the Ornette Coleman Atlantic recordings—all made between May 1959 and March 1961—still sound fresh. And they still sound inviting.

They also sound extraordinarily accomplished. That should be no surprise. The music was free, but never haphazard. "I vividly remember my introduction to Ornette Coleman’s music. It was the mid-’60s and I picked up his 1960 recording, This is Our Music, at the library. On the cover was a photograph of four almost morbidly serious young men; they looked avant-garde with a vengeance. But Coleman’s notes were literally inviting. They began: “You probably have heard or read something of the music we are playing and if you haven’t we would like to invite you into our musical world.” I had listened to another serious avant-garde figure—John Coltrane—and expected from Coleman something comparable: a hard-driving beat or overlapping rhythms, and long, intense, densely packed solos.

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They also sound extraordinarily accomplished. That should be no surprise. The music was free, but never haphazard. The members of Ornette Coleman’s early quartet—trumpeter Don Cherry, bassist Charlie Haden, and drummers Billy Higgins and Ed Blackwell—had all played with each other for years, finding their way into and around Coleman’s absorbing musical world, and finding new ways of expressing themselves in it. As Don Cherry says in the notes to Beauty is a Rare Thing, “You really had to have your stuff together to know what was happening, and that’s the way Ornette would prepare us for making the records. We would really practice and know the tunes frontwards and backwards.”

They had their stuff together from the very first surviving cut, “Focus on Sanity,” made with seven other tunes on May 22, 1959. The piece begins with a ragged drumroll, a fanfare, and a short, repeated theme. All this takes 13 seconds: then the others drop out and Charlie Haden begins a substantial bass solo, first unaccompa-
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recording by the veteran jazz pianist Dick Hyman. The music was made using a Bösendorfer reproducing piano, which allowed Hyman to “record” his performances; subsequently the engineers were able to place this recording on a disc by having the piano play the performances back in the hall in which Hyman had performed them. In its original issue, the music was encoded in Keith Johnson’s HDCD” process and pressed on a gold CD. Reference Recordings has now issued a less expensive “silver” disc, and an LP that includes all the music save the nearly six minutes of “Daydream.”

I can say right off the bat that, although I am a fan of LPs, particularly well-made ones, I see no reason to prefer the LP of Dick Hyman Plays Duke Ellington, which came with some surface noise and a slight ghosting effect (or pre-echo) before certain numbers. It’s a closer call between the two CDs. Comparing the gold and silver, I believe that I heard slightly more warmth in the gold, which produced a mellower and fuller tone. But the sound of that piano seemed inflated, a little unnatural. The sound on the silver disc is closer to the piano as I know it. Perhaps the difference is marginal; some listeners might prefer the more spectacular sound of the gold disc. Still, I’m fairly certain that I wouldn’t plunk down the extra bucks. My judgment may be preliminary, as the equipment to fully “decode” the HDCD disc is not yet available.

—Michael Ullman

KING & MOORE: Potato Radio
Justice RR 8082-2 (CD only). Clark Germain, Andy Bradley, engs; David A. Thompson, prod. AAD. TT: 57:25

Potato Radio presents a world in which one can turn to a single station and hear everything from jazz scatting to wry children’s songs for adults to art songs to blues. It’s a world in which bassist Glen Moore is quite at home. He’s had over 20 years’ experience with the group Oregon, one of the first and best aggregations to meld jazz and world music. He flies easily from style to style, offering boundless energy and creativity wherever he alights.

His partner on this outing, Nancy King, is less successful at genre-hopping. A technically adept singer, her cool, distant tone works far better on jazz standards like “St. Thomas” and “Four,” than on whimsies like Glen and Samantha Moore’s “Little Bronco” and “Alligator Dancing.” Her style best suits the artiness of “Your Love,” where her overdubbed vocals work with Moore’s echoed bass to deliver a post-modern love ballad. She also has an unfortunate tendency to sound like someone who’s more concerned with how she uses her voice than with the meaning of the song (a common failing among would-be jazz singers).

Also working heavily against Potato Radio is its sound. Simultaneously dry and distant, live and artificial, it does nothing for King’s vocal detachment, nor for the intimacy of the instrumental sound. Still, while better sound would have helped, it’s unlikely that it would have enabled King & Moore to corral this stylistically diverse material into a unified personal vision.

I applaud King’s and Moore’s eclectic reach; this time out, however, they’ve grasped only a handful of small potatoes.

—Michael Ross

ROSCOE MITCHELL/MUHAL RICHARD ABRAMS: Duets and Solos
Roscce Mitchell, flute, saxes; Muhal Richard Abrams, piano, synthesizer

Pianist/composer Muhal Richard Abrams founded Chicago’s Association for the Advancement of Creative Musicians in the early 1960s. Since then, the AACM has nurtured and showcased some of the most invigorating and innovative experiments in jazz. One of the AACM’s earliest and most powerfully original voices, multi-instrumentalist/composer Roscoe Mitchell, was the leader of what later came to be known as The Art Ensemble of Chicago.

Mitchell and Abrams have enjoyed rewarding careers but have hardly become household names, even in the jazz community. Abrams has told me that recognition, criticism, etc. are beside the point; only the work matters. Such focused discipline is partially responsible for the excellence of these performances, but doesn’t tell the whole story.

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an unqualified triumph of creative synergy. Consisting of two solos and two duets, the music is often overwhelming. Abrams's complex, intricate, and urgently passionate "Scenes and Color" runs over 25 minutes and offers a gripping alternative to Cecil Taylor, the generally accepted reference point for free-jazz piano. This performance segues into the first duet, "Ode to the Imagination," via an ominous gong. Mitchell's tartly piercing saxophone, and Abrams's atmospheric synthesizer. The music continues to unfold with "Star Night," a long, obstinately spare alto sax solo from Mitchell that's almost Cagean in its lack of overt drama. The closing duet, "Reunion," is a wide-ranging suite in four parts with Mitchell's flute a valuable contributor early on. Throughout, the sound is crisply focused and dry, leaning more toward the analytical than the warm.

Jazz listeners wanting to hear what's really happening in creative improvised music late in this century should consider Duets and Solos absolutely essential. But be warned: This is uncompromising, probing, often abstractly dissonant music from the cutting edge. Only more adventurous listeners are apt to receive it with real excitement.

