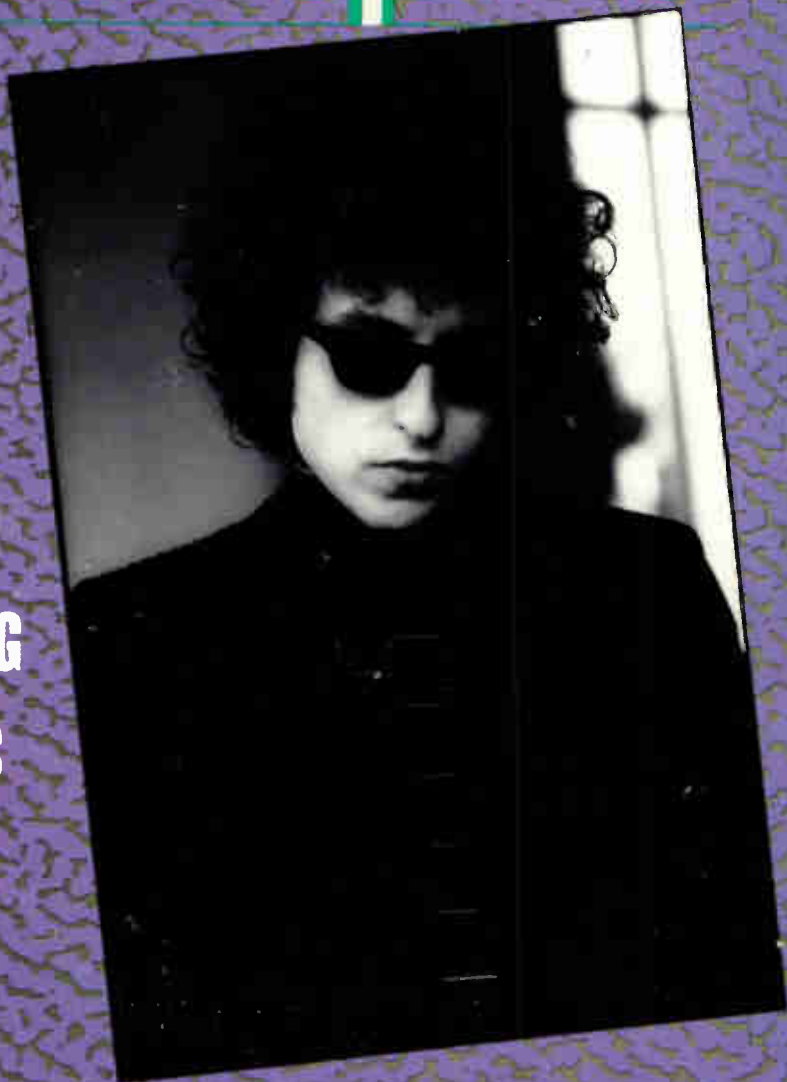


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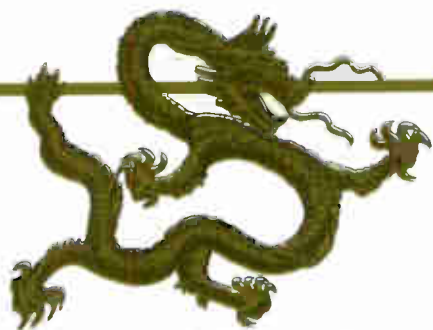


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07





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# Stereophile

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## COMING ATTRACTIONS

He lives in a state of audio innocence, never having been to a Consumer Electronics Show before. He likes to play Elvis instead of Elgar. He believes that the purpose of high-end components is to create a more musical sound in his home. (Can you believe *that*?) But in June, we tried to change all that: we sent him to Chicago! Did he survive the flight? Is he still an audiophile? Could he resist the live-music lure of the blues clubs? Is he a changed person since experiencing the commercial reality of the "Zoo"? Yes, the main feature in our August issue will be a full report on the June CES from Corey Greenberg.

The murkiness of the official *Stereophile* crystal ball precludes a detailed description of next month's equipment in review; instead, I'll list everything that our team of reviewers is currently auditioning, and add the assurance that August's equipment reports will definitely be drawn from this list:

Preamplifiers: Counterpoint SA-5000, Krell KBI., YBA 2, Coda, Conrad-Johnson PV11, Mark

## Where to call:

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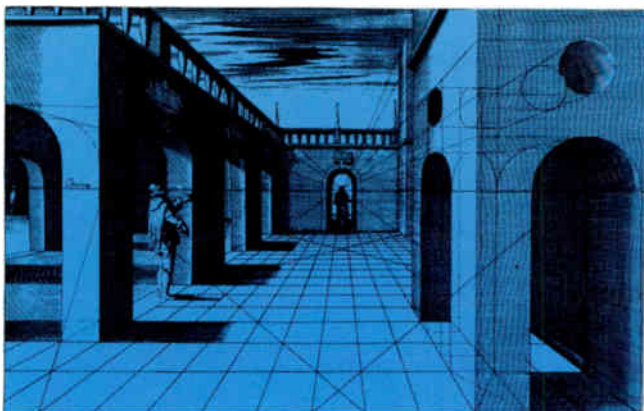
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Levinson No.28, and Jeff Rowland Design Group Consummate. Power amplifiers: ARC Classic 120, Forté Model 4, Boulder 500AE, Goldmund Mimesis 8, Krell KSA-250 & MD-500, Mark Levinson No.23.5, Jeff Rowland Design Group Model 5, Classé 25, Jadis Defy 7, YBA 2, and VTL 225 & 160, Nestorovic Type 1, Valve Amplification Company, and Berning EA-101 tube monoblocks. Loudspeakers: Meridian D6000, Acoustat Spectra 1100, Monitor Audio Studio 15, Magnepan MG2.6/R, Westlake BBM6, Acoustic Energy AE3, Vieta Pro-5 Prestige, and JM Lab Micron (as well as the Phase Technology PC-90 subwoofer). Analog source components: Oracle Delphi IV turntable; Ortofon, Ikeda, Clavis, Kiseki, and Koetsu cartridges. Digital source components: Krell MD-1 and SBP-64X, Stax DAC-Talent, and the budget-priced Audio Alchemy DAC.

And don't forget, *Stereophile's* second recording, featuring Robert Silverman performing Brahms piano works, is now available on CD. See the advertisement on p.67 for details on how to order.

—John Atkinson





## JUST WHAT IS HIGH END?

ROBERT HARLEY

A man who had just looked through his very first *Stereophile*—April's "Recommended Components" issue picked up at a newsstand—recently called to ask my advice on a certain inexpensive CD player made by a large mid-fi company. I told him I hadn't auditioned the player and thus couldn't comment on its worth. The man then proceeded to read me the player's specifications, finally informing me that the player "had the new I-bit thing"—all in the belief that I could make a recommendation based on what he'd just told me. He apparently had been conditioned to believe that not only was "the I-bit thing" superior, but that choosing a CD player was merely a matter of evaluating technical specs.

I suggested he read Lewis Lipnick's review and my Follow-Up of the similarly priced (\$400) Rotel RCD-855, as well as audition both units himself with his favorite music. After asking a few questions about the RCD-855, he seemed a little uncomfortable with this suggestion: Why should he spend the same amount of money for a machine that lacked the "latest"

technology (I-bit) and had fewer features? Not only that, but the RCD-855 was made by a company a fraction of the competing manufacturer's size, and presumably had far more modest development and manufacturing facilities. What could Rotel do that the international electronics giant couldn't? How could Rotel *possibly* make a better machine?

Within the context of a phone conversation in which the man wanted nothing more than a thumbs-up or thumbs-down on the I-bit machine, I found myself attempting to explain to him—with missionary zeal—nothing less than the entire high-end audio credo.

We'll come back to our fledgling audiophile, but let's cut to Atlanta, Georgia a few weeks later at the first general meeting of the newly formed Academy for the Advancement of High End Audio (AAHEA). During the meeting, someone suggested that we define the term "high end." Since the association's goal is the advancement and promotion of "high-end" audio, defining "high end" would seem like a logical—and very simple—task.

After about one minute of bandying about

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The Mark Levinson N°28 Preampfier is at once a continuation of the Mark Levinson traditions of musicality and enduring quality, and an entirely new implementation of technology that will set the pace for innovation in high-performance audio in the 1990's.

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Your local Mark Levinson Dealer can provide complete details on these and many other refinements in the design of the N°28.

More important, you can hear for yourself how this preamplifier tips the balance in your favor.



mark  
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various definitions of high end, it was apparent that the question "What is high end?" was more complex than anyone realized. Although the members' suggestions embodied some aspects of what makes some audio components high-end and other not, there was no definitive statement as to what high end really was. Short on time, the meeting moved on to more pressing topics. After I returned home, however, the question nagged.

What *is* high end?

We all know what it is, but a concise definition is elusive. I discovered this when I tried to explain—in 30 seconds or less—what high end was all about to the potential purchaser of the 1-bit machine. It's easy to describe some aspect of high end without really summing it up entirely. I could throw out a list of company names and most of us would agree, with surprising unanimity, which companies made high-end products and which didn't.

Since we all know high end when we see it, an important distinction is whether high-end components are *incrementally* better than mass-market products, or if they are *qualitatively* different. If they're better by degree, where does one draw the line beyond which a product can be called high-end? If high-end products are fundamentally different, *how* are they different? These questions parallel the debate over human intelligence. Some have argued that human intelligence is the same as primate intelligence; we have language, art, science, and civilization because we simply have *more* intelligence. Other argue that humans have a unique and special form of intelligence that bears little relationship to animal thought processes. Is high-end audio merely improved mid-fi, or is there something unique and special about high-end products?

I propose that high-end audio products are fundamentally different from mid-fi products—not only in their physical, electrical, and musical characteristics, but, more importantly, in the relationships they share with their designers and users. From genesis to application, a high-end product bears little similarity to a mass-market component.

What distinguishes a high-end from a mass-market product is the designer's caring attitude toward music. The high-end component is a physical manifestation of a deeply felt concern about how well music is reproduced and enjoyed by the listener.

The high-end designer builds products *he* would want to listen to himself. His superficial goal is to design a product that conveys the music the best way he knows how. His real and unstated goal is to build a product that creates the same kind of relationship between the user and his music as the designer enjoys with *his* music. Because the high-end designer cares about music, it matters to him how a faceless listener he will never meet, perhaps thousands of miles away, experiences the joy of music. The greater the listener's involvement, the better he's done his job.

To the high-end designer, electronic or mechanical design isn't merely a technical undertaking—it's an act of love and devotion. Every possible design aspect, technical and musical, is examined in a way that would surprise an engineer not accustomed to such commitment. The ethos of music-reproduction equipment design goes to the core of his being; it's not a job he merely shows up for every day.

Robert Pirsig expressed these ideas so well in *Zen and the Art of Motorcycle Maintenance* when he said, "Care and Quality are internal and external aspects of the same thing." Be-

**W**hat distinguishes a high-end from a mass-market product is the designer's caring attitude toward music.

**T**he high-end designer builds products *he* would want to listen to himself.

**"C**are and Quality are internal and external aspects of the same thing."



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cause the high-end designer cares, his products have more quality—or, in audiophile-speak, are more musical.

What high-end products do that mass-market products mainly do not is to produce a powerful intimacy with the music. The mediocre product never passes the threshold from good sound to creating magic in the listening room. Why not? Because in their development, the designers didn't listen, tweak the design, and listen some more. Other projects needed their attention. The circuit measured well, sounded acceptable—why beat it to death? The mid-fi designer may enjoy music, but he lacks the obsession that drives the high-end designer to push the limits of performance just a little further!

**The mediocre product never passes the threshold from good sound to creating magic in the listening room.**

Conversely, the caring designer continues his quest until he is absolutely sure that no more improvements can be made. His mind is at peace only when the product satisfies his high expectations of how it should convey the music. At the last stage, he will often include an expensive part that adds to the raw materials cost, even though he knows the retail price won't increase. The additional cost will come off the bottom line, but the designer can't bear to think of the product performing below its potential. He knows how much better the music will sound to dozens, hundreds, or even thousands of music lovers. And that matters to him.

At the Atlanta AAHEA meeting, I looked around to see a room packed with this type of designer, a veritable *Who's Who* of high-end audio. As I considered the sheer amount of design talent in one room at the same time, I felt a wave of gratitude toward all high-end audio designers. They are people who had a vision—that they could make products that furthered the art and science of reproducing music. Because there are people in this world who care so deeply about music, I and thou-

1 This is not to say dedication alone will produce a truly high-end product. Technically brilliant and musically sensitive designers sometimes fail in their efforts to produce musical components.

sands of other audiophiles and music lovers experience far greater joy when the lights dim and the record starts. Our lives are enriched immeasurably by their talents and devotion.

**High-end audio designers are people who had a vision.**

To understand the impact of a relatively few individuals on our enjoyment of music, imagine a world in which we had no choice except to have our favorite music subject to products designed by people who consider an audio system just another household appliance.

High end isn't a prestigious brand name, or the type of store in which it is sold, or cost, or faceplate thickness, or a positive review. It is the relationship between the designer and his product—a relationship that produces a similar relationship between the user and the product. High end can be an inexpensive product, provided that the designer's goal was to best convey the music. Indeed, a modestly-priced product that squeezes from the parts cost is more high-end than an elaborate design that isn't fully realized. Again, the difference is in the designer's attitude: how much he cares about music determines how good the product is within the cost limitations. These qualities can exist within an individual designer in a mid-fi company; we wouldn't call the resulting product high-end, but maybe it will be a little less mid-fi.

**High end isn't a prestigious brand name, or the type of store in which it is sold, or cost, or faceplate thickness, or a positive review.**

The antithesis of high end is the designer who purposefully makes a product—such as an inexpensive loudspeaker—that will impress during a brief showroom demo, knowing full well that it will disappoint musically in the home. Similarly, the mid-fi ethic may call for making the component look good on paper, without regard to how it sounds. Another technique, anathema to the high end, is overly com-

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 P R O C E E D

promising a design. Rather than use a better part that makes the product far more musically satisfying but slightly increases the retail price, the designer cuts corners and compromises musicality to meet a "price point" determined by the marketing department. All designers must be price-conscious, but this last technique is definitely not part of the high-end ethos.

Many of these observations apply to high-end dealers as well as designers. The true high-end dealer will put his customer's musical satisfaction ahead of this month's bottom line. He is a professional who uses his skill to select a combination of components he would want to listen to himself—at any budget. The most savvy dealers know that if they provide a musically satisfying experience, the customer will be hooked and keep coming back for more over the years.

## The true high-end dealer will put his customer's musical satisfaction ahead of this month's bottom line.

The term "musicality"—often associated with high-end components—bears discussion. The word has become a lightning rod for criticism by audio "objectivists" and the mainstream press because they erroneously believe that musicality implies some sort of euphonic coloration. Moreover, musicality can't be measured, quantified, or communicated by linear symbols, thus making its existence questionable to some who haven't experienced it.<sup>2</sup>

But is musicality intrinsic to some products and not others, or is it something else?

Musicality, which every high-end designer strives for in his product, is more than "something" which some products have and others don't. Musicality is an *event*—a dynamic, flowing experience—not a static condition that exists in greater "quantity" in some products. Musicality is the relationship between music and listener—how deeply involved the listener

becomes in the music, with the playback system serving as the intermediary. It is the abandonment of all thought except the music's meaning.<sup>3</sup>

Because musicality is an event that depends to a large degree on the subjective perception of it, Western scientific dogma regards it with suspicion. Our subject/object duality provides no intellectual mechanism for understanding an entity that exists in the immediate, dynamic relationship *between* subject (the listener) and object (the audio component) and is intrinsic to neither.

I am reminded of an exchange with a friend who fancied himself a comedian and was always making me laugh. I said to him, "Bruce, you have a great sense of humor." He replied without hesitation "No, *you* have a great sense of humor—for recognizing what's funny."

Musicality is like that. It exists because someone perceives it. Those who believe that the idea of musicality in audio components is a myth are right—it doesn't exist for them. But for those to whom music is a vital part of their existence, musicality is *very* real.

To some, this view would suggest that musicality is "merely" subjective, an invention of the mind and thus not a real physical phenomenon. This argument would also assert that, because this experience is dependent on many factors—music, mood, environment, and an individual's ability to lock into this form of consciousness—one audio component cannot be more "musical" than another.

In my experience as a reviewer, I have found that the ability to achieve this intimacy with the music is highly dependent on the components in the system. Some products readily facilitate this experience; others seem to do their best to prevent it. When day after day, mood after mood, music after music, I am drawn inexorably into the music and not the playback system, this is the surest indicator that a product is "musical." With other components, the magic never happens despite the presence of many other conditions that one would expect would encourage this optimal experience.

The high end fundamentally differs from mass-produced components because it recognizes that musicality exists and strives to make

<sup>2</sup> The need for actual experience rather than a *description* of the experience was expressed so well during a "60 Minutes" segment in which Mike Wallace asked Count Basic, "What would you tell us about your music? How would you characterize it?" The Count looked at him with that round smiling face and said serenely, "Just pat your foot."

<sup>3</sup> This experience of total immersion is described in an excellent book called *Flow: The Psychology of Optimal Experience*. Author Mihaly Csikszentmihalyi has spent 25 years studying the "flow" experience in a variety of situations and activities. *Flow* is published by Harper Perennial.



## INNOVATIVE REFERENCE

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playback system. I recommend  
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who have had monumental  
difficulty coming to any terms  
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Neil Levenson  
Fanfare, Jan Feb 1990.

"...Kinergetics offers its purchaser  
more than a glimpse of what the  
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John Atkinson  
Stereophile Vol. 13, No. 1.

"A generation later, transistor  
designs by such companies as  
Levinson, Krell, and Threshold  
have gained my respect as being  
eminently musical despite their  
silicon hearts. To this list I can  
now add Kinergetics Research."

Dick Olsher  
Stereophile Vol. 13, No. 1.

"Kinergetics pulled off what I  
considered to be a near miracle.  
They successfully integrated a  
subwoofer with the twitchy  
Martin-Logan CLSes...  
the tonal balance through the  
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were tight and well-detailed"

Dick Olsher  
Stereophile Vol. 13, No. 3.

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it happen for listeners through their products. If a designer or retailer doesn't have the sensitivity to musicality and never experiences it, how can he wish it for his customers?

To the novice, like our 1-bit friend looking through a high end magazine for the first time,<sup>4</sup> it may at first appear that musicality and high-end audio are about soundstaging, image outlines, bloom, bass extension, lack of tonal coloration, and the like. In fact, high-end is about the *absence* of these qualities. For it is when we are oblivious to everything but the music that we feel the greatest musical joy. It is this lack of awareness of specifics that allows the *meaning* of the music to be felt most deeply.

I see a parallel between a high-end component's ability to convey the music's meaning and being fluent in several foreign languages.<sup>5</sup> If someone speaks and reads many languages,

<sup>4</sup> Incidentally, I later got a call from him after he found a *Roxel* dealer and decided to listen to the RCD 855. Recalling that I told him to let his ears be his guide, he asked me what music he should use to evaluate the two CD players. I still have hope for him.

<sup>5</sup> This example comes from Michael Polanyi's seminal book, *Personal Knowledge: Towards a Post-Critical Philosophy*. It has much to say about scientific objectivity, personal skills, and how we acquire and use knowledge. It is out of print, but can be found in some libraries and used book stores. *Personal Knowledge* is published by The University of Chicago Press.

he may read a letter, pass it to someone else, then realize the other person doesn't speak a language other than English. The multi-lingual person may suddenly be oblivious to what language the letter was written in, but is vividly aware of its meaning. The specifics—the words on the page—are completely transparent, but the content and meaning are vibrantly alive in consciousness.

Conversely, another person, barely able to read the foreign language, must concentrate his attention on the individual words, not the meaning. To him, the overall meaning is secondary to the specifics.

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# LETTERS

We regret that resources do not permit us to reply individually to letters, particularly those requesting advice about particular 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 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 address more than one topic.

## ***Stereophile* the best?**

Editor:

After almost three decades of interest in music reproduction in the home and a collection of hi-fi magazines dating back to the '60s, I must admit that the humor of *Stereophile* far exceeds them all! Descriptive terms such as droolish, comical, risible, buffoonery, or even Irish bull are woefully inadequate.

When I received the April 1991 issue with "Recommended Components" spelled in children's ABC blocks, I knew I was in for a feast of frivolity. *Wow!!!* Your sense of humor is so sardonic I had to check with my eyes wide open (no blind tests for me) to make certain yours was not a British publication.

The quality of wit and *jeu d'esprit* in your "Recommended Components" summations<sup>1</sup> is *par excellence*. I have laughed until my side hurts and have yet to make it all the way through. Every time I see the cover I have to stifle yet another guffaw.

So here's a tip of the hat to the best tongue-in-cheek humor I have ever encountered in any audio magazine. Keep up the good work. The world of high fidelity is already filled with too many highbrows and pundits who take themselves *so* seriously.

Meanwhile, it's time for more laughs, compliments of *Stereophile*. **Robert C. Oates**  
Brewton, AL

## **The best high-end magazine?**

Editor:

Some letter writers want you to stop reporting about the more expensive stuff (for example, Mr. Ed Helmig in the March issue). Please do not listen to those people! Of course there are also cheaper speakers, amps, and so on, which are worthy to be mentioned, but *Stereophile* is and should remain the best high-end magazine. Real high-end can never be cheap.

<sup>1</sup> I was contemplating the purchase of a turntable from your Class B recommendations, but my wife thought we should use the money to feed the children for the next two years instead. (Some sense of humor *she* has!)

Keep on doing the good work!

**Matthias Baumgarten**  
Forchheim, Bavaria

## **Keep up the good work!**

Editor:

As a recent subscriber, I must compliment you on the interesting range of articles. I had presumed that audio components were subject only to established laws of physics. I have been delighted to read the many articles in your publication dealing with psychic phenomena.

If you or some of the more interesting manufacturers you cover ever exhibit in my area, please let us know. I would be extremely interested in hearing the sonic differences some claim for such things as "single-file electron distribution." I seriously doubt my ears are capable of hearing "electron noise," but I would be very happy to try.

Keep up the good work. **Perry Kincy**  
Walnut Creek, CA

## **A thoroughly satisfying publication?**

Editor:

After receiving my first issue of *Stereophile*, I felt as if I had learned more from one issue than from three years' worth of two other so-called stereo magazines! (I need not divulge the names, since all audiophiles have read such things.) It is a very well done and thoroughly satisfying publication. . . .

I feel obligated to bring up the subject of these other magazines' feeble, boring evaluations, overbearing reviews, and sometimes incomprehensible articles. It is ironic that some periodicals test some rather expensive equipment, but supply very short, infinitely condensed evaluations. I cannot see how a person could make a logical decision on such an important investment based on their worn-through reviews and tiresome commentaries. Every test is described in the same lifeless, monotonous manner. Severe audio controversies are not addressed factually. And worse yet,

the readers are either unwilling or unable to provide any stimulating responses. . .

For others, it seems as if the analyses must occupy at least 20 pages and include every chart possible. I've found some pieces that have almost nothing to do with stereo and seem to be there only to fill the pages, one of them describing phonetics of the English language, of all things! It's fitting how you at *Stereophile* make your reviews either as short or as long as they need to be, and that you also print some negative reports. Most others are extremely mundane in this respect, seeming to praise most everything. It is also highly respectable how you print many test reports and letters and answer them honestly.

Maybe a changing of editors or perhaps personality adjustments would help these other magazines, but I fear they are too far gone. It is as if the writers of these types of magazines once had the passion for audio but have lost it and are looking only to hold down their jobs. The audio community needs more well-informed, skillfully written journals like *Stereophile*.

**Joe C. Waters**  
Klamath Falls, OR

## Pleasure & disgruntlement

Editor:

"What," my wife asked in her most perplexed tone, "could possibly have inspired you to write a letter to *Stereophile*?"

"A most pleasurable experience coupled with modest disgruntlement," I replied obtusely.

**The Pleasure:** The new *Intermezzo* LP is magnificent! I have now listened at least six times, and each time it almost brings tears. The dynamics. . . the ambience. . . the performance. . . the *sound!* My congratulations—and my thanks—to everyone associated with its production.

My counsel to anyone who has not yet ordered? Call, order *today*—you're missing something very special. Enough said.

**The Disgruntlement:** The review of products not yet on the market; specifically, the Lindsay-Geyer interconnects. In my view, full reviews are inappropriate until such time as a product is generally available to the public in a reproducible form.

*Stereophile* is great, and improving all the time. I hope we can look forward to more LPs of solo piano (my personal weakness), and many years of enjoyable reading. Best regards

(arf!) to Ralph.

**Fred W. Horne**  
San Jose, CA

*Thank you, Mr. Horne, for your kind comments on our Intermezzo LP. It was our intention not just to produce an "audiophile" disc, with sound but no substance, but to release a recording that scored highly on musical grounds. During Intermezzo's editing, I began to feel that my recording-session enthusiasm for Robert Silverman's performances of both the Brahms sonata and the Intermezzi had been justified. His playing is out of the ordinary, particularly in his risk-taking way with tempi, and I am gratified that the message seems to have been received. We plan to release a second recording of Mr. Silverman in 1992. Incidentally, if anyone has problems with the pressing of their Intermezzo LP, they should return the LP to Linda Pierce at Record Technologies Inc., 486 Dawson Drive, Camarillo, CA 93012-8090, in order to obtain a replacement.*

*Yes, I agree that products should not receive review coverage in *Stereophile* until their manufacturers have sufficiently wide US distribution that our readers can test our opinions for themselves. Our policy is that for a non-mail-order product to be formally reviewed, it must be available through at least five US dealers.<sup>2</sup> (For a mail-order product, the mail-order company must offer both a home trial period and a full, money-back guarantee if the customer is not satisfied.) Unfortunately, there always appears to be a small number of products that slip through the holes in this net, the Lindsay-Geyer cable being one of them. My apologies.* —JA

## Beth Jacques & the Posies

Editor:

I heartily disagree with Beth Jacques' recent review (Vol. 14 No. 4) of The Posies' *Dear 23*. I admit that the Nehru jacket on the cover is a bit too retro, but the music on the CD is excellent. Beth stated that this recording is a "mush-brained, unimaginative production, which takes everything across the board and turns it into aural glop the consistency of oatmeal."

<sup>2</sup> This number is subject to change according to the identities of the dealers involved: if a product is only available through three dealers, but those three are, for example, Lyric Hi-Fi in Manhattan, Christopher Hansen in Los Angeles, and The Audible Difference in Palo Alto, then an exception can obviously be justified.



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Maybe we didn't hear the same CD. I can hear decent stereo separation, great soundstage depth and width, and voices are recorded much better than on Steely Dan's classic *Aja* CD that Beth would presumably "die for" (Vol.14 No.1). I found the most captivating music that I have heard in years on the Posies CD (especially "Flood of Sunshine").

Furthermore, in a truly rare situation, this CD actually contains lyrics written above an eighth-grade reading level. (Is it any wonder that the name of one of the songwriters is Stringfellow?) Beth mentioned that The Posies "clearly stayed awake in English 201 (Poetry)." This is an understatement; apparently they also stayed awake in Literature 401 as well. In many ways, these lyrics surpass the literary quality of REM or 10,000 Maniacs, while keeping the cynicism and great melodies of early Supertramp. A quick perusal of *Dear 23*'s lyrics (included in the CD liner) indicates that neither Steely Dan's *Aja* nor Michael Jackson's *Thriller* (no, this is not a misprint, Beth would "die" for the "gloved one" as well) are lyrically comparable to The Posies' *Dear 23* from a literary standpoint. . . . Perhaps she really didn't listen to this CD. In fact, "My Big Mouth" was not the single released from *Dear 23* (at least in two big Ohio markets—Cleveland and Columbus); instead, "Golden Blunders" was released (this song is actually an interesting take-off on a Beatles song).

One of the reasons I felt compelled to write this comment is the relative paucity of good rock music these days. Album-oriented rock (AOR) stations tend to play older selections (over and over) without giving new acts much airplay. This has resulted in what I perceive to be a certain stagnation in the area of quality new rock music. Other rock enthusiasts must agree because, for the first time since 1962, no rock records hit #1 on the *Billboard* album chart in 1990 (the Beatles started the #1 string in 1963). Rap and easy-listening pop music are now what record companies are releasing in vast quantities, even though a recent nationwide poll mentioned on CNN found that less than 10% of radio listeners preferred rap. I buy around 40 new rock CDs a year (and I suspect that many other *Stereophile* readers do as well), and it is getting difficult to obtain quality acquisitions of new music.

The Posies' *Dear 23* CD represents one of the few new quality rock recordings, and I

think that this CD will become a classic progressive rock recording. For those of us who don't want to hear just a steady diet of late-'60s or early-'70s rock classics, or even worse, just heavy-metal, "glamor" groups, give us a break and don't eviscerate the few good pieces of new rock music that come along (Beth, please don't review REM's new recording). I hope that *Stereophile* will continue to review the type of music that Beth Jacques reviews. Of your best writers—John Atkinson, Richard Lehnert, and Sam Tellig—Beth resembles a vitriolic Tellig. In short, Beth, you are a decent writer; however, I'm not at all convinced that you have yet achieved the same sensitivity to musical fidelity as have your aforementioned colleagues.

**Phil Allen**

Rocky River, OH

## **Windham Hill, Butler, & Poses**

Editor:

In laying waste to Henry Butler's *Orleans Inspiration* album in April (p.271), critic Jon W. Poses augments his musical assessment with assumptions so clearly off the mark that his critique begs a rebuttal.

First, Poses resents our "audacity" in releasing an album shaped by blues and r&b influences on Windham Hill Jazz. Yet there is a long tradition of "jazz" record labels, with rosters and repertoires rooted in jazz, naturally accepting blues and blues variants as musically valid complements to their jazz releases. A partial list would include Blue Note, Prestige, Riverside, and Fantasy, as well as the jazz divisions of numerous major labels.

Such was the reasoning after we approached Henry Butler. Contrary to Poses's cynical and demeaning assertion that the record company "act[ed] selfishly, convincing one of its artists to record material that serves it rather than the performer," the musical direction on this project was entirely dictated by the artist, who served as producer for that reason. Although we were first attracted to Butler by his jazz piano recordings, we understood from his live performances that his music has long canvassed blues, r&b, gospel, and pop sources as well; thus, we tabled our request for an album of acoustic jazz ensemble performances in favor of Butler's proposed r&b homage.

That your critic perceives this project as a short-term sellout betrays Poses's lack of knowledge about Butler in particular, as well as an



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unfortunate cultural elitism about rhythm & blues in general. Had he ever seen the artist live, he would recognize that Butler's jazz voice has evolved from his earlier r&b and gospel experiences, not vice versa; if Poses had an affinity for classic r&b, he might at least grasp the regional integrity of this project, if not its execution.

This same misperception also points up Poses's lack of understanding with respect to "commercialism" in music. The conventional wisdom at a record label would have been to pressure Henry Butler to stay within the jazz market, where he has an established audience, rather than stray into an area which is, by contrast, far more mercurial. The radio prospects for a recording such as this, steeped as it is in more traditional blues and r&b accents, are far slimmer than those for a mainstream jazz work, something Poses obviously misses altogether. That said, we still committed to the project, because we believe in the artist, and we sought to clarify the project's distance from Butler's earlier work through liner commentary identifying the work's musical purpose.

As a former critic, I have an obligation to defend Poses's right to an opinion. As a former journalist, however, I can also challenge his right to pass off mean-spirited presumption and naïve condescension as fact, particularly when Poses had ample time and opportunity to test his prejudices against available fact. Your readers have received a much higher level of accuracy and professionalism in the past, and it's unfortunate they were so poorly served in this instance.

**Sam Sutherland**

Director, Windham Hill Jazz

## **Stravinsky & Boulez**

Editor:

Robert Hesson's review of Simon Rattle's version of Stravinsky's *Le Sacre du Printemps*, in the February 1991 issue of *Stereophile* (p.197), stated that Pierre Boulez's version was not available on CD.

However, Schwann's *Opus* for Spring 1991, p.435, lists just such a CD as Adès-OR 13.222-2. Adès-OR CDs are distributed by Harmonia Mundi USA, 3364 South Robertson Boulevard, Los Angeles, CA 90034, tel: (213) 559-0342.

**Eugene Hoffman**  
Brooklyn, NY

*Mundi no longer distributes Adès in the US, and Adès has yet to be picked up by another company. The Boulez Sacre is thus not now in print in this country.* —RL

## **Lehnert, Wagner, Hunt, & Karajan**

Editor:

I enjoyed Richard Lehnert's review of Herbert von Karajan's live recordings of Wagner's *Ring* cycle (May 1991, p.176). I agree with most of what he has to say, but would like to raise a few questions.

First, I remember taping Salzburg broadcasts of *Das Rheingold* in 1969 and *Siegfried* in 1970. I do not have these tapes anymore because the radio station broadcasting them had more multipath distortion and other interference than music. Therefore, is it possible that these performances on Hunt are of broadcasts, rather than recorded by "an anonymous enthusiast"? If these are the broadcasts, why is the sound so terrible? Other contemporary Salzburg broadcasts that I have taped are in reasonably good sound. Are there better sources of these performances available?

Second, if memory serves me correctly, the DG recordings were not recorded at "virtually the same time" as the Salzburg performances. It was von Karajan's practice to tape the commercial recording prior to the staged performances. The singers would be given tapes so that they could rehearse with the tapes while they fulfilled other singing engagements and would arrive at the stage rehearsals fully prepared. At the stage rehearsals, the recording would be played so that the singers' voices could be saved and they could concentrate on the staging. In essence, many of von Karajan's recorded performances were rehearsal tapes for the stage performances and DG was subsidizing the cost of rehearsal time. It is also why the stage performances seem more vital than the commercial recordings.

Third, there is another edition of these recordings on the Memories label. The timings appear to be longer than the Hunt timings, and require more CDs. Are there cuts in the Hunt? Is the Hunt tape speed too fast? Is the Memories tape speed too slow? Which has better sound?

**Dov Z. Grant, M.D.**  
New York, NY

*At the time of writing (May 1991), Harmonia*

*By "virtually the same time" I meant "within*



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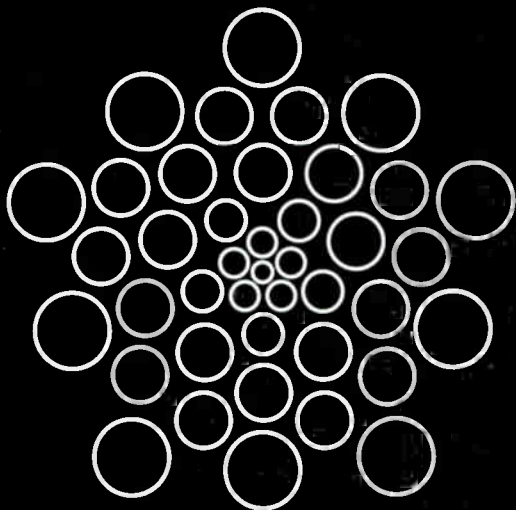
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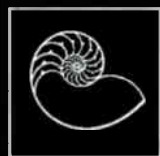
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a year or so." Sorry about the temporal vagueness. I'm not familiar with the Memories Ring, but will be on the lookout for it. And as Hunt includes no technical credits in their minimal booklet, the recordists, enthuasiastic or no, remain anonymous. —RL

## Tom & the Chesky trumpet

Editor:

Audiophiles are frequently chastised for paying too much attention to hardware (equipment) and not enough attention to software (music). A major "hardware publication" like *Stereophile* should therefore cautiously try to bridge the potential gap, if it exists, between "audiophiles" and so-called "music lovers." (I don't know that there really exists a dichotomy here.)

It was with alarm, then, that I read Tom Norton's review of the Mark Levinson No.29 in the April 1991 issue. On p.168 Mr. Norton refers to the Chesky recording *Amazonia*, by Ana Caram: "One might argue with Ana Caram's intonation. Frankly, though I'm usually driven up the wall by off-pitch singers, it didn't bother me at all on this recording until GL pointed it out to me—probably because I was concentrating more on the style."

Later in the same paragraph Mr. Norton says: "At 1:14 into 'Antonio's Song' the voice is doubled by a softly played trumpet—which had not been obvious to me before."

I suggest that Mr. Norton try to listen more carefully to "Antonio's Song." There is no trumpet playing in this melody; in fact, there is no trumpet playing on the whole CD. What Mr. Norton should have heard is a *flute*!

It is amazing that Mr. Norton, in his capacity of Technical Editor of *Stereophile*, shows such poor judgment as to criticize an artist's ability to carry a tune when he himself cannot even hear the difference between a trumpet and a flute! And we are supposed to trust his technical writings?

Either 1) the No.29 distorted the tonal balance of this recording in a massive way, 2) Mr. Norton's system severely lacks in areas of resolution and/or tonal accuracy, or 3) Mr. Norton's hearing abilities can be seriously questioned.

Which is it? Perhaps it was an error by the typesetter? Hmm!

**Fred Larsen**  
New York

alized in print. I won't blame the typesetter—or the system—for this one. What more can I say, except that I should have read the liner notes—which show no trumpet in attendance!—more carefully. Let me reassure Mr. Larsen (who may be a wounded Ana Caram fan) that I do know the difference between a trumpet and a flute. But when the flute on this particular cut is played directly behind the voice, note for note, and is partially masked by that voice, what I initially heard was a sound which reminded me of a softly played, muted trumpet. It is possible to play a flute in a trumpet-like fashion—up to a point—emphasizing the leading edge of each note. But when the flute is played solo, on this same cut, it is clearly a flute. Still, when all is said and done, my one-word response can't really be anything other than, "Oops!"

I do hope that Mr. Larsen, and other readers as well, realize that the recordings we refer to in our reviews are only a fraction of those we audition before arriving at our conclusions.

Incidentally, when I called Chesky Records to discuss this matter with them, they pointed out an interesting additional fact concerning this recording. You'll notice on this same cut that the piano sounds rather odd—a kind of a "bizzy" quality. It's because the pianist is softly whistling along with it. This was a deliberate musical decision to create a unique sound, not an absent-minded reflex of the pianist.

—TJN

## The right thing to do?

Editor:

What a waste of paper. I ordered *Stereophile* to get away from *Stereo Review* and the other highly commercialized magazines that tell me to buy something for \$1000 because their computers say that it sounds good. But all your magazine did was tell me that my CD collection doesn't have any feeling and I should spend \$1000 on something because your ears say it sounds good. I've canceled my subscription to both. Now when I want to buy something, I'll go to the hi-fi stores and test things until I find something that I like and I'll live with it.

**Nate Reilly**  
Williamsburg, VA

## What a piece of work!

Editor:

Sam Tellig, what a piece of work! The wit and

*Now I know what Sam Tellig meant by a "disastrous demonstration" (Vol.14 No.3). Immor-*

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Larry Greenhill  
Stereophile, Vol. 12. No. 10. Oct. 1989

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sense of humor the man possesses are astounding. The way he tortured his friend Lars over the purchase of the Krell KSA-80—you remember, “buy a Krell, buy a Rowland, buy a Levinson.” Then, after the purchase of the Krell was made—“too bad you bought the Krell when the B&K sounds better and is so much less expensive.” The list continues with “well wire,” “Lunar cable,” and other wonderful pranks. All the time Sam’s trying to cause trouble by hyping one product, then doing a 180 and hyping another product, to the chagrin of his “comrades.”

Then, as I read the recent review of the Adcom monoblocks, it struck me: That devilish Sam is pulling the same jokes on the good people at *Stereophile* and on the magazine’s readers. Think about it. With regard to power amplifiers, first we like tubes, now we like transistors; we’ve heard raves of the B&K ST-140, the Electrocompaniet AW-100, the B&K M-200 Sonatas, and most recently the Adcom GFA-565s. On speakers, we’ve been favored with the Monitor Audio 952, the Epos ES14, the Quad ESL-63, the Thiel CS1.2, the Spica Angelus, and now the Spondor S100. However, the most amusing aspect of this entire scenario is how Sam maligns the Brass Ear for switching equipment, seemingly on a whim. Sam, people who live in glass houses . . .

On a more serious note, it needs to be pointed out that the fickle behavior exhibited by Mr. Tellig is, in part, the reason for the lack of credibility of the underground and semi-underground audio press among potential audio consumers. (This topic was alluded to in Peter Mitchell’s excellent article, “A Question of Scale,” in Vol.13 No.9.)

*Stereophile* has, on more than one occasion, mentioned the poor state of the high-end audio industry. Is *Stereophile* ready to face the fact that it is partially to blame? One reason is the apparent fickleness of the reviewers, as illustrated above. During visits to my local specialty audio dealers it is not all that uncommon to overhear budding audiophiles (meaning potential high-end consumers) make remarks to the effect that they are not willing to buy or trade up as this or that component, though touted this month, will fall from grace next month, or is no longer on the “Recommended Components” list.

This will continue until *Stereophile* sees its way clear to eliminate features such as “Recommended Components,” which perpetuate the

problem. If this were done, the tremendous amount of negative response from people who would say they have used “Recommended Components” in making a buying decision (as opposed to a decision to audition a piece of equipment) would be strong testimonial that elimination of the feature was the right thing to do. An individual’s eyes make very poor listening devices. Even with the numerous disclaimers telling people, in various ways, not to use this feature as a shopping list, buying decisions are made solely on its content. This has a direct negative effect on the high-end audio industry. The elimination of this feature would go a long way in forcing people to go back to using their ears to make purchasing decisions regarding audio equipment.

Another way in which *Stereophile* has assisted the high end on its downward slide has been the magazine’s inattentiveness in attracting followers (please read consumers) just beginning to develop an interest in decent audio equipment. These are the people who purchase their audio equipment in stores where microwave ovens and food processors are also sold. They are fooled by rack systems and specification sheets because they have no place to turn for a useful quantity of truthful information on products that they are able or willing to pay for. We all had to crawl before we walked, and walk before we ran. The vast majority of us have bought inexpensive gear such as receivers and cassette decks before jumping to better and more expensive equipment.

*Stereophile* should make an honest effort to attract and educate these consumers by providing more reviews on inexpensive and *widely available* audio gear such as receivers and integrated amplifiers. This would build a solid base of opportunity for high-end manufacturers to profit by this newly trapped group of audiophiles trading up for better equipment, not to mention all the additional copies of *Stereophile* that would be sold. It is an abstract thought indeed that, by selling more receivers from Luxman, Sony ES, NAD, and others, the sales of companies such as Krell, Audio Research, Classé, Conrad-Johnson, Rowland, Threshold, and more would go up as well.