—Carl Baugher

ERIC REED: It's All Right to Swing
Eric Reed, piano; E. Dankworth, trumpet; Wessel Anderson III, alto sax; Rodney Thomas Whitaker, acoustic bass; Gregory Hutchinson, drums; Carolyn Johnson-White, vocals.
Mojazz 37463 7006-2 (CD only). Delecia Mar-

salis, prod.; Patrick Smith, eng. AAD 7:08:03
I've been told of a major record company that won't sign a jazz musician who's older than 25. They missed a bet on 23-year-old pianist Eric Reed. He's a winner.

Reed, a clean-cut young man who dedi-
cates several of the swinging performances on his debut album to God, says with refreshing candor, "I really don't know where I'm going with my music." He's clearer about where he's been: He was born in Philadelphia and, at age 11, moved to Los Angeles, where he played in his father's church and was turned on to jazz when he heard Ahmad Jamal's famous recording of "But Not for Me." "Today," he says, "Ah-
mad Jamal is my favorite pianist."

Reed may have learned from Jamal—he uses space effectively and sometimes engages in Jamal-type block chords—but he has a more robust sound than the older pianist on "But Not for Me." He has consid-
erable range and a resilient, springy style that, as the album's title suggests, swings. On It's All Right to Swing, he plays "Wade in the Water"—a gospel piece that Ramsey Lewis once made famous. He and singer Carolyn Johnson-White perform a sober version of Ellington's "Come Sun-
day." He also plays an outgoing "You Don't Know What Love Is," which he begins with a splash and follows with a strong rhythm pattern that gracefully fades as he states the melody. Reed sounds con-
fident, even exuberant, on this ballad as he plays delicate strings of notes followed by one hanging note. He plays Jamal-like repeated patterns and sequences, yet still sounds like his own man.

He conveys his personality more on his compositions, such as the lovely ballad, "In a Lonely Place," the jumpy bop number, "Boo-Boo Strikes Again," and his home-
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grown tribute to God, "He Cares." The
close miking and analog recording allow
you to hear the snap of the bass strings.
The stereo separation is extreme, with the
drums on the left channel and the bass on
the right in the trio cuts.

—Michael Ullman

ROCK

Johnny Gimble) volunteered to be a part of
this tribute.

With what is probably one of the largest
lineups of country stars ever on one rec-
ord, it seems inevitable that egos would get
in the way. Not so— the feeling evident on
this recording is almost overwhelming.
Check out Merle's cover of "I Wonder if
You Feel the Way I Do," or "Old Fashioned
Love" with Suzy Boguss. A real surprise
is "Hubbin' It," with Huey Lewis and Ray
Benson handling the vocals; when they get
into a butt-shakin' groove, it's clear that
these guys are having plain old fun.

Bob Wills's music continues to gain in
popularity. With bands like Asleep at the
Wheel, and quality recordings like Tribute,
to keep his music alive, fans of this unique
musical genre will be able to enjoy Bob
Wills music for many years to come.
Recommended.

—Steve Stoner

DIESEL: Hefidelity
Giant 24489-2 (CD only). Don Gehman, Terry
Manning, prod.; Terry Seyer, eng. AAD? TT: 56:34

Here's a guy who's not on any year-end
"best" list: maybe Spin and MTV can't take
a mixed message. Their loss. Maybe it's the
cover, a reversed-out effort displaying a
hunky young Brit like some latter-day
incarnation of Jimmy Dean (Luke, maybe,
on Beverly Hills 90210). If his real name is
"Johnny Diesel" I'll eat The Cat in the Hat,
but guess what—the kid's got chops like
Stevie Ray Vaughan.

I've always been a little leery of so-called
"tribute" albums; more often than not they
contain uninspired versions of songs
already covered countless times before, or
simply serve as a way for an artist to com-
plete his recording contract. Fortunately
for fans of both Bob Wills and Asleep at
the Wheel, this latest offering from the
Wheel falls into neither category.

Almost 20 years after his death, Bob
Wills remains the King of Western Swing.
During the '30s and '40s, Bob Wills and
The Texas Playboys pioneered a genre of
music that was a blend of country, blues,
and jazz. What made Wills' style unique
was his combination of traditional jazz
instruments (horns) and stringed instru-
ments (guitars, fiddles) backed with a
swing beat. The result: Western Swing.
Few bands have striven to keep Western
Swing (and, specifically, Bob Wills music)
ave more than Ray Benson and Asleep at
the Wheel.

Opting to cover lesser-known songs
from the Playboys' repertoire (after all, how
many more versions of "San Antonio
Rose" do we need?), Benson and the Wheel
have put together a fitting tribute to the
man responsible for much of their success.
As testimony to Wills' popularity, numer-
ous guest artists such as Merle Haggard
(who put out his own Wills tribute more
than 20 years ago), Willie Nelson, George
Strait, Dolly Parton, Huey Lewis, Chet
Atkins, Lyle Lovett, and others (including
original Playboys Eldon Shamblin and

Asleep at the Wheel pays tribute to Bob Wills

ASLEEP AT THE WHEEL: A Tribute to the Music
of Bob Wills & The Texas Playboys
Liberty CDP 7 81470 2 (CD only). Ray Benson, pro-
d. ; Terry Seyer, eng. AAD? TT: 56:34

Johnny Diesel—taste, chops, tension

K.D. LANG: Even Cowgirls Get the Blues
Original Soundtrack
Sire/ Warner Bros. 45433-2 (CD). Mark Razer,
eng.; k.d. lang, Ben Mink, prod. AAD? TT: 40:02

It's enough to give you a warm, fuzzy feel-
ing about the state of popular music—
about the state of our great nation—when
a lesbian Canadian former country singer
like k.d. lang can work her way into the
prestigious pigeonhole of rock diva. And
beat the "my-mommy-is-Thelma-Hous-
ton" and "my-hubby-runs—Columbia-
records" folks defending champs at their
own game. Only in America.