Does this mean that *Stereophile* should no longer review megabuck gear? No! Absolutely not! Does this mean that *Stereophile* should pay better attention to what is good for the consumer and what is good for the audio indus-



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try as a whole? Yes! Absolutely yes!

Sam Tellig, what a piece of work!

**Gregg Tooze**  
Sacramento, CA

## Juvenile?

Editor:

Sam Tellig and *Stereophile's* editorial staff owe an apology to their readers. In the April issue, Mr. Tellig responds to his lack of need for fan-cooled amps—"but I told him I didn't think I needed a blow job." The remark was highly inappropriate and juvenile.

**M. Frohlichstein**  
Somerset, NJ

## Disgusting?

Editor:

Mr. Tellig is not cute. He's disgusting.

**William [surname illegible], M.D.**  
Sheridan, WY

## Sam's stylistic choices

Editor:

One of the most useful and interesting parts of *Stereophile* is Sam Tellig. I've always made a point of reading him in his various forms, from "Cheapskate" to "Space" man. I generally appreciate his irreverence, and have followed some of his recommendations with great success. His storytelling is usually funny and puzzling. Puzzling because I can't tell if Lars, Howie Hyperfy, and the Brass Ear are real or fictitious. But I like it.

Sam produced another funny and entertaining column in the April 1991 issue. I've suspected that Adcom is steadily moving up to true top-notch performance, and I'm very interested in their products. (This comes from a guy who drives a Toyota Corolla—I'm a big fan of cheap and effective!) But I'm kind of puzzled by some of Sam's stylistic choices. I know that audio is an area that tends to attract more males than females. I guess *Boys 'n Their Toys* would be the simplest and most convenient explanation, as with boats, planes, cars, cameras, and computers. But in audio, as with all other "male-dominated" areas, there are significant numbers of interested, actively participating females. What is *Stereophile* saying to them? What message are they getting?

Sam's underlying theme for April was aggressively *macho* in character. How can I best explain my perception? Let's start with balls—the testicular analogy. We find swinging meat in the col-

umn in many forms—balls, *Krell* balls, and *cojones*. I lost count of how many times Sam resorted to this image to make his points.

From a standpoint of simple writing technique, this seems repetitive to me. In using only one image over and over to refer to different things, I think Sam compressed and limited his meaning, rather than expanding it to communicate important subtleties. When we say that someone's "got balls," we generally mean that the person is aggressive, daring, tough, even hotheaded or *macho*. Judging from the context of his comments, this was not what Sam meant every time he used the concept.

For example:

"The VTL 225s tend to sound too much like the Spondors, which may be why, when you mate the two, you get too much of what is usually a good thing: richness, warmth, and a sweet, forgiving quality to the treble. I needed more bite, more balls."

What does he mean? Is he trying to say that he needed to add an aggressive character to the sound? Personally, I'm not sure what "aggression" would sound like. I have always looked to neutrality as the utmost standard of quality in sound. Invisibility might be a better word. Is Sam suggesting that a counteracting distortion toward aggression will "correct" some failing in the Spondors? "Bite" doesn't sound to me like a desirable quality in a sound reproduction system, either.

"This is what these British speakers like: a proper American amp to grab 'em by the balls and lift 'em in the air."

Colorful, but how does it contribute to understanding?

"The Adcoms do much better in the bass, having a balls-to-the-wall quality that comes close, very close, to the Krell KSA-250, which is probably the last word when it comes to *cojones*."

Sam seemed to sense here that two sets of balls hanging in the same sentence was too much, so why not a cute li'l set of Spanish testicles? But still, and more important, what exactly does this sentence mean? Just what is "balls-to-the-wall quality"? I'm left to infer Sam's true meaning and, frankly, I can't. Does he use "balls" to imply a sense of "control," to mean that the amplifier is somehow able to "discipline" the loudspeaker, forcing it to "submit" to some form of voice-coil "bondage" heretofore undiscovered? This brandishing of

so many balls in one sentence verges on an act of naked aggression. And still they rain down on us:

"'Balls!' I roared. 'Krell balls in an Adcom amp!' 'We'll see about Krell balls,' said Lars. . ."

Roaring, mutilation and transplantation, treachery, denial—subtexts galore. I'm no psychologist. I have a great distaste for "inkblot" generalizing, where practitioners extract all manner of hidden meanings allegedly hiding in mundane, ordinary things. But I can't help the fact that these images come into my mind when I read these passages. Am I insane? Am I guilty of "ink-blotting" myself? Or do other readers get the same message?

An amplifier is an inanimate object. There's nothing wrong with judicial anthropomorphism, but to follow Sam's verbalizing, where you find a set of balls, you generally also find a penis. Is the amplifier then a personification of maleness to Sam, a macho entity that can control those errant (female?) loudspeakers? I don't even want to get into the rest of the possible analogies that could be drawn, given filter caps, supply rails, and all the other suggestive gizmos lurking around inside the dark, potent innards of power amps. But the question remains—how does this analogy tell me anything useful about the actual sound and performance of these amps?

I've never had the privilege of listening to a Krell amp, though I hold them in high regard precisely because of all the good things I've heard many people whom I respect say about them. I want to know as much as I can about how others experience Krell and Adcom products, to build on my own mental image of how they might perform in different circumstances. Most of us folks at audio ground level can never find a dealer who has the precise combination of components that we may wish to audition. Unlike *Stereophile* contributors, we usually don't have the clout necessary to magically produce a desired configuration in our living rooms for a carefree weekend of critical listening. That's not a criticism, but rather a recognition of why we buy your magazine!

So we readers must vicariously rely on your experiences to form our own sense of the state of the art. My system is a Crown D-150, Hafler kit preamp (the first model!), and Sony D-15 with Heybrook HB-1 minimonitors. Don't ask me about my turntable—I'm too embarrassed. I'm at least a dozen years behind the state of the

art. But I have never stopped dreaming about one day owning a system of surpassing clarity which is ideally situated in the perfect listening room. I've got a way to go.

Please understand me—I believe in qualitative evaluation. I'm no fan of charts and graphs; in fact, I freely admit that I read the paragraphs titled "Conclusion" before anything else. I'm an ex-restaurant reviewer for *Chicago* magazine, and have spent a lot of time at formal tastings of foods and wines, grappling for accurate, repeatable, *meaningful* ways to characterize my own subjective experiences for the benefit of others. It's true, I've heard "summa da guys" describe a 1978 late-harvest Zinfandel wine as "hoo-ie, datsa *ballbuster* of a Zin!" But I never saw it described that way in print. And I hope I never do. The job of a reviewer is to accurately summarize what he or she has learned and to convey it in a way that will *mean something useful* to all of his or her readers.

Which brings me to the heart of what I want to say. We males, born into a giant boy's club, frequently fail to appreciate how much most women *unappreciate* that club, and in particular, *machismo* in all its manifestations. Not funny, not cute; boring, boring, the end. By resorting to a droning haze of testicular imagery I can only conclude that Sam *presumes there are either no women in his audience, or that those women present will think it's "cute," or worse yet, that those women do not matter.* I submit that by simple odds there must be women in the audience, that they may not think it's cute, and that rather than take the time to address the issue (and risk being dismissed), they may just "go away."

Why aren't there more women involved in "traditionally male pursuits"? Maybe I've got it all wrong. Perhaps there are impenetrable genetic differences between the sexes, perhaps the socialization of male and female children has nothing to do with how they view and interact with each other. . . I don't think so. I think maybe it's because women are only rarely given the genuine chance to participate as anything but curiosities, women's auxiliaries, or just plain sex objects. That doesn't sound like a lot of fun, does it? Try to visualize just how that would feel for a moment.

It all comes down to respect. Language is a subtle and powerful tool. It can label people, reducing them to tiny dots of meaning. It's full of code words, euphemisms, slurs and slang,

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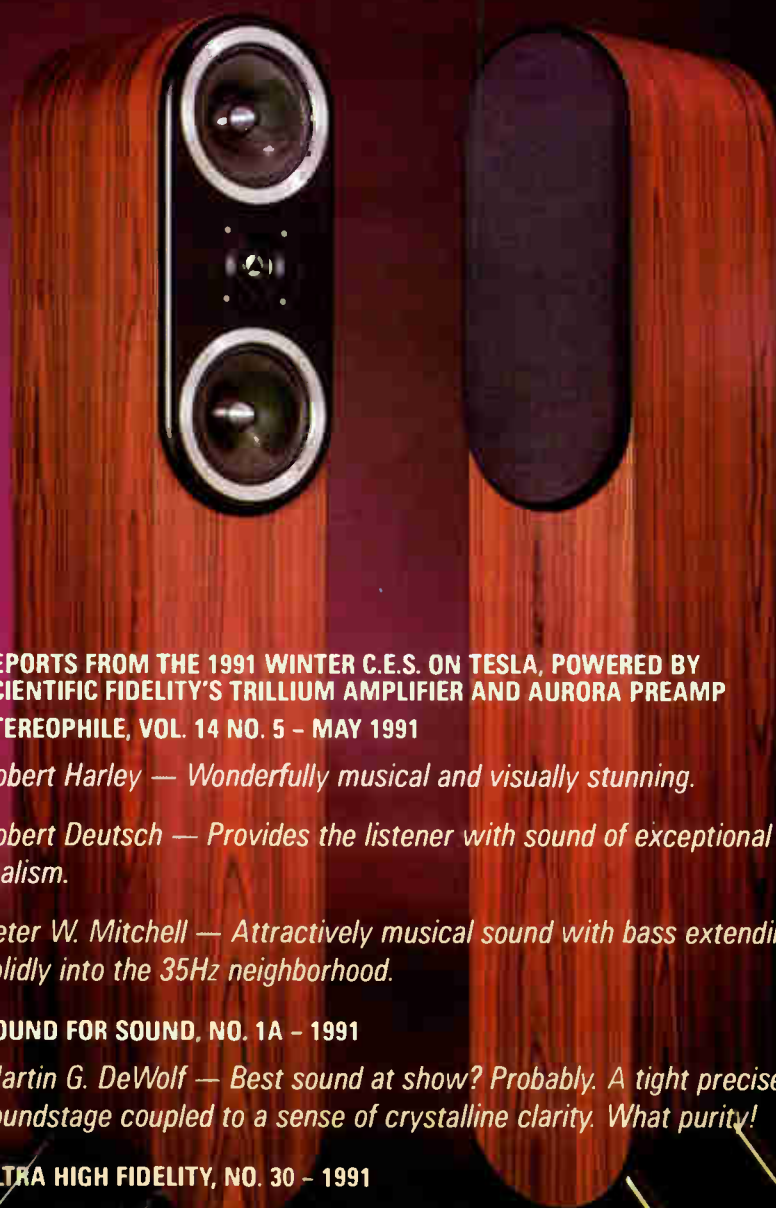
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much of which can be wickedly ambiguous. This ambiguity can allow a vicious attack to masquerade as mild criticism or even false praise. Or, by the unquestioned use of out-moded expressions, it can perpetuate attitudes and behaviors that are disrespectful, hurtful, or discriminatory. By being so ball-focused in his writing, Sam disrespects the female members of his audience in perhaps the most fundamental way possible—by dismissing them.

I'm not trying to suggest anything at all about Sam the person. He may or may not be a misogynist or any one of a thousand other things. I've never met the man. I can only discuss Sam the writer and his words are in your magazine. I would like to believe that he only suffers from a lack of perspective on the use and abuse of language as it regards women. I hope this letter comes across as constructive criticism. "Sam's Space" is and remains one of my favorites. But some things just can't go unremarked.

**Richard Caldwell**  
Palos Verdes, CA

### **For entertainment purposes only?**

Editor:

It is with regret that I must ask you to cancel my subscription to *Stereophile*.<sup>3</sup> I have been a reader of your magazine for over 20 years, and there is much that I will miss. But I can no longer support what I perceive to be a magazine that, apparently, has no sense of journalistic responsibility, and thus is of questionable validity.

I'm referring, in specific, to the latest series of columns by Sam Tellig. It may surprise you to know that I am not particularly bothered by his comments about me, or your printing words as quotes that I never spoke. I have a fairly thick skin and usually "take it from where it comes"; in Sam's case, I sense it comes from a person who believes in little, values less, and is most of the time busy trying to mock or provoke anyone who believes in anything at all. What *does* bother me a great deal, however, is *Stereophile's* appallingly irresponsible journalistic and editorial attitude, as evidenced by the Tellig column. One would think that after the Armor All debacle, you might have learned your lesson.

In his March column, Sam describes a listening session in my room, and refers to the Versa Dynamics 2.0 turntable (a product I've owned for years with minimal maintenance trouble) as spewing something on discs, which prevented it from working and potentially ruined records. By his own admission ("Versa's air-bearing arm would spew some kind of fluid—I never did find out what . . ." [my emphasis]), he hadn't a clue what was going on. Nevertheless, Sam happily jumps to his own destructive and erroneous conclusion, takes it upon himself to trash an expensive product (which gives him great cause for celebration as usual), but never bothers to even *try* to find anything out—by asking me or anyone else just what *was* going on that evening.

This is professional journalism?!? And you, JA, are equally culpable for taking Sam at his word—by helping him negligently damn a product just to get his prepubescent rocks off, as he gleefully and thoughtlessly does potential damage to a manufacturer's reputation . . .

You see, what *was* actually happening on the evening in question bears no resemblance whatever to what Sam wrote: I was routinely cleaning the Versa arm with a fresh bottle of what was supposed to be 100% acetone that, unbeknownst to me, was impure, and was leaving a gummy residue which jammed the arm's motion. Obviously, more of what I thought was the solution (cleaning the arm) created more of the problem, until the arm stuck in place. The only thing that was "spewing" anything that night was Sam's mouth—with his chronic tsunami of largely destructive verbal diarrhea—derogating anyone and anything he could, while taking great glee in anyone else's hardships.

It is perhaps a bit impulsive of me to chop down an entire tree because of one wormy apple, but this all makes me wonder how many other articles in *Stereophile* have been written so carelessly, so irresponsibly, and so filled with canards? I've been "in" on many other "Tellig listening sessions," and have found in-print reports of these sessions, and supposed "quotes" of people's reactions to components, to be greatly exaggerated, often completely fabricated, or so removed from a meaningful context as to render them gross distortions. Thus, I can give little credence to what I read in your magazine anymore. Perhaps the reader ought to be alerted that the Sam Tellig column

<sup>3</sup> If there are monies due me from my subscription cancellation, please donate them to *The Absolute Sound's* fund for Recorded Music. . . Music, not gossip, is, I should think, what we're all supposed to be about.



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is "for entertainment purposes only."

Sam accuses me of taking my work in audio too seriously. I suggest that you, John, as an editor, and Sam, as a writer, had best begin taking honest reporting a lot more seriously, lest a "high-end" magazine continue to deteriorate into a "rear-end" magazine.

**Michael Gindi, Ph.D**  
New York, NY

*"For entertainment purposes only"? It is sadly all too easy for audiophiles to take themselves and their equipment too seriously. As the next letter says, "a little humor goes a long way in making one realize why one would purchase this madness in the first place: to enhance the pleasure of listening to recorded music."*

*A reread of March's "Sam's Space" shines very little light on the reasons why Dr. Gindi is so upset. In the context of a partial column titled "Disastrous Demonstrations," Sam Tellig reported that "the Gindian's Versa Dynamics 2.0 turntable wasn't working properly that night. . . He could play a record for about two minutes and then the Versa air-bearing arm would spew some fluid—I never did find out what—all over the disc, gumming up the sound. This went on several times. We couldn't even get through a single cut. The Gindian gave up and turned to digital."*

*Sam Tellig went on to conclude his column by saying "These things happen to all of us. Did I ever tell you about the time Larry Archibald visited me and I had my speakers wired out of phase?" which I thought suitably underlined the point being made. Which was, in ST's own words (Vol. 14 No. 3, p. 69), "It is almost a truism of audio that any time you invite your audiophile friends over something will go wrong."*

*In that context, therefore, it didn't seem germane to explore the reasons why the Versa had ceased to work, only that it had done so at a most inopportune time. Certainly, that appeared to be the light in which Versa Dynamics' John Bicht read Sam's March column, according to a telephone conversation I had with him in March. John was also unaware of any "potential damage to [his] reputation" that might accrue from the March Tellig piece and had not read into Sam Tellig's writings any meaning that his product had been "trashed" or "damned," it being obvious that it was misuse—albeit accidental—that had led to the mishap.*

*Nevertheless, I apologize to Dr. Gindi for any embarrassment he may have suffered due to what I still understand to be Sam Tellig's accurate reporting of what had happened in his listening room. But regarding Dr. Gindi's remarks about Stereophile's continued deterioration into a "rear-end" magazine, I shall be charitable and assume that his relatively new status as a contributor to The Absolute Sound has led him to forget how keen he was a year or so ago to join Stereophile's staff.*

—John Atkinson

## **Welcome, Mr. Corey Greenberg**

Editor:

I wish, on behalf of the readers, to welcome Mr. Corey Greenberg to the staff of *Stereophile*. His contributions to the April 1991 issue (Vol. 14 No. 4) were like a breath of fresh air. There are times when I find the discussions in the various "high-end" audio publications to be just a wee bit full of themselves, and a little humor goes a long way in making one realize why one would purchase this madness in the first place: to enhance the pleasure of listening to recorded music.

As Mr. Greenberg states (in different words), "It don't mean a thing if it ain't got that swing!" Elvis Presley as a reference source—what a concept!

**Ralph Pantuso**  
Mahwah, NJ

## **Congratulations, Corey Greenberg**

Editor:

Congratulations, Corey Greenberg!

I have been reading *Stereophile* for a couple of months now and I also have been struggling my way through the reviews and reports, mostly conducted with classical music, something some people just don't relate to.

Welcome, Corey, and thank you, *Stereophile*. With all due respect, JGH and gang, Corey is the writer younger audiophiles have been waiting for.

When he describes the reproduction of Cocker's voice or Hendrix's guitar, I feel much more comfortable than I do with the third reissue of a violin solo of Brahms's second concerto. You know—the one in the first half of the third act played by the Phillys, but not the recording of their first session in 1964 rather than their fourth in 1968 in which the violinist swapped places with some other guy because he ran late and therefore the whole recording

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John Atkinson, Stereophile  
Vol. 13 No 11 (Nov '90)

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HIFI Review (Jan '91)

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sounds slightly more balanced than the one before recorded in . . . you get the picture.

I have even caught myself reading articles about products I don't necessarily care for just because I read the first lines and got drawn into the review by Corey's writing. He also refreshed my memory when he wrote about jamming with a pair of Cerwin Vegas and getting "hassled" by his parents while doing so.

**Peter Kutschke**  
Battle Creek, MI

## The Core-meister

Editor:

Yeah, so what if Metallica records don't sound like they were recorded at the Concertgebouw by a Wilson or a Johnson? I'm still going to listen to them.

Corey Greenberg's debut article in April made for some very enjoyable reading, and for those of us who listen to Mötörhead and the Stones and the Allman Brothers as much as we listen to Handel and Beethoven, CG is just what the high-end press needed. And whaddaya know, the guy's hilarious, too. **Nick Platsis**  
Toronto, Ontario

## The Green Core-ster

Editor:

I am happy for Corey Greenberg if he likes Jimi Hendrix, but I'd be happier if he didn't express this by running down other musicians. Certainly Clapton will survive Greenberg's snide comments, but Peter Green is much less well known, and readers might be dissuaded from listening to him on the basis of Greenberg's review, which would be too bad. Green did start out emulating BB King and Albert King—who didn't?—but at times, especially in the first Fleetwood Mac, he reached a real greatness of his own.

While I am on the subject, Greenberg's reviews would be more effective if he sought out what he really means rather than sloughing over it with foul language.

**Nat Eddy**  
Westbrook, CT

## The Cor-oshatrihorn

Editor:

Congratulations on your acquisition of Corey Greenberg as a reviewer. As a member of TAN [The Audiophile Network] I have in the past grown to appreciate his refreshing style. He will become a great asset to *Stereophile*. I would like

to add a comment to his review of the VTL Tiny Triodes (Vol.14 No.4). I recently had the opportunity to use these amplifiers for a few days with my Klipschorns: as anyone familiar with Klipschorns knows, 3W input will instantly bring angry neighbors and OSHA to your door. In this environment the Tiny Triodes are truly giant. They excel with high-efficiency speakers. Everything Corey said applies, but with unlimited dynamics, volume, and very adequate bass. Their triode attributes really shine.

**Robert D'Amato**  
Nine Mile Falls, WA

## Corey at the Counterpoint muh-beeen

Editor:

Corey Greenberg's articles are going to be some of the first I reach for each month; what a kick, and informative too. About two months before Corey's review, I compared my Counterpoint SA-100 amp, which I've owned for a year, to Adcom's '555 II. The Adcom was new and not broken in—and sounded like it—so we changed to the 250W '585, comparing the two through an ARC preamp and Vandersteen 2Ci speakers. Their respective presentations were slightly different, but neither of us would say the Counterpoint's mids or highs were less satisfying than the Adcom's. In fact, I enjoy the highs very much. Soundstaging seemed very comparable also, at least with the recordings we used. Perhaps Corey should take this a step further.

I originally had the same complaints about my SA-100 that Corey did about unit #2. It takes over a week and a half for this amp to break in and then I still had problems—whistling tubes, all "Yugos." After getting new tubes from Counterpoint I noticed a *very* slight channel imbalance. Then, a few months later, distortion, especially at high volumes. If you were to bump the entertainment center you'd hear crackling and burping—or was it belching? My dealer confirmed my problems. I was concerned because my replacement tubes were past their 90-day warranty. We called the factory, and they were *only* concerned that I was happy, so I returned the unit. I received the unit back a week later (no charge, freight paid). The repair invoice was marked "RUSH—left-channel gain adjusted 1dB, bad tube replaced, bias low both channels—adjusted." *Now* the SA-100 sounded pretty darn good, and the last seven months have brought no further problems.



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Maybe Corey should let SA-100 #2 burn in with program playing at least a week and a half and either reinstall the original tubes into their marked sockets or check the bias on the replacement set. I think the sound will become more satisfying. Now you may ask, if I'm happy with the sonics of my amp, why did I take it out of my system and compare it to Adcoms? Because Corey and I feel the same about the bass and dynamics, and I miss both.

**Robert Revelle**  
Salt Lake City, UT

## Something vague between . . . the Butt Cheeks?

Editor:

I had just given up listening to recorded music when, almost exactly a year ago, a friend of mine lent me several copies of *Stereophile*. "Air," "soundstage depth," "palpable presence"? What could these things possibly mean, I thought. "Bob," I asked, half-jokingly, "do you really have 'air' around your instruments?" I thought stereo was just left and right, with something vague in between. As a composer, director of a concert series, and professor of music theory, I was certainly not unfamiliar with the sound of unamplified acoustic instruments. It's just that, until I began to read *Stereophile* and to visit some high-end shops in my area out of curiosity, I never realized that the experience of a live concert could, to a surprising extent, be convincingly recreated in my home.

In any event, during the past year my Yamaha/Technics/Klipsch setup has turned into a Counterpoint/EVS/Vandersteen/JVC XL-Z1010 system, capable of reproducing my now large CD collection with sufficient resolution to inspire prolonged and deeply enjoyable listening sessions. I am grateful to your writers (especially RH, TJN, and JA) for providing such musical, reliable, and informative reviews of a wide range of equipment to guide my initial forays into the minefield of audiophilia and help me assemble a reasonably priced yet very satisfying system. My confidence in the reliability of their opinions is due not only to the fact that my own auditioning of many components largely confirms the sonic descriptions in the reviews, but because the musical insight and intelligence communicated by these reviewers and the obvious care and precision with which the components were evaluated lent strength

to their opinions.

Which brings me to your newest contributor, Corey Greenberg. The rest of this letter was going to be a diatribe against him for no other reason, really, than that he did a lousy job reviewing the Counterpoint SA-100, which (surprise!) I own. But then this would have been another of those tediously defensive letters I read in your magazine which never fail to annoy me. Then I realized that it really doesn't matter *what* he thinks of it. To this musician's ears, in my system and for my musical tastes, it is far superior to the Adcom GFA-555, which it replaced after direct comparison *in my system*. If I have learned anything from reading *Stereophile*, it's that it is "in my own ears I should trust!"

My change of heart was prompted by rereading his reviews in the April issue. I can imagine Mr. Greenberg as a big bear of a guy (in spirit, if not in physical size)—funny, irreverent, and studiously crude in the best tradition of Texans (just like my old Uncle Floyd)—the kind of guy you'd love to have around while eating ribs and drinking Lone Star. I found his style delightful, and the man is a skillful writer. Even if his tastes in music could not be more different from mine, and even though I prefer the more measured style and approach of a Robert Harley, I was struck by the fact that there lurks quite an intelligent wit behind (between?) those Butt Cheeks and chicken-fried steaks.

**Frank La Rocca**  
Fremont, CA

## A counterpoint to Corey

Editor:

Allow me a Counterpoint:

I enjoy reading *Stereophile* very much; so when I went to the mailbox and saw the April issue, I rushed into the house to get my fix of high-end common sense. Finally! The cover said *my* amp was being reviewed! I rushed to p.183; then, *horror of all horrors!*—*my* amp sounded bad! Corey Greenberg trashed my beloved SA-100. Upon reading the full review, I said—wait a minute! To the "Manufacturers' Comments" I dashed—say it isn't so, Counterpoint. Oops, wrong again.

I would just like to comment on a couple of things. I have owned and enjoyed my amp for some time now, and it sounds wonderful! Tight, deep bass; clear, transparent highs; and a midrange that allows well-recorded sources

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to sing with a clarity that is *extremely* pleasing. No doubt Mr. Greenberg reported what he heard accurately and fairly. I doubt that everyone who has heard this fine amp would agree with his assessment, but I certainly allow for a difference of opinion—that's what makes this so much fun.

A word to Mr. Elliot, if I may—excuses are for those with no confidence. If you shipped an amp you weren't proud of, you have done more harm by your smugness (especially the dig in the postscript about the reviewer's ears) than by an honest "maybe not every amp we ship is perfect." Your many satisfied customers (I definitely include myself in that category) will spread the word that your products don't sound bad—they are as good, if not better than, anything at their price points.

**Edward J. Goss, Jr.**  
North Windham, CT

### Who the hell is Corey Greenberg?

Editor:

Who the hell is Corey Greenberg and where is he coming from? I read the article about the Counterpoint SA-100 in Vol.14 No.4 and could not believe my eyes.

I have compared this amp with seven other "high-end" 100W amps and found it more musical—*ie*, better-sounding, more natural, etc.—than *all* of the others on two different speakers. At first I checked with some other unbiased audiophiles for their opinions and they also thought the SA-100 was a great-sounding unit and that it did not deserve the bad review from your magazine.

I think you should take a closer listen to the SA-100, as you would if it said Krell, ARC, Levinson, etc.

**"Hot" Michael Sastra**  
Unadilla, NY

*A component being affordable does not mean that we do not take it as seriously as "Krell, ARC, Levinson, etc." The first sample of the Counterpoint SA-100 that Corey Greenberg reviewed had also been auditioned in Santa Fe by Guy Lemcoe and Thomas J. Norton. Neither disagrees with his description of its sound quality. I also spent some time listening to all the amplifiers that Corey reviewed in our April issue in his listening room. I, too, would not disagree with his descriptions of the amplifiers' sounds or his value judgments. I do intend, however, to spend some time with the second sample of the SA-100.*

—JA

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# I N D U S T R Y U P D A T E



## US: Peter W. Mitchell

For months there have been rumors that Bolt, Beranek, and Newman (BBN), the audio consulting company in Cambridge, MA, has been trying to devise a copy-prevention scheme for analog recordings. Now it's official: in mid-spring the antitrust division of the Justice Department authorized BBN and the RIAA (Recording Industry Association of America) to proceed with a joint venture to develop this technology.

Recording from digital sources is already controlled in DAT and DCC decks by the SCMS (Serial Copy Management System), though reportedly this protection could be circumvented at low cost by a knowledgeable engineer. In the Athens agreement that adopted the SCMS standard for consumer digital recorders, record companies and electronics manufacturers also endorsed the goal, "as technology permits," of enabling the SCMS to control digital recording from analog sources. The intent was to make sure that people couldn't avoid SCMS protection by copying a CD through a DAT recorder's analog inputs.

DAT makers may have regarded this as a trivial concession to pacify the record companies. People have been trying for decades, without success, to create copy-protection schemes for analog recordings. Methods that relied on an infrasonic or ultrasonic trigger signal were easily defeated by filtering and wouldn't stop people from taping broadcasts. Schemes operating at audio frequencies (like the infamous CBS Copycode) degraded the fidelity of the recording. The RIAA is hoping that BBN will discover a technique that will work reliably and won't have these drawbacks—perhaps by injecting a brief coded signal into the recording only at moments when the music is loud enough and complex enough to "mask" the code signal.

Reportedly the BBN project will cost a million dollars, have two phases, and take at least a year. In the first phase BBN was to evaluate various copy-prevention schemes and determine whether any is worth pursuing, and in the second phase the company is trying to develop a scheme for concealing identification codes in the musical signal. The record industry's ultimate goal is not only to control recordings made through a digital recorder's analog input, but also to enable automatic identification of the source that is being copied. Then, if a debit-card mechanism (or something similar) were built into DAT and DCC decks, it would register the ID of every recording you copy, regardless of whether you dub digital code from a CD or tape analog signals from radio.

With a debit card linked to the record-enable function, you'd have to pay royalty fees for the recordings you copy, and the ID information would enable the fees to be forwarded to the appropriate record companies, performers, and composers. (Anyone who thinks this a clever idea is invited to examine the records of the existing Royalty Tribunal that is supposed to be distributing royalties for broadcasts and performances of copyrighted music.)



## US: Robert Harley

The April 1991 issue of the *Journal of the Audio Engineering Society* reports on an unusual meeting that took place last November 28 between the AES San Francisco Section and a group calling itself the East Bay Skeptics Society (EBSS). The latter group is "dedicated to the advancement of reason, science, and responsibility—and to the exposure of superstition,

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fraud, and pseudoscience.”

The meeting's subject, "Premium Audio Cables: Innovation or Consumer Fraud?" was in response to a previous meeting of the San Francisco AES section in which open (sighted) A/B auditioning of cables indicated that many listeners heard differences. Apparently, the EBSS had taken issue with the original methodology and conclusions and requested a chance to repeat the tests under their supervision.

Before the listening at the second meeting, several speakers presented arguments that cables cannot make a difference in sound quality. One speaker presented a "tutorial" on wire engineering based on the Richard Greiner paper, published in the *JAES* in May 1980 and rehased in the May 1990 *Audio*, that concluded there were no measurable differences in cables that could affect their sound. The next speaker, Dan Dugan of the AES, who also conducted the event, "introduced the psychology of subjective testing" by showing an optical illusion, lamely attempting to make the point that "everyone is subject to cognitive illusions."<sup>1</sup>

With that open-minded and unbiased introduction, the listening began—double-blind with an ABX box, of course.

The comparison was between an inexpensive industry-standard loudspeaker cable called "12/2" and an unnamed "esoteric loudspeaker cable." Seven trials were conducted, with a different listener for each trial.

*The listeners identified the audiophile cable in six out of seven trials in this double-blind test.*

The report goes on to say that six out of seven trials is "not statistically significant,"<sup>2</sup> but nevertheless was "enough to embarrass Dugan." Mr. Dugan went on to say that "If an audiophile newsletter reports that the San Francisco Section [of the AES] proved the audibility of exotic loudspeaker cables, it's all my fault."

"Embarrass?"

"Fault?"

<sup>1</sup> Using an optical illusion in an attempt to discredit all subjective perception is an absurd conceptual leap.

<sup>2</sup> It's curious how so many four-out-of-five, five-out-of-six, and six-out-of-seven blind identifications of supposedly inaudible phenomena are cavalierly dismissed as being "statistically insignificant." Taken as a whole, these many positive results cannot be attributed to chance. *The Absolute Sound's* Michael Premer identified a particular power amplifier in seven out of seven blind trials, yet his performance was dismissed (by the "disinterested" experimenter) by calling him a "lucky coin." The rationale behind this term was that if you flip a coin seven times, heads will appear seven times purely by chance on occasion. How is it that skilled, experienced, and trained listeners always seem to be the "lucky" ones?

These are interesting words. I thought the essence of scientific method and experimentation was impartiality. Isn't the experimenter supposed to be a passive observer who has no interest in the outcome? If so, how can such an impartial and unbiased observer experience "embarrassment" and feel the experimental results somehow find "fault" with him? An experiment is a failure (causing embarrassment and indicating fault) only if it is poorly devised and yields no data or questionable data, not if its outcome contradicts one's preconceived ideas.

Having got his "embarrassment" off his chest, Mr. Dugan blithely continued with his prepared presentation, undeterred by the results of the blind listening. He listed 11 "Audio Engineering Myths of 1990." They are:

"Most sound systems can be improved by replacing the cables."

"There are audible differences between cables that conventional engineering can't explain."

"Skin effect degrades sound in short wires."

"Magnetic interaction between wire strands degrades sound."

"Cables have different degrees of 'intertransient silence' and affect imaging."

"Cables make noise (other than interference)."

"Special materials (silver, OFC, FPC) improve sound."

"Plating affects sound."

"Special constructions (windings, stranding, multiple gauges) improve sound."

"Transmission through any amount of ferrous material degrades sound."

"Cables sound better after being broken in."

"Cables are directional."

Mr. Dugan then said he couldn't hear any differences between the cables in concentrated listening prior to the meeting. He concluded by challenging anyone to a \$50 bet that they couldn't distinguish between two cables in nine out of 10 blind trials in their own system.<sup>3</sup> Needless to say, there were many takers of his offer—who expressed hope of a future report on the results.

## US: Peter W. Mitchell

According to the RIAA, the average retail price

<sup>3</sup> Readers should be wary of the trap of too many successive blind trials. Fatigue sets in very quickly under blind conditions, making later identifications more difficult than earlier ones. Takers of the \$50 bet should insist on five trials one day and five trials the next.



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of CDs declined from \$12.50 in 1989 to \$12.02 in 1990. Does this mean that CDs are really getting cheaper? Not really; new recordings on major labels seem to be stuck at a \$15 price point in most areas. But there's a growing population of independent labels and remastered old recordings priced below \$10, attracted into the market by CD pressing plants offering to manufacture discs for only a dollar apiece. (The booklet, jewel box, and cardboard "longbox" now cost more than the disc within.)

## US: John Atkinson

Mail-order record retailer Chad Kassem, of Acoustic Sounds, recently told me of his continuing plans to reissue classic recordings on black vinyl disc, following the success of his Fremaux *Le Cid* release on Klavier (reviewed in May, Vol.14 No.5). The next LP will be the Vanguard recording of Virgil Thomson's *The Plow that Broke the Plains*, mastered on 3-track, 30ips analog tape with an Ampex tube machine. Chad is also working on LPs of *Songs of the Auvergne*, Morton Gould's *Latin American Symphonette*, and the Donald Johanson/Dallas SO Copland *Billy the Kid* and *Rodeo*, originally on Turnabout. Doug Sax is doing the mastering, and the LPs will be pressed by RTI (who were also responsible for doing a fine job on *Stereophile's Intermesso* album.)

Chad is planning for his Analogue Productions label to release a total of six LPs in the next six months. For details, and a copy of his latest catalog, contact Acoustic Sounds at P.O. Box 2043, Salina, KS 67402-2043. Tel: (800) 525-1630. Incidentally, Acoustic Sounds can supply nearly all the recordings listed in *Stereophile's* "Records to Die For" feature last January (Vol.14 No.1).

## US: Peter W. Mitchell

The "bonger" track on Chesky's Jazz Sampler/Test CD (JD37) was mainly intended to demonstrate differences in low-level distortion between a conventional A/D converter and the dbx/UltraAnalog converter used by Chesky. But the track also includes high-level bongos, and many listeners have been puzzled by what sounds like clipping distortion in the loudest bongos. Bob Katz, Chesky's tech whiz, discovered why: a small flaw in the recording and a larger (but still rather minor) flaw in many playback systems.

When the track was recorded, the A/D con-

verter had a small DC offset, causing the actual signal levels in the converter to be slightly higher than the recording meter indicated. Consequently the highest transient peaks in the bonger signal are clipped. The distortion is sufficiently brief and slight that it should not be obvious on an ideal playback system.

But CD players often behave less than ideally at maximum signal levels. Digital filters operate by multiplying signals, typically creating 24-bit binary data which then must be mated to a 16-bit or 18-bit decoder chip. Usually the mating involves a shift register, where each 1-bit shift alters levels by 6dB. Consequently, as I mentioned a couple of years ago in this space, when manufacturers use an oversampling digital filter they face a choice of "underfilling" the decoder and sacrificing a few dB of S/N ratio, or overfilling the decoder and causing the highest levels to clip. Many designers choose the latter option, since CDs rarely go all the way up to digital 0dB; typically, the highest peak level is a few dB below the theoretical maximum. Result: In test signals that use the CD's full 16-bit capacity (as the bonger track does), the highest levels will be distorted in playback, with the amount and character of the distortion depending on the chip-set used in the player.

## US: Don Scott

Information Storage Devices, Inc., a relatively new Silicon Valley company,<sup>4</sup> was formed in 1987 for the sole purpose of inventing, manufacturing, and distributing true nonvolatile solid-state memory devices. On February 11, 1991, the company's founder and chief thinker, Dick Simko, carved out new audio territory by announcing the availability of its silicon-based ISP/10-20XX *analog* memory chips.

While the audio is still sampled, this new class of integrated circuits eliminates A/D and D/A converters in solid-state memories. The chips incorporate full digital control, but storage and signal processing are entirely analog and basically can be thought of as a recorder with no moving parts on an EEPROM chip the size of a baby's thumbnail. How does it work?

As in a digital EEPROM, storage takes place on the nonvolatile floating gate of an MOS transistor. (A floating gate is actually a tiny capacitor with a very long decay time measured in years.)

<sup>4</sup> Information Storage Devices, Inc., 2841 Junction Avenue, Suite 204, San Jose, CA 95134. Product details: Jim Oliphant, (800) 825-4473.



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Unlike the digital method, where floating gates either carry a charge or do not, representing binary states, the ISD approach meters the charge to each gate through an intelligent writing scheme. The charge on each gate is thus an "analog" of its sample. Because the EEPROM's floating gates operate in the broad boundary between strongly positive and strongly negative states, they represent the ability to store a wide range or gray scale of voltage levels. During playback, the recorded analog voltages are, in effect, sequentially read from the storage array under control of a sampling clock (as in digital storage), thus reconstructing the sampled waveform. Rather than reading the actual voltage stored on each of 128,000 floating gates (more with advanced versions), the conductance of each respective storage transistor is measured in real time to arrive at a replication of input without the gap between digital - and + values. This is achieved without disturbing the voltage on each gate, and the playback function does not have to rewrite itself to restore the memory. Lab testing has run 100,000 playback cycles without serious degradation. As in digital encoding, record/playback high-frequency limits are determined by the sampling rate and the Nyquist criterion, which requires a sampling rate twice the highest desired high-frequency limitation.

Immediate applications are for any repetitive short message now stored on wear-prone tape: answering machines, theater/event information, radio station IDs, emergency instructions, etc. One ISD1016 chip, for example, can store/play back 16 seconds of audio with a passband of 3.4kHz at an 8kHz sampling rate. Next-generation chips promise four times the storage; consequently, either playing time or high-frequency response can be extended by choice of sampling rate.

In a conversation with Ray Brown, a partner in the company's public relations firm, he suggested a possible use of this new technology would lend itself to critical in-flight recorders. However, I foresee far-reaching high-end audio and musical-instrument technology applications because of the nature of the process: random access is gained by structuring the storage array into at least 160 segments. The starting address of each segment is brought out to an 8-bit digital address interface (A0-A7, for example). Since 8 bits of information result in 256 locations, the surplus addresses can be used to create several

attractive operating modalities, such as truly instantaneous fast-forward/rewind and looping messages. And because the ISD chips can be cascaded for longer practical record/play cycles due to an internal enable pulse for the next chip, realistic music-length solid-state recording packs will eventually evolve. Since the chips require no battery power to retain themselves, this is very practical. Ah, but will *Stereophile* be the first to offer Ralph on such a medium?

Eventually, this latest technology will enable electronic musical instruments to sound like the real thing. For example, the real-life valve and air sounds of a pipe organ have been impossible to accurately fake on an electronic organ. Now these noise sounds can be recorded and added to perhaps a bank of the analog memory chips that contain the tones of an actual pipe organ rather than using separate tone generators. Complete ambience control will also be possible, giving a complete electronic pipe organ with cathedral sound in a living room or small church. This is truly interesting technology.

## **US: Peter W. Mitchell**

Engineers trying to copy old analog recordings into a digital encoder for CD release have occasionally had a horrifying experience: the tape starts squealing as it plays, and then the oxide starts peeling off the tape, destroying the recording. This has occurred mainly with Scotch and Ampex tapes made in the 1970s. The squealing is caused by "stiction," a combination of sticking and friction, also known as violinling: the tape sticks momentarily to a tape guide or head, then lets go, then sticks again, in much the same way that a violin bow excites the string.

Occasionally such squealing can be dealt with by simply shifting to another tape deck—one that subjects the tape to a different combination of tension and pressure. But if squealing persists, the problem may be in the tape itself. Tape/head friction has always been known to be more of a problem in high-humidity climates, because the resins that bind the oxide to the tape have a tendency to absorb water vapor from the air. If the tape is stored for a long time in a humid environment it may absorb so much water that it swells, physically distorting the tape pack if the recording hasn't been played or fast-wound every few months. (I've lost several tapes this way.)

Even if there's no visible problem, the absorbed water may alter the chemistry of the resin, causing the tape to become slightly sticky—hence

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the squealing problem. Sticky tapes may be restored temporarily to playable condition by baking for a day or two in an oven at 120° F. Scott Kent, a Boston-area recording engineer, has saved a number of old tapes this way, and Ampex reportedly offers a similar service to its professional customers.