To me, Cowgirls feels like a much stronger
record than lang's big hit Ingénue. On that
last record, she sounded like she was trying
just a tad too hard, as if she were trying to

Stereophile, March 1994

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convince herself as well as us. Here, on a full-blown follow-up record that springs from what was supposed to be a title-song soundtrack gig, lang cuts loose—the result is fun, for her and for us. On “Just Keep Me Moving,” she sounds as if she’s the one who inherited the soul genes from Momma Thelma. There’s a slinky counterpoint between her soaring vocal and a groove that wouldn’t be out of place on the Return of Superfly soundtrack. And while she doesn’t hit the high notes like Little Ms. Mariah, in the midrange there just ain’t no contest. “Lifted by Love” is another great near-dance cut, and if “Hush, Sweet Lover” isn’t quite as funky, it has that same tight—but-loose vibe: lang’s gone beyond her Judy Garland phase, and I, for one, am happy.

Lyrical, these love songs play it straight, but now that k.d.’s out, lines like “Hush, sweet lover, hush! And gently hold me in your touch” take on a delicious spin? Gertrude Stein would be oh so proud.

While the first part of the album is primarily *Ingegne* with a beat, toward album’s end, her new fans appeared, she dips back into her country roots. Now that she’s no longer beholden to Nashville’s powers that be, she plays it for camp, and on a cut like “Don’t Be a Lemming Polka,” the over-the-top result is like Dolly Parton on laughing gas.

The sound is very much like the music: very easy on the ears and a little unfocused. The same team who were responsible for the ultra-lush *Ingegne* are again at the controls. lang’s voice is clearly the focus (except, naturally, during the quite intriguing “incidental” cuts, which channel everything from Lady Smith Black Mambazo to Tommy), but the other instruments seem somehow larger than life, yet muffled in their attack. But if it doesn’t sound real, it does sound great.

On the other hand, as proud as I am to be an American in the Age of Larry King, perhaps I ought to back off before investing too much of my precious faith in an American Music industry that made Mariah and Whitney richer than God to begin with. But for this Horatio Algerian week at least, it seems that having a slinky voice is more important than having a body to match, and for that, our ears should be thankful.

—Allen St. John

**SMASHING PUMPKINS: SIAMESE DREAM**

Virgin 88267.2 (2CD), Mark Richardson, Jeff Terrie, Butch Vig, engs.; Butch Vig, Billy Corgan, prods. AAD. TT: 62:14

Evolution is a wonderful thing. Back in the deep recesses of time, it took literally years for the Who and the Rolling Stones to mutate into the likes of Peter Frampton and Boston. Now, through the wonders of recombinant DNA technology, it can be accomplished in mere months. Following in the tracks of Kurt Cobain and friends (and with *Nevermind* producer Butch Vig at the console), Smashing Pumpkins recycle everything you hated about the ’70s. If you think “Smells Like Teen Spirit” sounds like “More Than A Feeling” (I don’t), the Pumpkins’ “Geek USA”—which manages to clone both “Walk This Way” and “Days of Future Passed”—will really take you back: it’s scarier than *Dazed and Confused*. The church bells and the string arrangement and lyrics like “the killer in me / is the killer in you” tell you it’s art. The liner notes, which thank 157 people, tell you it’s commerce.

—Allen St. John

**STONE FREE: A TRIBUTE TO JIMI HENDRIX**


With all the different artists on this tribute, these renderings of Hendrix’s oeuvre seem to fall into only two camps: relatively straight, and hip-hop. No Big-Band à la Gil Evans, No Country (how did Garth miss this one?), no downtown de-constructionists, no polkas or reggae. This is more observation than complaint. Other approaches are available elsewhere, or, if not yet, rest assured, they will

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2 Have you seen the quietly radical video for “Just Keep Me Moving,” where Ulla Thoman rides close on the back of lang’s motorcycle? Guess the Guardians of Family Values were too busy with Beavis and Butthead and Snoop Doggy Dogg to raise a stink.

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**STEREOHIFILOPHILE, MARCH 1994**

World Radio History 167
Get Real

On the plus side, the Reference 64 had some spatial qualities I haven’t heard from digital before. The processor excelled at presenting a cohesive, focused, and clearly delineated soundstage. The ability to hear exactly where an instrument was located in space was uncanny. Instruments that sounded somewhat amorphous through other processors—the acoustic bass on “Moonshine #2” from the first Robert Lucas CD (Audio Quest AQ-CD1001)—were perfectly focused and tangible through the Reference 64...The Reference 64 was stunning in its ability to throw a present, tangible image surrounded by air. This was particularly noticeable on the Robert Silverman recording: the Steinway was right there in the listening room, with the sound of the hall enveloping the image like a halo.

Get the Details

One hallmark of a great transport is its ability to resolve recorded detail. The transport should present lots of musical information to the listener, yet not sound aggressive, etched, or analytical. In this area, the DT-10 and the No. 31 stand alone. Both can extract the finest nuances of the musical performance—nuances that often convey so much musical expression. When you listen to familiar music and hear previously unnoticed shades of expression, you know the component is revealing more of the recording’s details. This happened to me with the DT-10; subtle vocal inflections suddenly became obvious, and added to the music’s meaning.

Get Involved and Get Together

Compared with the No. 31, the DT-10’s bass was warmer and a little fatter. The Levinson transport was leaner, tighter, more analytical, and had slightly better extension at the extreme bottom end. When listening to the DT-10, however, I found myself more rhythmically involved with the music. I wasn’t aware of this impression at first, but found myself tapping my foot and enjoying the music’s drive more with the DT-10. When connected to the Reference 64 with the Time Sync function engaged, the sense of rhythm and power was extraordinary.

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be. What *Stone Free* does have is many pleasures, a few surprises, and a couple disappointments.

The Cure leads off with "Purple Haze" as a swirling, psychedelic dance-scape. The original is liberally sampled and blends better than you might think. Clapton is next up, produced by Nile Rodgers and backed by Rodgers and his Chic cohorts. EC sings the title tune with the most fire he has exhibited in years. If he plans to continue making pop records, he should look no further for a producer, as this is the best-sounding track on the CD.

The flowery lyrics of "Spanish Castle Magic" fit Spin Doctor Chris Baron's stoner voice to a tee. The band plays it straight, with guitarist Aaron Shenkman turning in the best solo of his young career.

Buddy Guy substitutes distortion for soul in his tasteless "Red House." To add insult to injury, producer Eddie Kramer manages to lose legendary pianist Johnnie Johnson in the mix.

Ice-T predictably "shoots his old lady" (this was pre-"bitches") in Body Count's "Hey Joe." Jeff Beck supplies a brilliant "Manic" to Seal's soulful "Depression," though they don't quite work together.