## US: John Atkinson

In the March issue, we noted that Philips, which owns the Marantz brand name everywhere in the world but here, finally bought the US rights from Dynascan. It was announced in May that the line of Marantz-brand audio products, made in Philips's Japanese factories and including a DCC recorder, a CD recorder, and an intriguing product called an "Audio Computer," a Digital Signal Processor (DSP) device incorporating two high-speed custom microprocessors, will be distributed in the US by Bang & Olufsen of America. (In 1990, Philips acquired a 25% stake in the Danish B&O company.) Marantz USA will also assume all parts and service responsibilities for existing products. Marantz USA, 1150 Feehanville Drive, Mount Prospect, IL 60056. Tel: (800) 654-6633; call (708) 299-4000 for parts and service information.

It was also announced in the Spring that respected Canadian FM tuner manufacturer Magnum Dynalab has set up a joint facility in Rochester, NY with amplifier manufacturer Belles. The new company is called OCM Technology Inc., after David Belles's proprietary technology which is said to produce a sound that is more "open, clear, and musical." The first products in OCM's "Soloist" line are the OCM-200, a 100Wpc stereo amplifier selling for \$1595; the OCM-500, a 200Wpc stereo amplifier (\$2495); the OCM-55 line preamplifier (\$1395); and the OCM-10 phono interface (\$1095). Distribution of OCM components will be through Magnum Dynalab, 6509 Transit Road, #H1, Bowmansville, NY 14026.

## US: Peter W. Mitchell

What goes around comes around. This summer Hughes Aircraft, whose SRS circuit for wide-stage stereo is used in some Sony and Thomson/RCA TVs, plans to launch a range of ORB (Optimum Radiation Baffle) speakers whose 180° dispersion pattern is achieved by firing sound upward from conventional drivers at a conical reflector. This "new" design was

described by Roy Allison in one of the first issues of *High Fidelity* 40 years ago. The only thing new about ORB is that the reflector is so cut that sound is reflected forward over a wide angle but is not bounced off the wall behind the speaker.



## UK: Ken Kessler

Badmouthing the BBC could become a thing of the past, at least in audiophile circles. While I'd rather not torment you with news of broadcasts which don't apply if you live outside the UK, I must tell you about the Beeb's latest releases on its own record—er, CD—label, especially in light of the company's live-on-air demonstration of Roland's RSS super-stereo system.

Until recently, the BBC's record label issued exactly what you'd expect of a state-owned broadcasting network. Invariably, every LP, tape, or CD was a "tie-in," usually soundtracks of TV shows or transcripts of radio shows. Indeed, many a sales rep whiles away the hours on the motorway listening to "spoken word" BBC tapes of *The Hitchhiker's Guide to the Galaxy*, the Sherlock Holmes tapes, "Hancock's Half Hour," and other peculiarly British "entertainments." (Note to JA: After 20 years in England, I still think Hancock is a fifth-rate copy of Jack Benny, and nothing you can say will change my mind. . . .) [*Hrumpf!*—Ed.]

Of course, there were exceptions, and many a tape enthusiast derived pleasure from the BBC sound-effects LPs, always handy on New Year's Eve when you needed a recording of Big Ben striking midnight. Then, in the mid-1980s, the BBC undertook the issuing of Robert Parker's vintage jazz transfers and suddenly the label shed its tie-in—only image.

(Please note that this isn't an endorsement of the Parker 78-to-CD transcriptions, which have been treated to simulate stereo. The response to the Parker discs has been mixed, to say the least; I was particularly mortified by the havoc wreaked on Bessie Smith. On the other hand, Parker deserves credit for making rare vintage jazz items available to a wider audience.)

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seek on import<sup>5</sup> is *Essential Hi-Tech Sound Effects* (BBCD 856), which at first may seem like nothing more than the latest in a long run of releases scouring the depths of the BBC's amazing library of noises. But BBC sound-effects discs usually have themes—"Death & Horror," "Combat & Disaster," "Science Fiction," and so on—and this one's a doozie should you need to convince someone on the other end of the phone that you're in a busy office.

*Essential Hi-Tech* is subtitled "59 User-Friendly Effects," a wry, computerspeak description for tracks like "single disk drive loading files" or "double disk drive activity, disk inserted, disk copied." Just why you'd want to listen to the sound of a computer through your speakers isn't too clear, although I suppose you could get quite creative with your answerphone messages.

Along with a cluster of disk-drive and printer noises (eg, "Printer, Paper Inserted, Form Feed Operated"), there's a battery of space-battle noises ("Laser Barrage," "Interstellar Destruction," etc.) and some synth music. But the reason for alerting you to this disc is the demonstration of Roland Space Sound, using the recording which was broadcast to the nation, as I reported last month.

Okay, so it's all synthesizer-based material, which doesn't do a whole hell of a lot for showing off what the RSS system can do with "real" sounds, but there's no way you'll leave the demo unimpressed. Yes, it's "phasey," and there are some weird artifacts which suggest that it isn't quite the dream solution in the quest for surround sound from two speakers. But the effect does have applications for live releases and film soundtracks.

I listened to the disc through conventional box-type speakers with dome tweeters and through planar, panel-type systems, learning quickly that the speaker's dispersion pattern affects the RSS image's "hot seat." If your speaker focuses its energy at an optimum spot, the effect will be restricted to that spot. Play an RSS recording through a speaker designed for a wide listening "window," and you can walk around the speakers and hear a large, surprisingly consistent sound spread. I actually listened to the tracks through the small monitors

while sitting to the far left of the left-hand speaker, facing the back of the room, and managed to detect specific images in the middle of the room, some 8' from the line of the speakers.

The best results, though, regardless of speaker type, occurred when the speakers were toed-in toward the centrally positioned listening seat. But the most notable gains had little to do with front-to-back depth or the suggestion of sounds emanating from the rear. Instead, I found the most consistent and repeatable gain to be an *exceptional* increase in stage width, wrapping around the sides for an arc of about 120°. The only other demonstration I've heard which had a similarly wide and deep yet primarily frontal stage effect was at Technics, when I heard the company's THX audio/video processor. And that used a second pair of speakers, with one placed halfway down each side wall.

I don't want to sound like RSS's biggest champion, but I do urge you to hear it. Used judiciously, it could transform TV and video viewing, add a whole new dimension to computer games, and—maybe—add to the realism of live audio-only recordings.<sup>6</sup> It's early days yet, and I'd hate to see the typical reviewer response of "It's new, therefore it sucks" stifling development. Conversely, I'd hate to see it embraced by studios before it's understood.

But sound-effects discs aren't enough to endow the BBC with audiophile credibility. The aforementioned Parker releases have given the BBC a taste for catalogue items which don't require a TV or radio program to sell them. After all, the shelf-life of a soundtrack doesn't extend beyond the broadcasting span of the show. As the BBC has learned to enjoy the revenue from its retail/manufacturing side—the Beeb is inadequately funded, it must be said—why not exploit it?

But who'd have believed that the BBC would turn high-end loonie? Unbelievable as it seems, the company has acquired the rights to a catalogue from those fondly remembered days of Crystal Clear, Three Blind Mice, and early Telarc. And when you consider that these releases had about as much exposure in the UK as, say, "Howdy Doody" enjoyed in Tierra del Fuego, you've got to hand it to the Beeb for

<sup>5</sup> BBC records are distributed in the US by Allegro Imports, 3434 S.E. Milwaukie Avenue, Portland, OR 97202. Tel: (503) 232-4213.

<sup>6</sup> As I suspected, *Flashpoint*, the new Rolling Stones live release, does list Roland SS in the credits, but a cursory listen hasn't revealed anything out of the ordinary. Maybe we should run a competition in which readers identify the RSS'd tracks. . .



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sheer bravery.

The label in question is Century, purveyors of jazz to the high-end community. While purists among you may gag from nausea, recalling the platitude "Nice sound, shame about the music," Century did boast name artists as opposed to the third-rate, unknown studio bores and "scholarly" drudges which were all that the other labels could afford. (Before the hate mail arrives: I'm all for discovering new talent, but not at limited-edition, virgin-vinyl prices.)

Hey, even the most anti-jazz among you has heard of Benny Goodman, Mel Tormé, Buddy Rich, Woody Herman, Phil Woods, Les Brown, and Anita Kerr. But you also know that direct-to-disc was not the most relaxing way of recording if the artist happened to be fastidious (or neurotic) enough to hate the odd fluff or duff note, no matter how much it added to the verismo. I recall criticism of this genre's stilted playing from too-cautious performers wary of the one-take, warts-and-all nature of the technique.

So these recordings don't quite swing in the way a live recording of a particularly sensational gig might swing, nor do they have the feel of a perfectly crafted studio recording that took advantage of the freedom offered by post-session surgery. I'm not saying that the latter is any more desirable; it's just that studio recordings don't necessarily suggest the sheer caution which is, in fact, very much a part of the process. But that's all irrelevant; these are name-artist sessions, and collectors and completists will want them for that alone.

Fortunately, (analog) tapes were running when the Century sessions were cut direct-to-disc. Joe Speeder at Warner Brothers has "painstakingly restored [?] and digitally remastered" the tapes, and the resultant CDs ain't bad at all. Let me rephrase that: they're bloody marvelous.

Dating from 1977-78, the Century Masters (as the BBC has rechristened it) catalogue consists of nine titles. Woody Herman is represented by *Road Father*, a collaboration with Flip Phillips called *Together Flip and Woody*, and the odd set of Chick Corea and Steely Dan covers, *Chick, Donald, Walter and Woodrow*. Buddy Rich appears on *Class of '78* and, with Mel Tormé, on *Together Again—For the First Time*. Then there's *Les Brown and his Band of Renown*, Anita Kerr's *Performs Wonders* (featuring—naturally—covers of Stevie Wonder songs), Benny Goodman's *The King*, and the

Phil Woods Quintet's *Song for Sisyphus*.

I don't quite know who outside the audiophile community will buy these if they don't sell on the strength of the artists' names. As for audiophiles, well, the sort of people who bought audiophile LPs in the late 1970s might still be analog fetishists. But three cheers to the BBC for picking up on an historically important jazz catalogue which might have gone the way of vinyl.

Now, any guesses as to who'll pick up *¡Flamenco Olé!*?



## Japan: Peter W. Mitchell

The Esoteric P-2 CD transport, and a modified version bearing the Wadia name, have been praised consistently in these pages for their remarkable ability to make CDs sound more like real music. In May 1990 Robert Harley found that the datstream from the P-2 exhibited much less timing jitter than that from other players. He and I have both speculated in print about whether that reduction in jitter is responsible for the transport's marvelous contribution to good sound, and whether that improvement was directly related to the P-2's innovative mechanism. Unlike conventional CD players, which simply rotate the disc on a spindle, the P-2 contains a full-size platter that clamps to the disc and spins with it. The obvious question was: could somebody copy this idea and provide a similar sonic improvement in an under-\$1000 player?

Pioneer is trying to do precisely that. Four new Pioneer CD players, topped by the PD-7700 at \$400, feature 1-bit decoders and a "stable platter" mechanism featuring a full-size aluminum platter with a nonresonant mat. The disc is clamped to the platter and rotates with it, driven by a motor whose unusually large 4.5mm spindle shaft should minimize wobble. Reportedly a version of this mechanism will also be used in Pioneer's pricier Elite series CD player, which is aimed at high-end customers. The Pioneers may not match the sound of the \$4000 Esoteric, but if one of them provides even a part of the latter's lifelike sound, it could be a best-buy. We'll see.



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## US/Japan: Robert Harley

Hot on the heels of Philips's announcement of the Digital Compact Cassette (DCC) last January, Sony Corporation launched its own competing consumer digital recording format at a New York City press conference on May 16. Called the Mini Disc (MD), the new music medium is a 2.5" (64mm), recordable/erasable<sup>6</sup> disc that can store 74 minutes of "near CD quality" digital audio.

Scheduled for release in late 1992, the MD uses what looks like a miniature CD in a plastic "caddy." In fact, a Mini Disc looks surprisingly similar to a 3.5" computer diskette (but much smaller), with a sliding media protection cover and center hole. These discs can be either prerecorded (made from polycarbonate just like CDs) or recordable/erasable using magneto-optical technology. One machine will play *both* types of discs. The Mini Disc claims 20kHz bandwidth and its 105dB S/N ratio implies at least 16-bit resolution.

Because digital-to-digital transfers are possible through the standard S/PDIF interface (CD to MD, MD to MD, DAT to MD, etc.), all MD hardware will be equipped with SCMS (Serial Copy Management System), the same copy-protection system used in DAT that allows one digital-to-digital transfer but not multiple-generation digital copies. Sony intends to license MD technology to other manufacturers.

No pricing was announced, but blank MDs will be "comparable to analog metal tape," and play-only portable units should "be priced below portable DAT and approach the [price of a] Walkman," according to Ron Sommer, President and COO of Sony Corporation of America. Sony will supply blank recording media as well as prerecorded product through its subsidiary, Sony Software Corporation, which owns the CBS records catalog.

The Mini Disc is envisioned not as competition for CD, but as a product that addresses an entirely new need. The two mottos attached to MD clearly delineate its use: "Music anytime, anywhere, by anyone," and "The new format for personal audio." It appears, however, that MD would challenge the analog cassette's dom-

inance in portable applications, while simultaneously expanding the market for personal stereo. Moreover, the Mini Disc, as a portable digital format that provides the consumer the option of home digital recording, would seem to be on a competitive collision course with Philips's DCC. Sony officials, however, became tight-lipped when asked any questions about MD in relation to DCC.

Sony insists that MD poses no threat to CD because each serves a different consumer demand: CD is for higher-end use and MD will "target young music purchasers looking for high-quality digital sound in a portable and shock-resistant product." Indeed, MD owes its genesis to two enormously successful Sony innovations, the Walkman (which pioneered the market for personal portable stereo), and the CD (which pioneered the technology on which MD is based). Sony has sold over 50 million Walkmen, with 13 million of those sold in 1990 alone (of a total market of 60 million sold that year). Moreover, Americans buy nearly 300 million CDs and 450 million analog cassettes per year. Sony sees these numbers as indicating the need for a portable format that combines the portability, convenience, and shock resistance of the analog cassette with the CD's many attributes. Research indicated that only 20% of US music consumers who own CDs use their CDs outdoors or in cars. The Mini Disc is clearly aimed at the other 80%.

In development since 1986, the MD is a *tour de force* of technical innovation, based on four technologies either invented by Sony or refined enough by them to become practical in an inexpensive consumer product. These are: 1) a 5:1 data-compression scheme called ATRAC (Adaptive Transform Acoustic Coding) that makes possible 74 minutes of playing time on a 2.5" disc; 2) magneto-optical (MO) record/playback with direct "overwrite" capability; 3) a dual-function laser pickup that will play both prerecorded polycarbonate discs and MO recordable discs; and 4) a "shockproof memory" that provides skip-free playback even when shaken violently in portable applications.

The Mini Disc is clearly destined for head-to-head competition with Philips's Digital Compact Cassette. Both are aimed at the same market (personal portable stereo), both offer a choice of prerecorded product or blank media, both bring the price of consumer digital recording to a more affordable level, and both are

<sup>6</sup> For a full description of DCC, see "As We See It" in Vol. 14 No. 4 and "Industry Update" in Vol. 14 Nos. 4, 5, and 6.





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It is unlikely that both DCC and MD will survive in the marketplace; consumers will ultimately choose one format over the other. Which one wins will be determined by a variety of factors including price, software availability, support from other hardware and software manufacturers, and performance.

DCC has the big advantage of backward compatibility with existing analog cassettes and a 90-minute playing time. MD hardware and software, however, are much smaller and lighter, increasing MD's attractiveness to the portable market. Moreover, MD enjoys the many advantages of optical technology: no wear, instant access to any portion of the disc, and is presumably more robust than tape. Consumers may associate DCC with the analog cassette's problems, and MD with the functional ease, convenience, and sound quality of the CD, a format for which they've already demonstrated their enthusiasm. MD may be perceived as the more advanced and forward-thinking technology rather than a revamping of an older product. **S**

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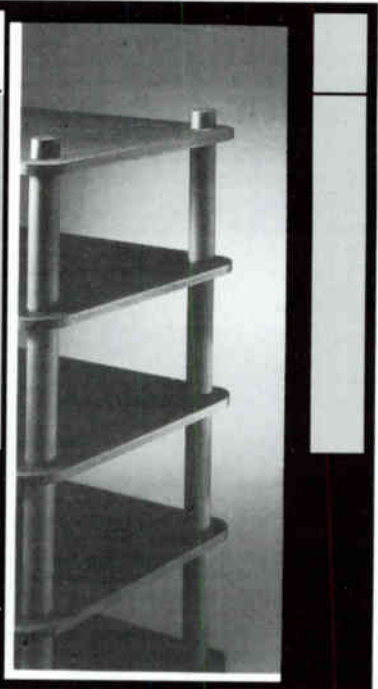


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Stereophile Vol. 13 No. 7, July 1990

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# SAM'S SPACE

Sam Tellig

Every day, someone calls and asks for my opinion.

It's okay if they're asking my opinion about Bush or Gorbachev or the stock market. It's when people ask my opinion about *stereo equipment* that I begin to bristle. How many opinions can one guy have?

"What does Sam think of the Unity Audio Fountainhead Signature speakers?" Brass Ear asked Lars the other day.

"He's not saying," Lars replied. "Everyone is clamoring for his opinion so he's clammed up."

Lou called—from the airport yet. Just to get his daily opinion check.

"How are the Unity speakers working out?"

"Sorry, Lou. It's good to hear from you. I hope you had a successful trip. But I'm not giving out any opinions until after the show [Summer CES]. I'm all opinioned out."

I got a call from Peter Dobbins, whose agency does PR for TDK. They had kindly sent me some samples of their new TDK "Super Accurate Cable"—an interconnect. Speaker cable to come.

"Are you going to write about it?" asked Peter.

"I suppose. Eventually."

"The people in Japan would like to know when."

"Well, I can't say for sure. I was going to tack something on to a column."

"We were hoping for an entire column."

(He probably would have received a bonus.)

"I'm afraid I'm no Tony Cordesman," I said, accenting the first syllable of the last name. "I can't write more than a paragraph or two about a piece of wire. All I can say is that the wire is beautifully terminated, sounds good, and is quite nice for the price. I suppose, though, that that's not enough."

"We were hoping for more."

One of these days I'm going to have to start making believe that I hear all sorts of differences between interconnects. That way I'll have more to write about. I'll also get a reputation for being some kind of guru. I'll go around making statements like: "Zappo Wonderwire scored a confident 94% in listening

tests." Not 93%. Not 95%. But 94%.

This is like Victor Goldstein, who says, "Mar-r-r-io, I have just made a *forty-two percent imprrr-ooove*-ment in ze sound."

The other day, Howie Hyperfy invited me over to hear his Avalon Eclipse speakers again, now that they had had a while to break in. I refrained from uttering an opinion.

"Maybe you could say something to follow up on your last comment," suggested Howie. "Do you really want me to?"

Howie looked at me, paused a moment, and said, "Naah."

Besides, who am I to comment further on the Avalons? First of all, I'm too cheap to own a pair—I haven't paid the price of admission, so I'm not entitled to an opinion. How can my opinion be worth anything if I'm so cheap?

Second, I can hardly hear the differences among cables, so why do you want to know what I think about speakers? I think TDK "Super Accurate" Cable is pretty neat for the price, for instance.

"He-he-he-he-he," twittered one audiophile after I said that.

"But you haven't *listened* to TDK cable," I rejoined.

"I haven't listened to the Shure Ultra 500, either."

"Your loss," I said.

Sometimes my opinions come under challenge.

Gentle challenge, in the case of John Atkinson, who told me that the folks in Santa Fe were slightly less impressed with their pair of Adcom GFA-565 monoblocks than I had been with mine.

"The amps are really great for the money, aren't they?"

"Well," said John, tentatively, "they may be a little flat."

"Flat. How?"

"Dimensionally."

"Hell, that's the last thing I would say about the amps. They've produced an excellent sense of depth for me. Of course, I've been listening to a different pair of amps."

In a way, though, John's right. The amps do lack depth in the sense of air—the sense of pal-

pable presence.

There's a lack of roundness to the Adcoms. The sound is so precise, the bass is so tight, definition is so good that something seems missing by way of atmosphere.

The B&K M-200 monoblocks have loads of atmosphere, but compared with the Adcoms, on the speakers I had at the moment, they appeared to lack some resolution.

"Your article on the Adcoms really did it," one B&K dealer told me.

"Did what?"

"Spooked some B&K sales. A guy had a pair of B&K M-200s on order, read your article that said the Adcoms were better, and canceled the order."

"But he couldn't have had time to audition the Adcoms."

"Doesn't matter. You said that Adcoms were better."

"I said no such thing! I said they were better on my Spondors, with my system, for my tastes. I even suggested, in a footnote, that if I had had different speakers at the time I might have preferred the B&K M-200s."

"You'll get bored with the Adcoms after a while," suggested another B&K dealer. Sour grapes.

"I got bored with the B&Ks, actually. Hell, I get bored with everything. I'm neurotic. That's why I'm a reviewer."

Yet another dealer said, "Sam, I can take your opinions to the bank. Your favorable opinions, that is."

"Gee, I guess Adcom and B&K think so, too. Both of them have quoted extensively from my reviews. But why don't your customers listen and think for themselves?"

"Why don't pigs have wings?"

"Why can't Swedes say *j*?"

"Exactly!"

"You know what I did to Adcom?" I nudged John Atkinson. "I was deliberately vulgar in my write-up of the GFA-565s so Newt Chanin [head honcho of Adcom] wouldn't reprint my article as an ad. But I was actually surprised when you printed my article as written, John."

"Richard Lehnert and I thought about sanitizing it."

"I'm glad I gave you something to chew on. That was part of my intention."

"We decided to print your article as it was because we wanted to see what would happen."

"That's why I wrote it. But what do you mean

by 'sanitize?' Do you mean making it clean . . . or making it sane?"

"Both. But finally we decided not to touch your text."

## **Adcoms, MOSFETs, & letters**

I just received a letter marked "not for publication." I'll honor the writer's request for anonymity, but let me quote from the letter. The writer talks about the Adcom GFA-585—the stereo amplifier from which the GFA-565 is derived:

"While the GFA-585 is good value for money, unfortunately at the end of the day it sounds too lean . . . it is not musical compared to a good MOSFET design."

This writer is not the only one who feels this way. Among audiophiles I've talked with, Adcom amps come in for consistent criticism on the basis of their being perceived as lean, dry, slightly hard, etc. One comment that keeps coming up is that Adcom's little amp—the GFA-535—is the best-sounding of all.

It seems to me that there's a tradeoff.

The Adcom amps, with their bipolar output devices, can sound a little lean, thin, lacking in body—but they're very detailed and have excellent—no, make that superb—bass. On the other hand, a well-designed amp using MOSFET output devices—like the B&K M-200s—can sound rich, warm, atmospheric, but can't offer the last word in resolution or bass control. Which you prefer will depend on your speakers, the rest of your system, and your personal tastes.

You may even want to do what I do periodically and turn to tubes. But tubes aren't always the answer, either. Perhaps the answer is a more expensive solid-state amp—like some of the latest offerings from Krell, Jeff Rowland, Threshold, etc. Or maybe, as Roy Hall would say, you should buy a Creek integrated and a pair of Epos speakers (Roy, of course, imports both), just listen to the music, and forget hi-fi.

## **Tour to Russia!**

Comrades—why not forget about hi-fi for a couple of weeks this fall and come to Russia with me?

Saddam Hussein and Gulf War jitters nixed our spring fling—we were trying to sign up fellow travelers at the height of the war. By the time peace broke out, our deadline had passed. No trip.

Fear not! We're going this fall.

I say this with some confidence now that some additional fellow travelers have come out of the woodwork—I hope they don't fink out.

"What's all this fascination with commie stuff?" asked Roy Hall. "Are you a Red?"

"Nope. I'm a registered Republican—so's my Russian-speaking daughter. I am a capitalist pig and proud of it! But I love visiting communist countries. Things are so *different*." I laughed my evil laugh.

"I don't think you'd like to *live* in Russia," Roy said.

"No, but I do like certain things about the Soviet Union. For instance, since it doesn't do much good to work, you spend your life trying to scheme. That brings out a certain resourcefulness in people—even a camaraderie. Your friends become your conspirators. How can you beat the system?"

"Next, even though you may be oppressed, you get to oppress others, which more than makes up for being downtrodden yourself. That's the heart of the Soviet system. If you can help make someone even more miserable than you are, then you've accomplished something."

"Sounds perverse."

"It is. No one ever says, 'Have a nice day.' They sulk and say to themselves, 'Have a miserable day.'"

I continued: "Look what happens in capitalist countries, Roy. People get all this money and they spend it on hi-fi, but not necessarily your Creeks, Revolvers, and Eposes. They worry about whether to buy Jeff Rowland or Krell, Wilson WATTs or Avalon Ascents. Or they try to figure out what Julian Hirsch *really* likes. Instead, Soviet citizens worry about sensible things—like sausage.

"The problem with capitalism," I pronounced, "is *Stereo Review* and *The Absolute Sound*."

I don't believe most of this stuff, but I say it anyway.

Don't you want to go see what's happening in the Soviet Union for yourself?

Our tour leaves New York on October 9, returns October 23—with an inconvenient midweek departure to save money. Write me and I'll tell you about all the places we'll visit.

Moscow, where we'll see Lenin's tomb, Ivan the Terrible's ivory throne, where we'll attend the Bolshoi, tour the Kremlin, and as much nonsense as we can cram in. Soak up the Stalinist ambience!

We might even get to the fur market, where you can do a deal—like trade your Sony Walkman for a fur hat. The ruble is now trading legally at 27 to the dollar. LPs have thus dropped in price from a dime to less than a nickel. And I know where the record stores are—most tour guides don't.

On to Leningrad—home of the Hermitage, the Russian Museum (art), the Kirov opera and ballet, Shostakovich Hall, Dostoyevsky's apartment, and the Alexander Nevsky Monastery, with the most astonishing church acoustics you've ever heard. (We did have to get standing room at Shostakovich Hall last year—but it was worth it. Yuri Termirkanov conducted Shostakovich 5. I paid 11¢ each for the tickets.)

Odessa is wonderful. This will become a jet-set spot if the Soviet Union ever turns capitalist, which would put an end to all this 27-rubles-to-the-dollar business. (See? You need to go there *now*.) We'll have to jet there on Aero-flot! Even the food can be good in Odessa—especially if your bribe the hotel waiters. Last year, ten of us went to the Odessa Opera House for \$2.43. That's not \$2.43 each—but 24.3¢ each. For the expensive seats. The upper balcony would have been 15¢, but I splurged.

We'll march from the Melodiya shop just off Red Army Avenue to the other Melodiya store on Karl Marx Street, eating our way across Odessa in the process: the most delicious pizzas . . . and killer ice cream (clogs the arteries). Then, after taking your bagful of 5¢ records back to the hotel, you can hear *Madama Butterfly* sung in Ukrainian.

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## High-end audio:

### How to know it; where to buy it.

Andrew Singer

Over the next two months, I will explore the subject of how to select the store from which to purchase your hi-fi system. Whether you become a real aficionado and wind up spending a lot of time and money over the years at your dealer's store, refining your system until it approaches perfection, or simply walk in and purchase an honest and simple stereo—never to return—the choice of which dealer to work with will be the most important one you will make. Whether it is a long-term relationship or only a one-day stand, who you buy from is far more important than what you buy.

**Who you buy from  
is far more important  
than what you buy.**

No matter how much research you do, or how many reviews you read, there is no way for you to know what components in a given price range best suit your needs, sound the best, and are the most reliable—the three most important factors in selecting a given piece of equipment. Pick the right dealer and not only will he know, he will tell you. At my store, for example, we go through a painstaking process of component selection, evaluating and comparing each product we propose to carry against a referenced piece for sonics (on absolute as well as relative scales), reliability, and construction quality. Only when a piece of equipment excels in all these parameters do we offer it for sale. We are not alone in this respect. Any decent high-end dealer does the same thing. No consumer research project and no review process could ever match what a good high-end dealer goes through for thoroughness, detail, or judgment. Moreover, we don't keep it a secret; if you want to know what's the best, ask; we'll be happy to tell you. Honestly.

An audio system isn't like a car—the parts don't come preassembled. Imagine having to select a transmission, drivetrain, engine, chassis, etc., by yourself, from all the possible ones available. Unless you happened to be Jackie Stewart or The Fonz, the task would be gargantuan; if you attempted it, you'd probably wind up with a Rube Goldberg device the likes of which this world has never seen.

The same issues of compatibility exist in creating an audio system from its parts, but even most manufacturers don't know what other components best suit their products. Given, there are guys like Dan D'Agostino from Krell, Bill Johnson from Audio Research, Gayle Sanders from Martin-Logan, and Richard Vandersteen, to name a few, who go out and buy just about everything to see how other components work with their own products. But, for the most part, it's the responsible dealer who, through a process of scientific evaluation and trial and error, painstakingly creates a system in which the whole is greater than the sum of its parts. His or her advice on this subject is truly the last word, and is heeded by manufacturers and reviewers alike.<sup>1</sup> Indeed, it is truly ironic that while so many professionals, manufacturers, and retailers will ask me and my peers for our opinion and rely on it in deciding whether to recommend or carry a given product, a skeptical audiophile will avoid accepting it out of fear that he is being hoodwinked. That's too bad!

As in buying a car, you'll really need someone to physically put these parts together once they're chosen. It's an article of faith that even using less than the best components, a competent dealer, through careful setup, can create a system that runs rings around the most

<sup>1</sup> While I feel that reviewers should take note of what people who work in stores say—they are similar people, with similar skills, fishing in the same stream—my gut feeling is that most reviewers have too much pride to do so. As perhaps do the people who work in stores: two groups of people, divided by a common interest! —JA

expensive hi-fi imaginable assembled by a novice. It's all a matter of setup and know-how.

Finally, if anything goes wrong, a good dealer can make it all right with a minimum of pain and frustration. Of course, all these assertions presume that you've chosen a good dealer—the right dealer for you. That's what this article is all about—how to make that choice.

Before we can consider how to choose a high-end audio dealer, we must first define our terms. What is a high-end audio dealer? Indeed, what is high-end audio? The very term evokes images of Ferraris, walnut-paneled studies, Giorgio Armani suits; in short, decadence, snobbery, conspicuous consumption, and lavish expense. This image of high-end audio was accurate to a large degree insofar as it applied to a small group of manufacturers and dealers at the end of the 1970s and the beginning of the 1980s who sold their wares by intimidation and condescension. The old "if you have to ask the price, you can't afford it" attitude worked to some degree with many people. It "lushed" some people in, but for the most part it turned people off—myself included. You might say that one of the impetuses for the birth of my store was the smug, rude attitude of the employees at what was then one of the choicest high-end audio stores. These guys acted like they had received the Ten Commandments of Hi-Fi from the God of Audio and would share it only with the Chosen People: those who wholly opened their wallets and closed down their critical faculties. To be allowed into their infamous back room was the ultimate "honor," to be shared by only a few selected parishioners who would pray and pay the price.

This brush of vanity and elitism tarred high-end audio for many years. No longer. High-end audio: the very term seems to inspire feelings of awe and unapproachability. These are often expressed by many potential customers who mistakenly believe high end inexorably means high-priced and high-handed. I prefer the old-fashioned term "high fidelity," as it more accurately defines what I believe high-end audio is all about.

Look up "fidelity" in a dictionary. It means faithfulness, or an adherence, to the truth—*ie*, real music reproduced to a high degree of accuracy. Put another way, high-fidelity audio is all about assembling playback systems which come as close as possible to recreating the illu-

## High-end retailers seek to achieve a common goal: to put high-fidelity music into your home.

sion that live music is being played. It's not about money, power, snobbery, or intimidation. It's about making music. High-fidelity audio dealers are, then, those few stores whose goal it is to assemble, install, sell, and service audio systems which come as close as possible to the real thing: live music.

I'll examine how to recognize these places and how to pick the right one for you next month. Until then, ponder this: Our styles may vary from low-key and laid-back to high-intensity and fast-paced. Our physical plants and sizes vary from one or two people in a single-room shop to operations with thousands of square feet in nine or more listening rooms, employing staffs of up to 25 people. However, we all share a common vision. We all seek to achieve a common goal: to put high-fidelity music into your home.

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# PAVANE POUR UN DEALER DÉFUNT

BARRY WILLIS

*In Xanadu did Kubla Khan  
A stately pleasure  
dome decree. . .*

—COLERIDGE

**T**he bank came today and seized the store.<sup>1</sup> They came with a court order, two moving vans, and a team of six movers. After a cursory inventory, they took almost everything: amplifiers, speakers, CD players, VCRs, videotapes, LPs, cables, tools, tone cones, discs, disc dampers, desks, chairs, paintings, calendars, staplers, and note pads. They hauled the Duntech Sovereigns out like old refrigerators and slammed them into the truck. They tossed the Goldmund Mimesis 10 into an open box with a Proceed transport and an SME tonearm. On top they dumped a drawer from the display case; out tumbled cartridges and connectors, some boxed, others open, worth thousands of dollars. The original packaging languished in the warehouse. The store's shocked personnel stood by like TV

reporters watching looters during a riot. The bank's hired hands wreaked havoc with the high-end hardware. What they didn't take got trampled underfoot, their ignorance working to the benefit of those who were asked to "stay and help sort things out." Found in the trash, a Krell KC-200 cartridge; on the floor, a Virtuoso Boron vdH. By day's end they grew tired of dealing with "the small stuff." Accessories, cables, and interconnects were left behind for the cleaning crew. The better items were smuggled out, worn like belts under jackets or stuffed into pockets and briefcases. Some unboxed equipment was spared the indignity of the auction block when bank officers were told that it was "customer-owned goods." Spontaneous scavenging spread like a virus from employee to employee. Guilt never entered the picture—there had been no final paychecks.

<sup>1</sup> Any resemblance between what you are about to read and any real-life high-end store is, of course, entirely coincidental.

It was almost three years to the day since Murray Krebs had opened his Xanadu Emporium of Audio & Video Wonders. The story goes that he had sold a successful business in an unrelated field, leaving him cash enough to live on, if wisely managed, for the rest of his life. He had a big house in an expensive suburb, all the toys he could possibly want, plenty of time to play with them, and a problem: boredom. He missed the excitement of the business world. He imagined himself purchasing a German-auto dealership; Porsches were his favorites. He actually went to work as a salesman for a Mercury dealer to "learn the business from the ground up." Three months later the entire sales staff at this dealership threatened to quit if Krebs wasn't fired. He decided the auto business wasn't really to his liking anyway. Then he heard about a local McIntosh/Bang & Olufsen dealer who was in Chapter 13 and looking for a buyer. Krebs had been fascinated by hi-fi since his college days. This, he thought, was just the thing. The store he eventually bought had a lot going for it: an established clientele, a good reputation, an intelligent sales staff, and a superb service department. It also had the misfortune of being in a ghost-town shopping center, which was hard to find even if you knew the neighborhood. (Audiophiles, of course, consider difficult access an essential experience, like Muslims on a pilgrimage to Mecca.) Another problem this establishment had was its dated, early-'70s look: lots of redwood, dark carpeting, and subdued lighting. Krebs thought, "I'll update the decor, bring in some new lines, and start milking this cash cow."

He formulated a business plan and took it to the bank. They liked what they saw. He negotiated the purchase of the business and got the inventory and fixtures at less than 30% of cost. He hired as his general manager Ira Jackson, a near-legendary local hi-fi salesman with a strong constituency and a propensity for doing business after hours from the trunk of his car. They went to the Consumer Electronics Show. They took a tour of high-end stores from New York to Florida. They pored over promotional literature from the world's most prestigious makers of audiophile equipment. They spent days and nights revising their line-up, which seemed to take on a life of its own, growing ever larger and more imposing with each revision.

At some point their dreaming and scheming escaped the realm of the rational and became a mutual delusion of grandeur. They decided they would create the greatest high-end store that Xanadu—indeed, the world—had ever seen. After all, the citizens of Xanadu had the highest per-capita disposable income this side of Rodeo Drive. Krebs and Jackson shared a unique vision: they would strike it rich selling audiophile products to non-audiophiles! With the feverish intensity of treasure hunters, they stayed up till the wee hours of the morning making extravagant plans, certain they were about to unearth enormous wealth. "The real reason most people don't care about high-end," they told each other, "is that no one's ever presented it to them properly. It's simply a matter of exposure and education."

**"The real reason most people don't care about high end is that no one's ever presented it to them properly."**

Xanadu had never seen an operation like the one they would unveil. Its two million citizens would flock to the opening. They would stand in line for days if need be; they would gladly trade their Saabs and Mercedes for a little upper-midrange lucidity. Audio Research in every home didn't seem too farfetched; Celestions in every bedroom, WATs and Puppies in every den! "These products are so good, they practically sell themselves! All we have to do. . . is some simple showcasing."

To direct the renovation of his new store, Krebs hired a design team which specialized in traditional upscale residences. He was convinced that if he showed his customers equipment in rooms just like they had at home, or just like they *boped* to have, they would easily see that esoteric audio is the perfect addition to Frabel glass and Roche-Bobois leather. His patrons would learn the value of hi-fi by association. "We won't build special rooms to make our speakers sound good," he told his contractor, "because real houses don't have rooms like that." His interior decorator persuaded him that



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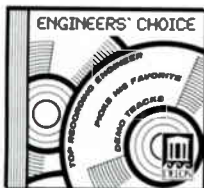
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he needed a soft, warm carpet in a pale tone; they settled for a *tres cher* pink wool wall-to-wall, which would nicely complement a birds-eye-maple credenza crowned by a Lalique glass-and-enamel vase overflowing with silk flowers, beneath a bucolic fox-hunting scene in a gilt frame. The decor would be fraught with icons of upward mobility: Martin-Logan Monoliths standing discretely before French windows draped in Scalandre damask, a Goldmund Studio atop a Louis XV lacquered writing table. "We'll push all the buttons of upper-middle-class respectability. The rest will be easy."

Our hero found that the original store wasn't big enough to suit him. He needed six showrooms at least. The smaller, less intimidating systems would be situated near the front door—Rotel, Nakamichi, Luxman, Paradigm; in the middle, a McIntosh room; across the hall, Celestion, Superphon, B&K, Well-Tempered. Each room would be more exotic than the last. One could move from McIntosh to ARC to Rowland to Krell to FM Acoustics. Venturing deeper into the store would take one to higher and more rarefied levels of experience and expense, a retailing ploy akin to that used by adult boutiques featuring special rooms *to be entered only when accompanied by a salesperson*.

Krebs decided that he needed two buildings, and leased a second one a good 80 yards across the parking lot. The first would be built out as a group of audio showrooms; the second would include warehouse space, offices, a home-theater/corporate media room, and a stand-alone service shop. The vision was coming into focus.

He now began to play fast and loose with his checkbook, giving Jackson *carte blanche* to take on any line in any quantity which might tickle his fancy. He gave Jed Brown, a malcontent technician and lifelong toiler for substandard pay, the title of Service Manager and the authority to purchase any test equipment he wanted. Jackson and Brown took him at his word and ordered hundreds of thousands of dollars worth of precious electronics. Krebs bought several mahogany office desks and four computers, which because of differences in operating systems could not communicate with each other. He paid his building contractor cash up front to renovate two buildings, which he did not own, then paid the electricians,

carpenters, and plasterers a cash bonus to work overtime.

He bought furniture (antique and modern), artwork (paintings and sculpture); he bought plants and sconces and halogen lighting. He hired the city's most sought-after cabinetmaker, a guy with a two-year waiting list, and paid him extra to put his other work on hold. Cabinetry of exquisite craftsmanship was created for the Mac room and the home theater/media room, which was then filled with a huge teak table surrounded by 12 plush chairs, such as might grace the board room of any of the *Fortune* 50. Krebs flew to half-day meetings with small manufacturers. He took out full-page ads in *Stereophile* and *The Absolute Sound*. He consulted marketing experts of every variety. He lunched with designers and trendy architects. He wangled a write-up in *Xanadu Magazine*. He sucked up to builders of custom homes at the Annual Xanadu Home Show. He purchased mailing lists of lawyers, dentists, and doctors. He made friends with influential patrons of the Xanadu Symphony. He set up sweetheart deals with luxury-auto dealerships and exclusive athletic clubs. He hired a hot ad agency to put together a slick 16-page brochure. Krebs, Jackson, and their sales staff hoped and believed opening day would resemble the Oklahoma Land Rush.

In anticipation, they stocked to the ceiling every high-end product conceivable. The offerings of the Xanadu Emporium read like a *Who's Who in Hi-Fi*. Many names which ordinarily compete head to head sat side by side, the elite from a typical CES all proffered under one roof. In a list too long to enumerate were at least three of each of the most expensive archival turntables available at the time. (This was a scant three years ago, when the CD format was very well established.) Krebs and his crew worked 'round the clock during the last weeks before opening, as if they were putting on a Broadway play.

The mailers were sent. The silk-and-satin wallpaper was hung above the walnut wainscoting, the framed pastorals and florals were artfully arranged, the brass handles on the beveled-glass doors lovingly polished. The lighting was carefully adjusted, the video converged, the colors balanced, everything *audio* aligned and tweaked and anointed and prayed to. The Titanic was fitted and christened for her maiden voyage.

Day One was a catered affair. It was quite a bash. The very air sparked with excitement. The circus had come to town! Local *glitterati* turned out *en masse*: professional athletes rubbed elbows with architects, cosmetic surgeons schmoozed with designers, lifestyle gurus waxed effusive with the media. The Emporium of Wonders was beautiful. Its ostentatious Mark-Levinson-meets-Ralph-Lauren decor was truly gorgeous: Hi-Fi in a Dream Home. The Wife Approval Factor had attained an all-time high. And that was merely the sales floor. The service department had been transformed from an industrial afterthought into a sparkling state-of-the-art laboratory. Factory representatives and wealthy customers in utter amazement strolled across its black-and-white marble-tiled floor. "We can maintain your investment in peak condition," Krebs would say, waving a magnanimous hand toward his white-coated technicians.

Perhaps the ultimate thrill for the true cognoscenti was to venture into the warehouse: to bask in the silent aura of heavyweight hi-fi neatly stacked 10, 12, 15 high; an audiophile's fantasy: a million-dollar inventory *all in one room*. It was certainly the pinnacle of Ira Jackson's career, who sometimes could be found just standing there, cooing to himself, "Wow, look at all this stuff."

Murray Krebs had an unswerving conviction that the best way to serve the customer was to make sure that for every item he offered, there was *at least one to show and one to go*. His salesmen joked that he stocked three Versa Dynamics in case more than one wild-eyed and shaking customer came in some Saturday afternoon with an unquenchable thirst for a \$13,000 turntable.