Chritiss Hynde may be the only singer who could handle the lyrical meaty fat that is "Bold As Love," but the Pretenders' backing is workmanlike at best. Better to have paired her with Belly, who can capture the energy and spirit, if not the technical brilliance, of "Are You Experienced."

Vernon Reid's guitar is strangely subdued on Living Colour's version of "Crosstown Traffic," and their singer still sounds as if he'd be more at home in a Broadway show. But Slash surprises with a, dare I say it, slashing performance of "I Don't Live Today," backed by the original Band of Gypsys rhythm section.

The biggest surprise is Pat Metheny's "Third Stone from the Sun." Over a kicking hip-hop groove, Pat eschews keyboards for guitar loops. Wah, funk, fuzz, and bass guitar loops are layered under abandoned, edgy soloing that would've made both Jimi and Ornette proud (now there would have been a pairing).

But if there's a message to be taken from Stereolab, it's that even solo guitar solos are but a part of the Hendrix legacy. Though few here approach his instrumental genius (or even try), it's the songs that shine through. Whether played straight or sampled, their unique structure, their heart and soul live on—as does Jimi.

—Michael Ross

**THE VELVET UNDERGROUND: Live MCMLXXXIII**

Sire 45464-2 (2 CDs only). Mike Randle, prod./mix; Roger Moutenot, eng./mix; Bill Fertig, house mix (Eurosound Mobile); Bob Ludwig, mastering; Brian K. Lee, Sonic Solutions editor. AAD/TT: 2:06:53

If you're any kind of fan of punk, post-punk, avant garde, fine art, or hard drugs, you've already bought this 2-CD set of the seminal '60s New York aural answer to Edvard Munch. If not, go find a remained copy of Edie, some tin foil for your ceiling, and decent editions of *The Velvet Underground and Nico* (1967) and *White Light/White Heat."

The first and best exploration team to discover the dark side of the moon, classically trained musicians John Cale and Lou Reed, bassist Sterling Morrison (eventually an English prof at UT Austin), and drummer Maureen Tucker (who made her debut drum kit out of tambourines and garbage—can lids, and records, occasionally, for Penn Jillette's quirky private label) were the nucleus of the band in its prime: the first four and, arguably, the first two LPs, after which both Cale and Nico were gone.

Also noteworthy is the ghost of Andy Warhol, who, when living, first nudged the group into the public eye, in part via the now-legendary "banana peel" album cover, and in part through inserting Euro-chanteuse Nico—a Brian Jones/Andrew Loog Oldham find who made Marianne Faithfull look like Liza Minnelli—into the menage. Warhol also packaged the whole milieu—including artist/actor Gerard Malaga, scantily clad in a bullwhip—and put them on the road to make multimedia performance art ("Exploding Plastic Inevitable") before it was cool. The pop-art diva remains a ghost in the attic for Cale and Reed; at least, they're still making songs and performances ("Dime Story Mystery," Reed, and *Songs for Drella*, a co-production) to lay him to rest.

But there are only two things to know, really, about *Live MCMLXXXIII*. First, Cale/Reed/Morrison/Tucker (no Nico, who died long ago), caught live—no overdubs—in Paris on their European tour last summer, must hate museums. Each original Velvet classic (there are 22 here) becomes simply a point of departure into something rich and strange, fresh and new. Whether the sea change is age, experience, or getting straight, the tradeoff of methedrine-rush delivery for control ("White Light/White Heat," then and now) makes these songs bloom.

Second, here's the parental advisory. While "Sister Ray" isn't included (a new Cale/Reed co-composition, "Coyote," is the sole new song), this is still the group founded with the seeming goal of turning Baudelaire's *Flowers of Evil* into music. While modern children of artifice like Jane's Addiction, Porno for Pyros, Nine-Inch Nails, and Andres Serrano insist that "nothing's shocking," the Velvets retain the ability to be so. They stripped the clothes off the Emperor early and let us in on the very awful truth: life is what you make it.

The sound is fantastic; can't speak for the upcoming home video, laserdisc, single-CD edition, or limited-edition CD (with additional unreleased track).

—Beth Jacques
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We'd like to thank Stereophile, and particularly Robert Harley, for the superb review of our DAC-in-the-Box (DITB). Let me tell you, it was a real challenge for our engineering department to come up with a better product than the original DDE v1.0 for half the price. That was the challenge, and I think they've acquitted themselves quite well.

We have little to quibble with Bob's well-written and accurate review. However, just a few minor points. First, when both a TosLink unit and coaxial unit are active, the DITB will default to the coaxial source. Also, it should be noted that the de-emphasis error (accurately represented in the review) has previously been solved via the use of closer-tolerance capacitors. But please remember that complications had to be made somewhere to achieve the price point. Emphasized discs number way less than 1%.

Also, for the record, we are shipping DITBs with OP-275 as standard equipment now. And yes, Bob... the Yamaha 3434 and 3433 are identical parts, as you mention. A production change in the on-board crystal allows the DITB to now work with any input sampling frequency.

It was (is) hard to argue with the findings on the sonic side of things. I will say that by adding a Power Station One, the bass extension is vastly improved, but for the most part I'm in 100% concurrence with everything said. I was especially pleased with Bob clearly uncovering our primary design goal. We promised ourselves that this unit wouldn't sound like "cheap digital." It doesn't, and the review was quite clear and concise about that very criterion. Everyone seems to expect "cheap digital's typical litany of sonic flaws" when they look at the DITB's price... but then they are floored with what they get. To quote again, "the DITB had a surprisingly unaggressive treble, decent dynamics and bass, and a soundstage that could hold its own with many $1000 digital processors."

Additional comments made in the review about the DITB's treble and dynamic representation were very well received in these quarters as well. It would seem the engineering department deserves a bonus!

I would be hard pressed to offer a conclusion (to my own comments) more faithful than Bob's own written word. We're quite proud of the DAC-in-the-Box, and the real value it brings to this product class. Let me also mention that, although the DITB is available factory-direct (the only [such] product that is), we urge our customers to order it from their local dealer or from other mail-order sources.

And lastly, for the record, you're not alone, Bob... I was also astonished!

MARK L. SCHIFTER
President, Audio Alchemy

ADCOM GDA-600 Editor:
We thank Stereophile, and Robert Harley in particular, for the thoroughness exhibited in the review of the GDA-600 D/A converter. Of course, we're delighted with the level of enthusiasm in Bob's comments. Being told that "it measured as well as—or better than—some products costing nearly twenty times as much" is high praise. Bob's conclusion ("I can't recommend the Adcom GDA-500 highly enough") is much appreciated.

When we began active development of the GDA-600 almost a year ago, we had already concluded that you can't make a great DAC without very good parts. After extensive evaluation we specified the Crystal 8412, a Burr-Brown/NPC filter, Burr-Brown PCM-63 20-bit DACs, and a substantial analog stage as the basic hardware platform. We knew that this combination would have the most direct and positive impact on the GDA-600's overall sonic signature.

We then faced the substantial challenge of delivering a sub-$1000 price target. We wanted to make technically accurate and musically satisfying digital processing available to as many people as possible. We're gratified that "Digital Lad" feels we've succeeded.

Credit for the GDA-600 belongs to a very talented bicoastal development team. And more hours than we want to remember listening, selecting circuit components, listening, tweaking, and listening again, primarily through Thiel 3.6es, bi-wired Spendor LS3/5As, and Stax 'phones driven with our GFA-5800 amplifier.

As much as we see a need for accurate and affordable digital processing for the traditional audiophile market, we see an even more critical need in the growing home-theater market. That's why we included a TosLink with the coax and AES/EBU inputs. There are literally thousands of Laserdisc players that are strangling videodisc digital soundtracks with D/A conversion that can be best described as suspect. Frankly, we hope some of the owners of these units will avail themselves of the GDA-600's higher level of sound quality.

The home-theater experience is (or can be) an exciting synthesis of video and audio technologies. The goal of both engineering disciplines is increased definition and clarity, and a video line doubler is a dramatic and easily understood example of the benefits available. That's why we used the phrase "audio line doubler" to describe the GDA-600's benefits: It helps us effectively present the GDA-600 to nontraditional (i.e., non-audiophile) customers who have proven to be more responsive to what they see than to what they hear. Our experience suggests that many of today's customers (and retail sales people, for that matter) aren't familiar with the benefits and conversant enough with the technology to feel comfortable choosing any separate digital processor. As Bob's review states quite convincingly, we've put our money where our music is... whether it be Mozart or MTV.

Again, thanks for the enthusiastic review and the opportunity to comment.

LEN SCHNEIDER
Product Development Manager, Adcom

AUDIOSTATIC ES-100 Editor:
Thank you for the opportunity to respond to your magazine's review of the Audiostatic ES-100 Electrostatic Loudspeaker System. Dick Olsher (Stereophile's resident electrostat enthusiast and promoter) did an excellent job of fleshing out the speaker's strengths, as well as explaining some of the advantages of the electrostatic over other types of loudspeakers. A few points of clarification follow.

As correctly noted, Audiostatic has been designing and producing electrostatic loudspeaker systems for over 25 years. Designer Ben Peters has achieved tremendous success and recognition overseas for his state-of-the-art, full-range-element designs (one example is the selection of Audiostatic speakers as mixdown monitors for Philips Classics recordings), but the US market has, until now, had limited expe-
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The product line consists of four models. The top-of-the-line 500 Series (introduced to the US market at the January Consumer Electronics Show in Las Vegas) consists of the ES-500 full-range model and the SW-500 woofer panel. Next is the 100 Series (reviewed here), consisting of the ES-100 full-range model and the SW-100 woofer panel. The third model is the ES-50 full-range system with available full-range or in an above-100Hz-only design for use with the Audiosonic powered dynamic woofer system. The entry-level product is the soon-to-be-introduced HYBIE, a hybrid system that will have a projected retail of $1800/pair.

Because of the nature of the room interface with a full-range-element electrostatic panel, Audiosonic offers the additional SW panels for the ES-100 and ES-500 full-range-element systems to augment the speakers’ performances below 300Hz in listening rooms over a specified size. This is simply a function of available panel surface area as the total acoustic space of the room they are placed in. The net result of adding the SW-100 panels is additional perceived dynamic range (especially at lower frequencies), additional maximum level, and improved overall efficiency. As Dick will discover when he reviews the ES-100/SW-100 combination, the “lean” character of the ES-100 is very much a function of the size of the room they are used in. The ES-100 is, as Dick correctly points out, a “sounding” speaker, designed for use in smallish rooms. With the addition of an SW-100 panel, or an appropriate-quality dynamic subwoofer, the speaker system will transform itself into a “big” speaker performer. We have found that this modular approach allows for a system to be “grown” around the initial purchase of a pair of ES-100s.

Turning to some of the other points raised in the review, we would like to point out that the ES-100 transformer interface unit is the product of 25 years of ongoing development, and several international patents. Although it may look insignificant, let me reassure Dick and your readers that it is manufactured using the highest-quality audio components, selected for their sonic integrity and high-quality construction. In this case, very good things can come in small, relatively affordable packages. The “as good as it gets” sound quality of this system, we believe, speaks for itself regarding the high-end standards of the parts used.

Regarding the speaker’s base, we agree that on thickly carpeted floors the Audio-sonic legs are not sufficient to stabilize the speakers, and an aftermarket spike of some sort would be worthwhile. As Dick mentions, the ES-100 is an elegant, attractive system, which implies design considerations that included the resulting small footprint base. However, the speakers are relatively heavy (over 60 lbs each), and they do not generate the same kind of excursion energy as a cone speaker.

Regarding dispersion, the ES-100 employs a unique design that results in the high frequencies being fed to the center of the panel only, thereby eliminating the problems of a 7°-wide tweeter. We strongly disagree with Dick’s comments about the speaker beaming at high frequencies—critical listeners have always commented on the amazingly consistent high-frequency dispersion, given such a large panel speaker. Dick (many of your readers may recall that I was involved with the development of the Acoustat products of the early 1980s) certainly gave me an excellent background in high-frequency beaming—a phenomenon that the Audiosonic display less of than any other full-range-element, flat-panel loudspeaker. I can only suspect that something about the listening room or setup resulted in Dick’s negative perception of the product’s high-frequency balance across the listening room.

Regarding the full-range-element design of the ES-100, Dick’s mention of how the speaker is “speaking with a single voice” is a major factor in the perceived performance of the speaker. The elimination of crossovers and multiple elements, coupled with the distortion of a typical loudspeaker, makes the Audiosonic capable of the breathtaking performance described in the review. In addition, the Audiosonic is indestructible in normal use, and therefore carries a lifetime panel-burnout warranty.