Enticed by hype and hubbub, the public came to the circus but went home without buying many souvenirs. Word spread quickly through the audio underground: "You've got to see this place while it's still in business." From the beginning was the feeling that some-

**W**ord spread quickly:  
"You've got to see this place  
while it's still in business."

thing wasn't quite right; perhaps this guy had overestimated his market, maybe he was way

out on an extremely tenuous limb. In the *nouveau riche* market of Xanadu, Krebs's education program was failing. Most people apparently felt it absurd to pay huge sums for apparatus and accoutrements which merely *played music*.

The fabric of the façade began to unravel less than three months after opening day. Krebs found himself facing a rent in excess of \$14,000 monthly, which he had hoped to pay with profits from his service department. Gross billings in service fell far short of projections. For this Krebs held Jed Brown personally accountable, although Brown had nothing whatever to do with advertising or marketing service. The retail picture was similarly bleak: sales were not merely less than hoped for, they were well below break-even. Vendors began to demand payment on opening orders. Krebs, in frustration, would stand near the display case and browbeat his sales people. "You're not salesmen," he would scream, "you're clerks! Ordertakers! Losers! Losers! Losers!"

He sometimes ranted shamelessly for 20 or 30 minutes, often in full view of customers, while his employees stood around staring at the floor. Creditors called to inquire about late payments. Krebs would placate them with promises he probably never intended to keep, then march into the service shop to express his rage. A technician might be elbow-deep in surgery on a large power amp, only to be jolted by the spectacle of a flailing maniac in the middle of the floor. "You guys are a bunch of incompetents! Morons! I'm going to clean house and rid myself of all of you!" This sort of thing became a common occurrence, especially when "numbers" were disappointing. It was both comical and frightening, because no one was ever quite sure that he wouldn't slip his tether and get physical. Trying to talk sense to him during one of these attacks was pointless and would continue to be so later, behind closed doors, in the interminable meetings he liked.

His office was a disturbing combination of expensive furniture and paperwork run amok. The surface of his desk was piled high with messy notes, through which he would rummage in a glassy-eyed state of partial awareness when asked an especially pertinent question. Magazines and ledgers were stacked unevenly along the walls. A shelf groaned beneath a load of books on the art of salesmanship and the science of propaganda. Prominently displayed

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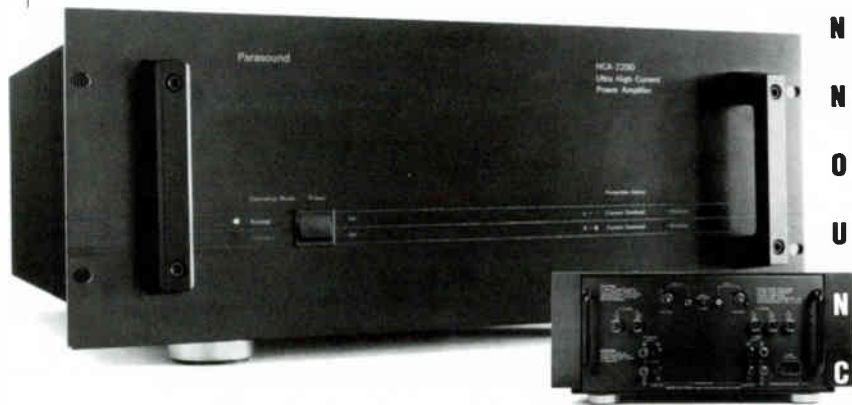
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- Balanced XLR and gold unbalanced inputs
- Two pairs of 5-way terminals for bi-wiring



among them was Norman Vincent Peale's classic *How to Win Friends and Influence People*. There was even a carton of motivational tapes specifically intended for professional salespeople, for which Krebs reportedly had paid more than \$5000.

A typical "meeting" consisted of Krebs and two or three of his workforce. He would pick out another employee (not present) and launch into an extended diatribe against him, dissecting his personal shortcomings, berating his work habits, questioning his loyalty, threatening dismissal. It was common knowledge that if you weren't at a meeting, you were the likely scapegoat of the day. As much as Krebs believed in and trusted experts and consultants, he conversely feared and despised any employee who, for whatever reason, might not be churning maximum profits. His managers—or bookkeepers or technicians or salesmen—would dutifully submit to these meetings, which usually amounted to nothing more than a sustained rant: Groucho Marx doing Hitler at Nuremberg.

**It was common knowledge that if you weren't at a meeting, you were the likely scapegoat of the day.**

Krebs became the source of much amusement among his employees. They vied with each other in vicious imitation of his personal affectations. They entertained themselves with stand-up comedy routines utilizing his favorite sales analogies: "Well, you see, the power amp is like the muscles in your body and the pre-amp is like the brain." Or "You appreciate fine cars, don't you? Well, this McIntosh over here is like a Lincoln Continental, the highest-quality American craftsmanship; this Krell is like a Ferrari, just an amazing performer." Their derision was in direct proportion to Krebs's abuse. It was a harmless way of venting steam.

Ira Jackson quit. He walked in at the end of an especially flaccid month and told Krebs "his heart wasn't in it." "Fine," said Krebs, "I'll hire myself a real manager. You're the guy who got me into this mess." He lured away from an extremely successful store in another city their star salesman. Will Pettitt negotiated for himself a guaranteed salary plus a percentage of

profits in return for complete autonomy in his quest to "turn things around." Krebs had found a new savior, whose reign lasted little more than a year. "Complete autonomy" was something Murray Krebs was incapable of granting. More than anything he wanted to be an executive, a hands-on entrepreneur. He couldn't stand the thought of being an absentee owner.

Jed Brown quit. He had become increasingly more depressed about the poor production figures in the service shop. He was fed up with customers' complaints, long hours, meager paychecks, and verbal bashings from his fearless leader. He went to work for a high-volume competitor. Krebs was glad to be rid of him. "Brown was a dragging brake," he told his techs. "Without him we'll really take off." He discovered further salvation in the form of Billy Williams, a multi-talented part-time technician. Williams made demands similar to Pettitt's, with the additional requirement that he hire an assistant. To this Krebs acquiesced. Williams got Krebs to hire Sherry Forrester, with whom he had worked at another establishment. Sherry had made many friends in the industry, while Krebs had made only enemies. Krebs recognized the talent he had. "I've got an all-star team," he kept saying, and he was right. His roster was swollen with seasoned veterans and eager rookies. His players might have won had he just let them play.

We are now midway through the Xanadu Emporium's brief life. Krebs, taking inspiration from Eastern Airlines' embattled Frank Lorenzo, delivered many extemporaneous speeches on the virtue of working more hours for less pay. Pettitt, Williams, Forrester, and everyone under their command labored mightily. They streamlined the operation. They worked overtime. They interceded for Krebs with customers and suppliers alike. The crew of the unsteerable Titanic bailed to the point of exhaustion.

**People in the high-end industry fell into two categories: "assholes" and "bastards."**

Krebs was being harassed daily by manufacturers. To him, people in the high-end industry fell into two categories: "assholes" and "bastards." His service department had difficulty obtaining parts because the store was on

credit hold with its vendors. Customers left deposits for equipment which was never ordered; their funds were used to pay utilities or salaries or cash-only CODs. Krebs had a dispute with one of the magazines over an advertising bill. In lieu of payment, he shipped a pair of Dahlquist speakers, which they promptly refused. He refused the return shipment. The magazine in turn refused. This scene was repeated a half-dozen times. The speakers bounced back and forth two thousand miles each way until they got so beat up they were unsalable. Krebs did have some success convincing other creditors to accept product instead of cash. The result was a dwindling inventory. When one supplier cut him off for nonpayment, he sweet-talked another into fronting him goods on extended terms, but had trouble maintaining credibility with his customers because his lineup changed from month to month.

He attended weekly meetings at the bank, from which he returned with elevated blood pressure. His rages became more frequent. The power company showed up twice in a three-month period and cut off the electricity for nonpayment. Fearing the worst, his employees quietly removed all their personal possessions from the premises. The phone rang constantly with inquiries about promises given and commitments unmet. In an amazing display of earnestness, Krebs would ask why his check hadn't been received, then "prove" that he had sent it by faxing a copy. The store went six weeks without the services of UPS due to unpaid bills. Through all of this, the Emporium continued to do business. To the casual observer, all appeared normal; equipment was demonstrated and sold, repairs were undertaken and completed, contracts were signed for custom installations.

Billy Williams sent a memo to Krebs, stating as diplomatically as possible that the only way to save the business was to consolidate all operations in one building, cutting the rent and other fixed costs in half. Krebs actually saw the logic in this and arranged to move the service department and warehouse into an unheated garage behind the store. This improved the cash flow sufficiently for him to pay down some of his debt. Relations with some of the vendors began to normalize. Krebs hired a new salesman, Rodney Apollo, a hustler from Manhattan who began to "write some serious numbers," working every angle: trade-ins, consign-

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ment sales, in-home demos. Sporadic custom installations brought in much-needed cash. The service shop, freed from the yoke of astronomical rent, began to show a small profit. Things were looking up.

The death blow went unrecognized at the time it was struck. The Bank of Xanadu, which had underwritten the funding for the Xanadu Emporium, was subsumed in a merger with a larger, pan-national financial institution, in the process losing most of its local officers. Krebs was left without a friend in the money business. At irregular intervals, tense men in suits began to appear at the store. They would meet Krebs in his office, where they conferred in low voices, or in the accountant's cubicle, where they examined well-cooked books. On other occasions they would take a walking tour of the warehouse, while Krebs attempted to regale them with nervous chatter.

It was a wild roller-coaster ride. When a salesman made an especially lucrative deal, or a final payment came in from a big custom installation, Krebs would dance for joy, like the day James "Domino" Jefferson, star forward for the Xanadu Meteors, came in and paid cash for a home-theater system. Krebs was certain that

all of Domino's teammates would follow suit. He made partial payments to all parties threatening legal action. He paid some of his back rent. He got chummy with his employees, forgetting for a moment their "incompetence and working-class values." He even offered to take them to lunch. But for the most part, he treated them with the same contempt he showed everyone in the wholesale side of the business. A salesman might work for weeks building a relationship with a client, only to be told after the deal was signed, "This is now a house account." In fact, most big spenders

## The death blow went unrecognized at the time it was struck.

became house accounts, on which no sales commission was paid. Technicians were told they were being paid half the hourly labor rate, plus a small percentage of parts profits, but their paychecks were often inexplicably short. When questioned, Krebs would throw a tantrum, screaming, "You don't care about this business. You're only here for a paycheck. My ass is on the line. You guys are bleeding me dry.

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Damn bunch of mercenaries.”

Relations between Krebs and his “all-stars” became increasingly strained. Unwilling to let them do what they did best, he interfered with everything they did, whether it was closing a sale, making a house call, or cutting a deal with a supplier. Frustration caused tempers to reach the boiling point on a daily basis. Nasty exchanges took place between Krebs and the bank, Krebs and the landlady, Krebs and the vendors, Krebs and his service department, Krebs and his salespeople, his salespeople and their customers.

One by one his employees disappeared. Nate Kowalski, a veteran technician and McIntosh specialist with a strong following in his own right, left to take a job repairing medical equipment. James Grisham, one of the top salesmen, took a position with a Japanese conglomerate. Sherry Forrester ignored Krebs’s outrageous and desperate overtures and gave notice. Will Pettit had become an outspoken enemy. Krebs attempted to blackmail him into quitting with a trumped-up charge that he had sexually harassed the bookkeeper in the warehouse. To this Pettit coolly replied that he would like to see this slander substantiated in court, and reminded him that he still had ten months’ salary due via a legally binding contract. He negotiated a sizable settlement when he left. The rats were deserting the ship. As they left, they took with them whatever they deemed their due after months of nonstop abuse. “Shrinkage” reached epidemic proportions in the final months, especially after paychecks started bouncing.

Krebs went to his last CES. He found to his dismay that his reputation had preceded him and virtually no one of any importance (that is, no high-end manufacturer) would give him the time of day. He returned to Xanadu in disgrace, to rebellious employees and resentful customers, to six months’ rent due, to unpayable utility bills, to a litany of phone calls from collection attorneys.

The bank announced its intention to call in its loan. He came back ashen-faced from a meeting with its officers. His liquid assets were gone. In a gesture of financial suicide, he had

signed over his home. Then his car. They owned him, as the song goes, “lock, stock, and tear-drop.”

Business continued in a semblance of normalcy for three more months. Everyone, with the exception of Krebs himself, knew the end was near. How near, they could not tell. They prepared for the worst. Résumés were written and distributed, friends and acquaintances in the industry were called. Everyone worked. And waited.

The tragedy is that Krebs really did have a beautiful vision. It might have worked. In the hands of someone else—*anyone* else—the Xanadu Emporium might be doing a brisk business now. There was so much he didn’t know, couldn’t grasp, failed to understand. He didn’t know that in a provincial city like Xanadu, luxury products must have mass recognition. You can’t drive Wilson’s WAMM down Xanadu Boulevard; you can’t wear a Koetsu to the mall. He couldn’t grasp that high-end audio competes not with itself but with other expensive toys: sailboats, sportscars, second homes. Most of all he failed to understand that virtually everyone in the business, whether salesman, technician, designer, or journalist, is in it for love more than money, and that no situation is more loathsome than doing what you love for someone you hate.

*It was six weeks past Christmas. Dread had given way to resignation. The men in suits, with their legal papers and moving vans, issued their edict. Krebs held them off with a promise of cash payment, money due from the last home theater sale. Like a compulsive gambler, he believed to the last that his luck was going to change. He installed new locks. He sweated and prayed. He did everything but sacrifice a chicken. It was too late.*

*On a cold Tuesday in February, the Emporium of Wonders came to an ignoble end. The circus folded its tent. The Titanic heaved onto her side, her captain in a final mad act opting to go down with his ship. The great empty vessel upended and quietly slipped beneath the waves, leaving nothing but a gurgling void in the marketplace of Xanadu.*

**S**

**No situation is more loathsome  
than doing what you love  
for someone you hate.**



# EQUIPMENT REPORTS

## A FISTFUL OF ANALOG

Corey Greenberg has an appointment at high noon with three turntables: the Linn Axis, the Well-Tempered Record Player, and the Super Revolver.

**Linn Axis belt-driven turntable.** No specifications given. Speeds: 33 $\frac{1}{3}$  & 45rpm. Dimensions: 17.5" W by 13.5" D by 5.5" H. Serial number of review sample: 027470. Price: \$995 with Akito arm, \$695 without arm. Approximate number of dealers: 100. Manufacturer: Linn Products Ltd., Glasgow, Scotland. US distributor: Audiophile Systems, 8709 Castle Park Drive, Indianapolis, IN 46256. Tel: (317) 849-7103. Fax: (317) 841-4107.

**Well-Tempered Record Player: belt-driven manual turntable.** Specifications: none given. Speeds: 33 $\frac{1}{3}$  & 45rpm. Dimensions: 15.5" D by 19" W by 2.5" H. Serial number of review sample: 3513. Price: \$995 with Well-Tempered Arm. Optional dust cover: \$100. Approximate number of dealers: not disclosed. Manufacturer: Transparent Audio Marketing, Rt. 202, Box 117, Hollis, ME 04042. Tel: (207) 929-4553. Fax: (207) 929-4271.

**Super Revolver belt-driven turntable.** No specifications given. Speeds: 33 $\frac{1}{3}$  & 45rpm. Dimensions: 16.5" W by 14" D by 5" H. Prices: \$950 in rosewood or redwood, \$875 in black ash. Approximate number of dealers: 80. Manufacturer: Sundown Electric Engineering Ltd., Warrington, England. US Distributor: Music Hall, 108 Station Road, Great Neck, NY 11023. Tel: (516) 487-3663. Fax: (516) 773-3891.

"Just remember; we're here to *help*." The man smiled and took me by the arm, leading me to my chair at the far end of the room. There were many such chairs, arranged in a circle, and I sat down quietly. I looked at other people sitting in the chairs; they looked on the verge of nervous breakdowns. The smiling man who'd seated me now sat down in his own chair and cleared his throat.

"My name is Dr. Safos; welcome. Before we start, I'd like you all to introduce yourselves. And people—we only use *first* names here."

A troubled-looking man stood up, but kept his eyes closed.

"My name is Earl, and I've . . . never owned top-of-the-line cable; just . . . *just the more affordable stuff*." He began to sob into his hands, and a woman helped him back to his seat. Others stood up and spoke.

"My name is Anne, and I still use the Super-scope receiver my folks bought me when I left for college [*sniff*] AND DAMMIT, IT SOUNDS JUST FINE, DO YOU HEAR ME?!"

"My name is Doug, and I can't . . . I mean, I never . . . oh lord . . ."

"Let it *out*, Doug; you're with *friends* now."

"But Doctor, it's just that I . . . I'm not sure I can really hear CD Stoplight! I mean, I *think* I hear it, but I'm just NOT SURE . . . you peo-

ple must think I'm *insane* . . ."

"No, *no*, Doug. There are a *lot* of us who aren't sure; that's why we're all here. To *open up* and admit our problems. To *start the healing*. Now, there's a young man here tonight for the first time . . . you, in the Tamale House T-shirt. What's *your* name?"

Everyone looked up at me as I stood; they had sunken eyes, disheveled hair, hands nervously tearing up paper napkins in their laps.

"My name is Corey . . . *and I never owned a reference-quality analog front-end!*"

The whole room gasped.

"It's true; I've owned a couple of Technics pro broadcast turntables, and I have an old AR-XA I rebuilt, but that's it."

A woman jumped to her feet.

"You mean you *never* owned a moving-coil?! Even a *bigb-output*?!"

"Nope."

"And you never had any air pumps *either*?!" a man yelled

"Nope."

Even Dr. Safos was incredulous.

"Are you telling us that you never *once* set up a Linn?! Broke in a Benz?! Smelled the just-new aroma of an SME?!"

"Nope."

His eyes flashed with rage.

"GET OUT!! WE DON'T WANT YOUR KIND HERE!!" he screamed, as the rest of them rolled around on the floor in hysterics. One woman laughed so hard she spit up blood. Ashamed, confused, disoriented, I ran out of the building and into the street, where the blinding headlights of the crosstown traffic assaulted my senses. There was nowhere to run; angry drivers shouted obscenities at me as they sped past, flicking their cigarette butts at my face. . .

And then suddenly, down from the skies a golden shaft of light cut through the chaos. On it an angel slowly descended, swathed in a white satin tunic and gossamer wings, who came to hover by my feet. It was TJN.

"How'd you like a bunch of analog to play with?"

I'm starting to like this racket.

### The Well-Liked System: new additions

My playback system has gone through them changes since we last met up. For starters, I've been using the VTL Compact 160 monoblock amps with their new KT90 output tubes; a full review is underway. I'm also using the new Muse programmable subwoofer with my Spica Angeluses; this combination is a KILLER, and you'll be seeing a followup to RH's review of the Muse shortly. The rest of the system includes the Audio Research SP-14, used as a phono stage only, and plugged via the rec-out jacks into my buffered-passive preamp (DIY article to come soon). Interconnects include Straight Wire Maestro and two from the Audio-Quest Birthstone series, Emerald and Sapphire (I'm still waiting for Aquamarine). The VTLs are uni-wired to the Spicas with 1' runs of the VTL cable.<sup>1</sup> Turntable support is courtesy a Sound Organisation stand I borrowed from a local dealer, Audio Systems of Austin, TX. All line-level electronics and turntables were plugged into the Audio Express NoiseTrapper Plus.

TJN sent along an assortment of cartridges to try, and I spent a couple of weeks wading through it all to find the best combos. Among the cartridges I received were the Sumiko Blue Point, the van den Hul MM1, and the Ortofon X5-MC; all were very musical, but I settled on the Blue Point as the reference cartridge for the review. Interestingly, it was the best-performing

in all three turntables I auditioned, which says a lot for its compatibility in a wide range of tables and arms. I felt like Goldilocks: the MM1 was a little dark, the X5-MC was a little etched, but the Blue Point was *juuust right*. This cartridge definitely deserves the good reviews it's received in *TAS* and The Audiophile Network; it's as affordable a true high-end cartridge as I know of.

### Linn Axis: \$995 (\$695 w/o arm)

**Bold as Ivor's love:** A Linn without any *setup*?! No springs to balance?! No cable dressing?! No upgrade boards with funky Viking names?! For five shy of a thou, *including* the new Akito arm?! *And* named after Jimi's second album?!

This was all too good to be true; I'd already been knocked out by the Lingo power-supply upgrade to the LP-12, having spent several visits to Audio Systems listening to it, so I was eager to hear the little wing of Linn's turntable line. Remember, the previous version of the Axis sported the Basik arm and got a Class D listing in *Stereophile's* "Recommended Components"; does the addition of the Akito arm significantly improve its performance? And *will* Ivor Tiefenbrun angrily reply in his "Manufacturer's Comment" that the Axis has got *nothing* to do with Hendrix, but was actually the name of some obscure Norse roadie who gave out backstage passes to the Ursula Andress-looking babes at Thor's gigs?

The Axis is a *very* different animal from an LP-12, the most obvious departure being the lack of a sprung subchassis. Linn wanted the Axis to work "right out of the box" with no tweaky setup, so springs were *out*; the Axis's subchassis rests on three nonadjustable silicone "mini-trampolines." As a result, the suspension is much stiffer than the LP-12's, although it does offer more environmental isolation than suspensionless tables like the Well-Tempered.