Regarding measurements, taking performance measurements of a large, flat panel speaker is difficult, and often not representative of the speaker’s actual performance. Efficiency is perhaps the most difficult to accurately measure, as JF points out. The ES-100 is an easy load to drive and is actually quite efficient, especially when considering that its volume falls off much slower with distance than does a typical cone speaker, yielding a higher level at the listening position given the volume the speaker is playing at. Also, the substantially lower distortion yields a perception of less volume than there really is, especially after years of being “shouted at” by high-distortion, multi-element dynamic speakers.

As Dick clearly points out, the ES-100 does all the things that only a full-range-element electrostatic system can do, offering the listener a “slice of sonic heaven.” It is not, like the Martin-Logan Aerius, an electrostatic tweeter with a dynamic woofer, and its relative price difference is indicative of this fact. For those, like Dick and I, who have become addicted to the full-range-element electrostat, the limitations of other designs are insurmountable in terms of providing a realistic listening experience. For those who have not yet fallen for the electrostatic’s attractions, we encourage you to audition the ES-100—as Dick points out, “There’s no speaker on this planet that unravels detail as well while preserving the music’s delicacy.”

JACK SHAFTON
CEO/DiR. of Sales & Marketing, SOTA

THETA DATA BASIC
Editor: Our thanks to Robert Harley for a thorough and insightful review. Since he brought up the striking similarity between the Theta and PS Audio transports, I’ll explain:

In order to build a really superb transport and achieve the remarkable pricing advantages of the Theta Data Basic, we required the efficiency brought about by large production runs. While there are some similarities in design and components, many of these similarities are mandated by the use of the Philips CDM 9 Professional transport mechanism. The appreciably different sound characteristics of these two models, as pointed out in this article, reflect the unique influences of the respective design groups. These two transports are the only ones under $5000 incorporating the Philips CDM 9 Professional transport mechanism. We feel this is quite a feat, considering the pricing ($1750 for the Theta, $2050 for the PS).

Despite what those outside the audiophile realm might think of a company that makes multi-thousand-dollar CD transports and decoders, Theta’s aim has always been to give the very best sound we could achieve at prices that people in the real world can afford.

Lastly, lest we fail to see the circuit for the parts, please consider that Theta’s designs are more than those nifty power supplies, or this great transport mechanism. From its acoustic diode to its critical circuit-board layout, the Data Basic’s overall performance is achieved through a holistic design approach, all aspects interrelated and mutually important.

NEIL SINCLAIR
President, Theta Digital

NHT 3.3
Editor: Even more than the joy of a positive review, it’s a great feeling for a manufacturer to know that their intentions and goals are really well understood by a reviewer. Of all the coverage of the Model 3.3 that we have seen to date, Mr. Greenberg’s Follow-Up in these pages best conveys the design philosophy, technology, and sound of the product. Thank you! KEN KANTOR VP, Technology, Now Hear This

PARASOUND HCA-2200 II
Editor: Steven Stone’s glowing review of the Parasound HCA-2200 II is a happy occasion to welcome him to the pages of Stereophile. His style is a refreshing complement to Stereophile’s other reviewers. How fortunate for him to live so near to J. Gordon Holt.

Naturally, this review pleased us, but it did not exactly surprise us, since several other reviewers have praised this model to the skies, and some of them have purchased this model for their own use. However, Steve’s review is the first to address the Parasound HCA-2200 II both as a stereo

Stereophile, March 1994
amplifier and as a dual monoblock.

The details we lavished on the HCA-2200 II are too many to enumerate here (please write or call for literature), so I’ll just say that John Curl’s elegant circuit topology is very well served by parts such as 1% Holco gold-tipped resistors, silver-clad internal wiring, hand-matching of complementary J-FETS, MOSFETS, and high-speed bipolar transistors, and even our own hand-fabricated AC cord. Each was chosen for its sonic contribution. Equally important are the parts we chose to omit, such as all coupling capacitors and output inductors.

The interesting thing about the Parasound HCA-2200 II (and many of our other models) is that, even if you paid much more, you’d probably get a heavier front panel, but you wouldn’t get John Curl’s design prowess, and you might not find such an abundance of high-current and premium parts, used where they count. At what price will you find another 60-lb power amp?

Speaking of cost comparisons, our market position is largely predicated upon the somewhat provocative proposition that Parasound is a unique mid-priced alternative to the very finest the High End offers. It’s gratifying when a topflight reviewer thinks enough of our products to even suggest comparison to the “big gun” monoblocks which retail in the stratospheric $12k range. (An upcoming comparison review in Germany rates our new DIAC-1500 DI/A converter as virtually identical to and in some ways better than a famous model whose price is nearly ten times higher.)

It more than validates our premise whenever Parasound units are deemed not only comparable, but in some ways superior, in such extreme comparisons. It feels great when our dedication and hard work are recognized by experts who are accustomed to the best audio products in the world.

Regarding several of Steve’s comments:

1) The gold binding posts haven’t been a problem for “civilians,” who tend to connect and disconnect their amps less often than reviewers. However, in my tradition of taking reviewer criticism to heart as a learning opportunity, I’ll look into this further.

2) Actually, despite its Brobdinigan power capability, the HCA-2200 II is quite suitable for the original Quad ESLs, as long as you don’t get carried away with levels. It’s pure class-A up to 7W—all about what you need for an ESL, virtually eliminating higher-order distortions which the Quad can reveal all too well. Unconditional stability (Quad ESLs are notorious for making amps unstable), its soft start, and multiple relay protection make it a tame and gentle giant. Occasionally, I set aside my Quad ESLs and haul out the two pairs of ESLs I’ve owned for 30 years and immerse myself in string quartets. I’ll never fear for my ESLs’ safety with my HCA-2200 II, as long as my 3½-year-old son can’t reach my preamp’s volume control.

3) I’m glad you reported on the bullet-proof, failsafe reliability of these amplifiers. We’ve prided ourselves on and put a lot of effort into giving somewhat greater consideration to consumers (and their precious speakers) than have some of the highest-priced brands. I guess our reputation is getting around; during the recent WCES, nearly a dozen speaker exhibitors made emergency requests for Parasound amplifiers to replace the very pricey “sacred cows” that failed them—sometimes more than once—in the course of this four-day Show.

Steve, thank you again for your positive and informative review, and thank you very much for purchasing your two Parasound HCA-2200 II review samples.

RICHARD SCHRAM
President, Parasound Products

MANLEY ON IMPEDANCE

Editor:

Specifically, I know and understand what he was seeking to achieve, and applaud his decision to use three types of actual loudspeakers as identified. Obviously, I also know that, in the interests of protecting the speakers, he elected to drive very low power into them. At this minus-

Holy Smoke! You folks sure know how to respond to a good review (JA on HeadRoom, Jan ’94 Stereophile). So, by way of thanks, we are going to continue our sale price on the HeadRoom Supreme and Sennheiser HD580II headphones.

This is the stuff JA mostly used during the review. We think it’s a great sounding combination, and so did he. The Supreme HeadRoom is normally $399, and the Sennheisers $349. Now you can get them both for $599. A KILLER PRICE!

We see it like this: We’re not making much on the headphones, but we’ll make a lot of people happy. And happy customers tell friends.

So . . . Get HeadRoom. Get happy. And tell a friend. (Don’tcha just hate this cornball marketing crap).

P.S. In case you haven’t seen our other ads, we’ve got a really cool 14 page White Paper on headphone psycho-acoustics, and a 24 page manual on HeadRoom free for the asking. Just Call.
cule 10mW level there is very little excitation of the dynamic characteristics (cone/voice-coil excursion in the magnetic field) and, perhaps worse, the loudspeaker could act microphonically to include some of the ambient noises in the test room in the readout. I do concede that some of the complex interactions between these very sensitive elements would show up, but with the possible aberrations earlier noted.

Perhaps I would suit better, since 1W at 1m is already in use in loudspeaker measuring standards. Better yet, perhaps Stereophile could make up some "test loads" from non-inductive resistors combined with some L (inductance) and some C (capacitance) to represent some known characteristics of two or three types of loudspeakers in common usage.

While on the subject of taking measurements at low power, I wonder why 1W is used by the Stereophile measurement team in squarewave charts as a matter of course? And mark you, some of the squarewave and frequency-response curves, even at 1W, that have been published look absolutely horrible, smacking of really poor design. Is it, by any chance, that you do not want to "make life harder" for the designers/manufacturers, so you give them a break and test at 1W? See, without any slander to Stereophile's excellent work and ongoing progress, I feel that these 1W tests start to take on the valuelessness of the infamous Japanese solid-state specifications of the late '70s/early '80s... completely worthless numbers like "0.00005% distortion" in bold type with a little disqualifier ("...at 500mW") in type set by the guy who engraved the Lord's Prayer on a pinhead!

Would not power bandwidth be more interesting and revealing? Or how about squarewave and frequency response at 1W and at two-thirds rated output? (A very fair measurement point you refer to in solid-state amplifier tests.) For it is so that an amplifier can show a good squarewave at half or two-thirds power, and a poor one at 1W (and vice versa).

There are even headphones out there that need more than 1W, power-wise: a would-be buyer would glean very little from the 1W test, since this is so far removed from his/her needs in real life, even with 100DB-efficient loudspeakers.

Does anybody agree with me on this?

DAVID MANLEY
Manley Laboratories

MANLEY ON VTL
Editor:
At the Winter CES in Las Vegas in January '94, Ken Kessler was heard in the corridors: "If I live to be 62 (!), I'll never understand the Manleys...!" (David and Luke, father and son.)

The simple fact (which is really not all that hard to understand) is that Manley products and VTL products have each had their own rooms at Las Vegas for years...

However, it is also true that David and Luke decided to put each brand name into its own-entity corporation for reasons of overlapping markets and self-determining management policies. The changeover has been very smoothly achieved: David and Eve Anna Manley moved the Manley Laboratories section into a new 11,000ft2 building (13880 Magnolia Ave., Chino, CA 91710, (909) 627-4256, fax (909) 628-2482), while VTL remained in the Murrieta Street premises.

The Manley Labs building houses a full engineering/management facility where the specially milled panels and other custom work are done for both corporations/brands.

David Manley continues to design and consult for VTL while also running his own Manley brand, which is active in both audiophile electronics and equipment for the recording studio and industrial applications.

VTL is jointly run by Luke Manley and his partner Eric Abraham, a skilled professional greatly experienced in vacuum-tube electronics. VTL is making a stronger and deeper penetration into the US audiophile market by gaining more and better-qualified new dealers.

The whole arrangement has been achieved with the utmost mutual cooperation and smooth changeover of modus operandi. VTL's administration and sales offices are in Mountain View, California (phone/fax: (415) 941-0712 and (415) 949-4005), with their factory at 4774 Murrieta St., Suite 9, Chino, CA 91710.

DAVID MANLEY
Manley Laboratories

ULTRA SYSTEMS & THE CABLE COMPANY
Editor:
In the bigger, better, new January Stereophile there was an error which I would like to correct. In JA's report on Switzerland and Austria (p.41), it is noted that the fabulous Audio Synthesis products from England are also distributed in the US by The Cable Company. In fact, our affiliate, Ultra Systems, is the North American distributor for these products.

For clarification: The Cable Company is the world's largest retailer of specialty audio cables, and offers home trials to US consumers of most cable brands. Other product niches include vacuum tubes, power-line conditioners, and resonance-control panels.

Ultra Systems is a network of high-end audio showrooms focusing on matched music systems, especially the "tuneable" components from Michael Green Designs which, along with the related RoomTune devices and a few other products such as Audio Synthesis, are also distributed by Ultra Systems on a wholesale basis.

Simple! ROBERT STEIN
The Cable Company, Point Pleasant, PA

ULTRA SYSTEMS & THE CABLE COMPANY

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The Final Word

"This is the most successful Consumer Electronics Show I've ever been to," I said to Gary Shapiro, head of the Electronic Industries Association's Consumer Electronics Group—the people who put on two CESes every year. This past January's CES was phenomenally successful. CES solved the problems of the Sahara hotel this time around (last year the hotel's electricity, overstressed by the large number of exhibitors, hourly stopped working throughout two Show days). The remodeled and expanded Convention Center was fully operational and convenient to get around, and the Mirage Hotel had more room exhibits than ever—which meant that you could actually listen to how good things were sounding.

Most of all, attendees and exhibitors alike were relentlessly upbeat. There's a tendency for the Winter Show to be upbeat simply because the retailers have just gone through their always-successful Christmas selling season. This was different. Maybe it was Clinton's success with NAFTA. Maybe it was the 5.7% annual growth rate the economy experienced in the fourth quarter of 1993. Maybe it was the uniformly positive economic indicators predicting an excellent first half of 1994. Maybe it was the 23 points the consumer confidence index had shot up since October.

Whatever it was, retailers and manufacturers at the CES were expecting a great 1994, even with foreign markets in considerable doldrums. Stereophile's biannual CES party was mobbed, with attendance 50% higher than expected. (My apologies to those who never got to try our food, or my hand-selected wines—both of which disappeared two-thirds of the way through the party.)

CES deserves a lot of credit. They've worked hard to give everyone what they need in the way of an excellent trade show, and have particularly worked hard with the High End. Even though the Sahara is the armpit of Las Vegas (I once found a millipede and a cockroach in my room there), CES made the best of a bad deal with good organization and staffing, plus a battery of generators to supply extra power. One exhibitor told me this extra power was of better quality than the hotel's own (verified by audition, of course).

I gained some insight into the problems CES faces with this show when I tried on my own to find a better hotel for the High End. I was staying in one of several Las Vegas hotels excellently equipped for show purposes, so I talked to their Director of Sales. It turns out that two things keep hotels from bidding for high-end business: 1) virtually all good hotels manage 100% occupancy during CES anyway, so there's no additional room revenue to be had by hosting high-end; and 2) hotels are loath to fill rooms with hi-fi exhibits (which don't gamble) when those rooms could just as easily be occupied by guests (who do). The first reason had been self-evident, but I'd never have picked up on the second. Guess it's all a matter of perspective.

Of the Show's many product highlights—and April's issue will describe most of them—the one I found most interesting was the introduction of one terrific speaker each by two of Infinity's founders on this, Infinity's 25th anniversary. Of course, only one of these, Gary Christie's Epsilon, carried an Infinity label. The other, Arnie Nudell's Genesis Two, actually looks a lot more like Infinity's past speakers. I heard each speaker demoed really well, the Epsilon sounding better than any I've heard from Infinity, and the Genesis Two performing at a higher level—perhaps because of the much better room—than I'd heard from the Genesis One, which created a fair-sized stir at last summer's CES. One big difference: The Epsilon costs about $12,000, the Genesis Two $27,000. I understand that we will receive review samples of each over the next three months.

After Stereophile's new size, the second most frequently discussed subject at CES was everyone's plans for the upcoming Summer CES, scheduled for June 23–25. Although most exhibitors who showed up last summer found it an excellent show, there have been numerous surveys showing widespread dissatisfaction with two shows a year, with Chicago as a show site, and with SCES in general. My belief is that many who say they won't be there will end up going, but I've said that every year; this could turn out to be the year I'm wrong. Stereophile will definitely be there, editorially and exhibitionarily; we believe the High End benefits from two shows.

Speaking of Infinity, they're part of Harman, whose Northridge headquarters are located right atop the epicenter of the recent LA earthquake. According to Infinity's Mike Detmer, the company officially got 100% back to work on February 3rd, the day I talked with him. The walls and roof of Infinity's Chatsworth building remained intact throughout the quake and the numerous aftershocks—still continuing 17 days later—but many structural members were damaged, including the main roof supporting beam, and there was a lot of damage to the building's interior. Most Infinity inventory is housed much farther east, in Rancho Cucamonga, so product shipment has continued. But business communication has been disrupted, and it will undoubtedly be a while before everything is back to normal. Mike said that Chairman Sidney Harman's commitment to employee safety has been impressive, and Infinity President Henry Suert's involvement in plant repair downright inspirational. Our best wishes go out to everyone affected by this natural, and unfortunately inevitable, disaster.

Finally, with respect to the delivery problems many of you have experienced with the new—size, un-polybagged Stereophile: Our printer has come up with a far superior delivery method to the USPS which involves shrinkwrapping bundles of magazines organized by zipcode once they've been addressed. Our initial experience with the February issue is that complaints are way down compared with January. If you received a damaged January, February, or March issue, please call (800) 334-8152 to receive a replacement. Stereophile is committed to delivering a high-quality magazine into your hands with the smallest possible amount of environmental damage.

Larry Aldridge

CES has worked hard to give everyone what they need in the way of an excellent trade show.
"A rich and eloquent sound leads the listener into the world of music and now define a new high point in the replay of Compact discs."

...Keizo Yamanaka, Stereo Sound, Japan

"The richness of tone, the precise clarity, the authenticity of the stereo presentation, and so on -- in all of these areas the Wadias set the sonic standard."

...Joachim Pfeisser, HFi Exclusiv, Germany

"Wadia has recreated the natural sound of live music, in a way that continues to elude other manufacturers of digital audio equipment."

...Yoshihiro Asanuma, Stereo Sound, Japan

"The very pinnacle of the digital component world, destined to remain there for a very long time."

...Tony De Marchi, AudioREVIEW, Italy

"Even for a hardened critic, the transparency when direct-coupled to the power amplifiers was breathtaking, instantly recognizable as a closer approach to the real thing."

...Martin Colloms, HIFI News & Record Review, England

"The quintessence of digital audio, the dream which has become reality, the absolute reference point."

...Roberto Lucchesi, AudioREVIEW, Italy
Which scares you more, a horror film with the sound turned off, or a horror show on the radio? The answer is easy because it is the movie's soundtrack which carries the pathos and emotion. You can enjoy sound without pictures, but who wants pictures without sound?

It’s What You Don’t See That Counts.

It just so happens that cables are the part of your system which can help or hurt the performance the most... and for the least money. Whether you have two-channel stereo or multi-channel stereo, you have to have cables. You can’t completely fix a bad system with good cables, but you can seriously degrade a good system with badly designed cables.

You won’t see the cables and you won’t see the sound - but you will experience the difference!

AudioQuest offers a full range of cables, but the biggest improvement you’ll hear is going from big fat stranded cable to the least expensive cables from AudioQuest. For the complete story, please call or write for our Cable Design booklet - or better yet, visit an AudioQuest dealer and listen for yourself.