But a stiffer suspension means less isolation from motor noise/vibration, so after a quick run to the 7-11 for microwaved haggises, Linn's engineers sat down and built up a motor-control circuit they claim actually *outperforms* the LP-12's Valhalla board.<sup>2</sup> And let me tell you, this must be *some* almighty circuit; the Axis is the only turntable I've ever seen with HEATSINK

<sup>1</sup> "It's a *speaker* cable!" "It's an *interconnect* cable!" "Slut!" "Whore!" Ha ha, easy does it, you two; it's *both*!

<sup>2</sup> It's safe to assume the motor circuit takes a back seat to the Lingo, which costs more than the entire Axis package.



Linn Axis turntable  
with Akito tonearm

FINS hanging off the back!<sup>3</sup> The best news, for me, is that this motor circuit has *electronically switchable speeds*; not that I listen to many 45s, but I do have a few. I'll take the freedom from removing an outer platter and reseating the belt any day.

Physically, the Axis is simple, good-looking, and in the Linn tradition of exemplary finish. The fine black wood<sup>4</sup> plinth and precision-polished platter give the Axis the look of a much more expensive 'table. Unlike the LP-12 (and its antecedent, the classic AR), the Axis's top plate and subchassis are one and the same, a dark grey laminate-covered board supported by the three silicone "mini-trampolines." You can squish this board down a ways, but you can't "count the bounces" like you can with the LP-12.

What does all this mean? It means that the Axis doesn't have the ultimate vibrational isolation of the LP-12 or other softly sprung 'tables, and so has greater potential for bass and lower-midrange coloration due to surface-borne vibration rattling the Axis's cage. On the

other hand, it also means that you don't have to spend all the time and worry it takes to properly adjust and balance springs, dress the cables, and otherwise tweak tweak tweak the suspension to get the best sound; the Axis is as tweak-free a turntable as there is. You take it out of the box, squirt the oil in the spindle-hole, insert the inner platter, place the belt around it and the pulley, and slap on the outer platter. That's it. Takes a minute. You won't be spending a long hot summer night setting *this* Linn up; I've had *belches* that were longer than the time it took to get the Axis up and running.

The Axis has already appeared in these pages—way back in Vol.10 No.1—but that was the older version fitted with the pretty basic Basik tonearm; the current Axis sports the super-bad Akito arm, the result of Linn's R&D for their current flagship arm, the Ekos. According to Linn, the new thin-wall 110mm-diameter arm tube and heavier bearing assembly bring the performance of the tonearm up to the level of the rest of the turntable. And I can tell you right now, that level is higher than any thousand-dollar turntable has a right to achieve.

<sup>3</sup> And the heatsinks get *warm*! Linn keeps this circuit powered at all times to keep the motor-control board stabilized, a good idea in my opinion given the complexity of the circuit. The on/off switch is therefore really a start/stop switch.

<sup>4</sup> Although it scared me when I thought about it later, for some unknown reason I examined the wood plinth up close and it looks like a real good fake-grain veneer. Do I give a damn about whether a turntable's got real or fake veneer? Hell no! If I had *my way*, everything would be unfinished wood with little "lucky horseshoe" brands all over the place, the kind of hi-fi Hank Williams would've owned and probably did. But I thought you might like to know about the veneer, as they *are* paying me to notice such things. I'll shut up now.

**How's it sound? Just ask the Axis:** First of all, I can tell you that while the supplied arm cable is okay, I got *much* better sound with AudioQuest Emerald, so that's what I used for my listening. The Linn cable is better than most generic "giveaway" cables that come with gear, but it's rolled-off at both frequency extremes compared with audiophile replacement cables

like the AudioQuest. Yes, the Emerald raises the price of the front-end, but I'd call it (or something else you may prefer) absolutely mandatory if you want to get out all that the Axis is capable of.

As I mentioned earlier, I've had a few sessions with the LP-12/Lingo setup, and it's a stunner. Quite frankly, the Axis isn't as good; the Lingo'd LP-12 has a sense of effortless ease and bass extension that the much less expensive Axis just doesn't approach.

What the Axis *is* is a thousand-dollar overachiever, a turntable that does so many things right and so few wrong it may be all the front end you'll ever need. Lust after \$2000 cartridges? Think the SME Series V's too colored? Want an airpump for the tonearm lifter? The Axis isn't for you. But if you're looking for a great record player to take you into LP's twilight years, it is.

The overriding feeling I get from the Axis is enjoyment; neither so analytical as to be distracting nor so "bloomy" as to be forgiving'n'-fun, the Axis just simply *plays the tune*. Compared with the Well-Tempered Record Player, the Linn is definitely a more forward, *initially* involving deck. The loose midbass of many softly sprung 'tables is absent here, replaced with a very minor loss of control a bit higher in the upper bass; this gave the Axis a slightly "fat" quality on some vocals (like Mark Knopfler's on Dire Straits' *Love Over Gold*, Warner Bros. 7-23728-1). In addition, while the Axis's overall bass is tight and extended, it does tend to loosen a bit at the very lowest octave;<sup>5</sup> this was really only apparent on some audiophilic organ records<sup>6</sup> TJN sent along, especially the organ cut on *Prof. Johnson's Astounding Sound Show* (Reference Recordings RR-7). Sonofabitch does this track go low! I've never heard bass like this over my system, *ever*; my two-bedroom red house shook like a junkie! Still, the lowest stops on the organ flapped-out when compared to the same cut played on the Well-Tempered Record Player. I could hear the

<sup>5</sup> But I *never* would have noticed this with just my Spicas; only the addition of the Muse subwoofer allowed me to even *bear* the lowest octave, much less pass judgment on its quality. If your speakers, like most, don't go *all the way down*, and I mean as in *Hitler* calls you up to complain about the noise, you'll *never* hear the loss of control.

<sup>6</sup> I'm no big fan of classical organ music. The *Prof. Johnson's Sound Show* organ cut is *awesome*, loads of fun, and a great reviewer tool, but the music leaves my monkey-bone stilled. I get off more to stuff like Jimmy Smith's *Organ Grinder Swing*; now *there's* an organ record!

notes, but they were much woollier and poorly defined. But bear in mind that this is a *very* music-specific weakness! If you're like me and listen mostly to nonclassical music, I don't care if you *have* a subwoofer, follow every one of JGH's "Audiophile House" recommendations, and caulk up every orifice in your listening room including your own; I guarantee you will *never* hear this problem.

At the other end of the spectrum, the highs are quite a bit brighter than that of the Well-Tempered Record Player. Which 'table is getting it right? Ain't no tellin', but here's *my* guess: the Well-Tempered. A good LP I like to use to ferret out too-bright components is Sly Dunbar and Robbie Shakespeare's *Rhythm Killers* (Island 7-90585-1); this record's a stone free jam, but the mix is *real* bright; it shows up any spurious resonances and micro-rattles up there in the trebles. The Axis had a bit of hardness in the highs, which tended to shut-in the soundstage somewhat (*especially* in comparison with the WTRP); although the Linn throws a deep and precise image, its soundstage width is narrower than that of 'tables like the Well-Tempered and, to a much larger extent, the Lingo'd LP-12.

But that's *it*; I have no other complaints! The Axis is just a *really* good turntable, and I bet it'll make 90% of you happy as clams. And I don't say that as a putdown; I'M ONE OF YOU.

**Clams!** Along with the Well-Tempered Record Player, the Linn Axis is just about the best I think you can possibly do for a cool grand. Below it, you get good but more flawed sound from the ARs, Regas, and Revolvers of the world; above it, you wind up paying two and three times the price for ever-decreasing increments of improvement. Are you experienced with the Class A and B turntables out there? Don't get me wrong, you *will* get better sound from the Basis, Lingo'd LP-12, and Versa Dynamics, but if you're shopping for a turntable/arm combo in the thousand-dollar range, the Linn Axis is a little bit of Scottish Castle Magic. A must-audition.

## The Well-Tempered Record Player: \$995

I'll bet Bill Firebaugh wakes up every morning to the cockle-doodle-doo of a steam-driven mechanical rooster with Rustoleum-red plumage and a yellow Kevlar beak. While Bill hops into the solar-heated shower, the robo-rooster



The Well-Tempered Record Player

jerks its wire and pulley-filled head up and begins flapping its stainless-steel wings, which disrupt a light beam aimed at a photoelectric sensor mounted to the window of the Firebaugh family kitchen. The sensor trips a motor-controlled sliding door to a small cage, and a meticulously trained gerbil named Herman XII dashes out of the cage and begins climbing a small rope attached to a lever, which pulls down and sets a polished brass ball rolling down two clear acrylic rails toward a cap-gun cap taped to a red clay brick. The *POW!* of the cap going off startles Herman, who drops from the rope and falls squarely into a handkerchief safety net suspended on a weighted pulley from the ceiling, which, filled with the squirming rodent, now descends to the floor where Herman escapes and scurries over to a water bottle, this filled with a mild saltpeter solution to keep him from trying to mount the mechanical rooster like Hermans I through XI. Soon the gerbil begins to urinate, this draining through a grating onto a paper-thin dried sponge, which expands and breaks a silken thread tied around it. On the other end of the thread is a lead sinker, which drops onto a small seesaw and sends the other, sulphur-coated end up, striking against a piece of sandpaper which ignites the sulphur in a puff of smoke, this lighting a thin trail of gunpowder which sparks and puffs down the hall like *Mission Impossible* and ends up back in the bedroom, where it lights a gas burner supporting a copper-bottomed teapot. The boiling water whistles loudly through the carefully tuned spout, thus waking up Mrs.

Firebaugh who swears loudly, fumbles for the phone, and orders some breakfast tacos from the local take-out joint.

I mean, how *else* does a guy who does things so elaborately *different* from every other turntable designer wake up? Firebaugh's Well-Tempered Turntable and Arm have almost nothing in common with traditional designs besides the standard speeds, and I'll wager that if he had *bis* way, they'd be 37 $\frac{3}{8}$  and 49.0002. Thoreau would've *loved* Bill Firebaugh.

The Well-Tempered Record Player is the budget version of the Well-Regarded Well-Tempered Turntable; for about half the money, it offers most of the innovative features of the more expensive 'table in less elegant-looking permutations. For starters, the WTT's Well-Tempered Arm is replaced with the simpler Record Player Arm, just as unlike traditional tonearms as the WTA. The RPA has a simpler support structure, with the damping cup attached to the arm pillar instead of the base, and the two horizontal "hangman" beams the armtube is suspended from replaced with a single round pole. The round azimuth knob of the WTA is retained (more on this later), as is the crude-looking<sup>7</sup> RCA termination box screwed onto the back of the base. There's no provision for anti-skating, but I never heard anything that led me to believe this caused audible problems. As with the WTA, there's no headshell to speak of; the cartridge mounts onto a small aluminum finger-

<sup>7</sup> I mean "crude" as high compliment; I'm a big fan of this kind of damn-the-torpedoes, strictly functional aesthetic.



lift, and this in turn mounts to the arm with a single set screw centrally located between the two cartridge bolts. I like this a *lot* more than the usual two-hole arrangement; it made cartridge alignment a breeze compared to the standard configuration.

The mat-less solid acrylic platter appears identical to the WTT's. The surface is slightly concave to flatten records out with the screw-down spindle clamp, so don't try to level the 'table by putting a bubble-level on the LP; level the base instead. The platter's spindle bearing-sleeve again departs from traditional design, in that it only contacts the spindle with four Teflon setscrews, two at the bottom and two at the top *on the opposite side*; this took some getting used to, as the entire platter will actually *fall over* if you place any real weight—like my Technics stylus pressure gauge—on the arm side! This isn't a problem with regular use, just another of those charming little quirks that seem almost a requisite of the unusual design.

The motor itself is a *befty* high-torque AC synchronous job with a 600 ohm 10W power resistor soldered in-line with one leg of the AC cord at the plug end; this is to bring the current to the motor down in order to reduce the torque and resulting vibration. Bill claims that by using a motor with overkill torque, then operating it at a lower current, he achieves better stability and lower vibration than with the smaller motors found on most other 'tables.

Of course, the thick slab of lead bolted to the bottom of the motor can't hurt, either! Like the WTT, the motor doesn't contact the plinth in any way, the square cutout in the base of the more expensive 'table replaced here with a 4" round hole where its 3.5" round motor sits on rubber feet. Firebaugh's approach to motor vibration is incredibly effective: you can clearly feel the motor vibrate if you touch it by itself, but *none* of this is transferred to the base. I don't quite understand how this can be, as the motor is still resting, rubber feet notwithstanding, on the same surface as the base. However, based upon my comprehension of the hour-long lecture Bill gave me when I asked him, "How's your arm work?," I probably wouldn't understand the vibration thing *either*. Let's just say it works, and that I recognized *some* of the terms he used.

**I'll huff, and I'll puff, and I'll . . .**

I admit it. I am *lazy* when it comes to setting

up and tweaking a phono system. Maybe it's because I never really had a topnotch 'table, but my idea of turntable setup is the Linn Axis: drop the platter in the hole, align the cartridge, and you're home. "Fun" for me is *listening to music*, not laboring to get and keep a turntable running, so the kit-like Well-Tempered Record Player didn't exactly turn me on when I opened the box. Putting all the parts together *was* fairly easy, though, and soon I was whistling along, basking in that Zen glow you can only get when you roll your own. Screw the RCA termination box onto the back of the base? No prob, Billy-boy! Install the arm? Piece o'cake, Firemeister! Align the bearing body with the motor hole? I can dig it, Baughter!

And then the instructions said, "Put arm fluid in cup." Five words. "Put arm fluid in cup." I uncapped the supplied plastic syringe full of arm-damping silicone, stuck the end into the arm cup, and started pressing the plunger. . .

I *thought* I heard Carly Simon singing "Anticipation," but I don't own that record. . . weird. Well, let's get this silicone a'flowin'!

"Anticipay-yay-shuuun. . ." went the voice again. I looked into the cup; no silicone. Just needs a little more pressure, that's all.

Nothing.

"You're keeping me way-yay-yay-yay-yating. . ." What the \*&%%\$?! I was pressing *as hard as I could*, and all that was coming out was a slow, hair-thin squiggle of viscous silicone. Aha! Just need to snip the end off more, get a wider hole going.

*Snip!*

Nope.

Okay, *that's it!* I got down on all fours, took that little mother in both hands, and gave it *everything I had and MORE*. Man, I was pushing so hard I *farted!* Still just a trickle of silicone. I mean, sweat was pouring off my face, my arms were shaking, I was huffing and puffing. I've *never* worked that hard for *any* piece of gear before. I actually wound up pushing so hard I *broke* the damn syringe, and had to have Bill send me another one<sup>8</sup> full of damping silicone. There was clear gunk all over the carpet; good thing I'm renting. . .

One more aspect of the WTRP's setup you should be aware of is the aforementioned azi-

<sup>8</sup> This second syringe was marginally easier to empty than the first, but not by much. If you buy this 'table, just be patient with the syringe and *push it hard*. And if you fart too, please write me and let me know I'm not alone in this.

mut control. Because the arm basically hangs from two pieces of high-tech fishing line, you have to set the azimuth so that interchannel separation remains optimal; this is done by twisting the knob at the top of the arm pillar until the front of the cartridge is exactly perpendicular to the record surface. Now this may sound simple, but it isn't, because the arm-damping silicone takes a while to let the paddle fully come to rest. And every time you change the VTA, you need to readjust the azimuth slightly. It took me about a week before I got the feel of this adjustment down; you can't just line up the cartridge, because by the time it settles, it'll be off to the other side! You need to line it up just slightly shy of where you want the cartridge to end up, and wait for the arm to settle. Karen Sumner at Transparent Marketing tells me this is the most common problem first-time users have with this arm, but that after a while it becomes second nature. It did.

**The sound, or lack thereof:** The Well-Tempered Record Player reminds me of a beautiful but difficult girlfriend I once had; we fought like cats and dogs, but once we hit the sheets, *the angels wept*. I spent more time adjusting, aligning, realigning, and actually putting together this turntable than any other piece of home playback gear in my experience, but once I was finished, it was a *blast* to listen to!

The first thing I noticed about the Well-Tempered Record Player's sound was that it sounded more like a master tape than anything I've ever played back through my system *except* master tapes. The bass bloat, the cyclical wow of warped records, the resonances in the upper midrange on up; all the colorations I'd always assumed were just part and parcel of the analog experience were *gone*, replaced with a clarity and coherence that pushed the envelope of my system's resolution capabilities out further than it's ever been before. My modified Philips CD-50 CD player is really musical and I'm very happy with it, but its (and the medium's) limitations were thrown into *stark* contrast after listening to the Well-Tempered (and, to a similar degree, the Linn Axis). The Axis, a near peer in the WTRP's thousand-dollar price range, sounded more forward in my system and was initially the more involving turntable to listen to. But further time spent listening to nearly every record in my collection<sup>9</sup> plus the genuine audiophile LPs TJN was so cool to send along proved

the WTRP to be the more natural-sounding of the two admittedly superior mid-priced tables.

Natural; that's the best word I can think of to describe the sound of the Well-Tempered. Music just flows out of it<sup>10</sup> with the greatest of ease, that ingenious arm on the nylon trapeze! As AB enthused about the Well-Tempered Turntable in his review in Vol.11 No.3, the WTRP clears up the sound to such a degree that inter-transient silence is *vastly* increased. The African percussion track on *Prof. Johnson's Astounding Sound Show* demonstrated this lack of transient smearing to great effect, with each individual instrument's leading and trailing edges sounding more like the real thing than even the very good Linn Axis. The Axis is no slouch in this area, but the Well-Tempered is quicker. Playing John Zorn's *Spillane* (Elektra/Nonesuch 9 79172-1), with all its hyperfast cuts and splices, constitutes a demonstration of the WTRP's ability to delineate the detail in the grooves—particularly the track "Forbidden Fruit." A jerky montage of Japanese film dialogue, the Kronos Quartet, and the spastic turntable-playing of Christian Marclay,<sup>11</sup> it kicks off with Kronos angrily screeching their bows along their instruments all at once; the Well-Tempered kept up with these transients without even breathing hard, a feat the Linn Axis had a slightly harder time with. This increase in intertransient silence made for the best depth I've yet heard in my system, bordering at times on the surreal. Whether it's due more to the RPA having less intrinsic resonances than most arms, its superior damping and termination of stylus-induced "needle chatter," or simply the stability of the platter's speed, the Well-Tempered Record Player cleaned up every rec-

9 And yes, this includes Elvis, and no, I have no apologies. I just got a cutout of *Elvis Sings For Children (And Grown-Ups Too!)* (RCA CPL1-2901); you haven't *lived* until you hear The King sing "Old MacDonald Had A Farm."

10 A good deal of the credit must go to the Audio Research SP-14's phono stage (I bypass the line stage), which, along with the superb turntables and cartridges used in these reviews, has whipped me into a recent LP-buying frenzy. I'll usually buy the CD of any release I'm interested in, but I've probably only purchased five CDs since *Stereophile* sent me all this analog; that was three months ago!

11 *Turntable playing?* Isn't that just for rap? No. You have to hear this demented guy to appreciate it, and maybe you *still* won't, but he gets some pretty wild noises out of his man-handled turntables.

Actually, the *real* reason to buy this album is the cut "Two-Lane Highway," an incredible abstract blues featuring one of my favorite guitarists, Albert Collins. With such notable players as Ronald Shannon Jackson, Melvin Gibbs, and Robert Quine, this piece is best described by its composer, Zorn, as "a Concerto For Albert Collins."

ord I played on it to a degree I hadn't heard before.

The only area of concern I had with the WTRP was its low-bass performance.<sup>12</sup> The WTA has been described in some quarters, including this one, as being weak in the bass, and this is what I heard on the organ cut on the Prof. Johnson record: a lessening of the organ's lower stops. As the RPA is *heavily* damped, I tried playing with the arm's damping factor as per the instructions: by raising the nylon lines and getting the paddle out of the silicone a bit, the damping was reduced (and vice versa: lowering the paddle deeper into the cup of silicone *increases* damping, useful for very low-compliance cartridges), and the low-bass performance improved. Now the organ stops had the proper weight and extension, and the overall balance of the sound was improved as well. The WTA and RPA are overdamped arms compared to conventional bearing-based models, even with minimum damping, so the ultimate bass performance is *still* a little soft, but, like the Linn Axis's slight loss of control in the lowest octave, this is only apparent on a handful of records, and *none* if you're like me and mostly listen to nonclassical music. For me, the bass performance of the properly adjusted RPA was completely satisfying.

**Conclusion:** I was *very* impressed with the performance of the Well-Tempered Record Player; along with the Linn Axis, it gave the very best turntable sound I've yet had in my system. Choosing between the two 'tables isn't easy, as they both effectively communicate the soul of music so well that I could happily live with either and never look back.

For now, I prefer the Well-Tempered. While the Linn made my feet tap, it couldn't quite match the WTRP's ultimate speed and resolution through the midrange, and its highs were marginally less smooth. The Axis sounds like an *excellent* turntable, which it is, and one I can heartily recommend. But the Well-Tempered Record Player just got me closer to the music, and *that's* what a turntable's supposed to do. In my system, it edged the Axis.

Anyone looking for a turntable/arm combo

in the thousand-dollar price range should consider both the Linn Axis and the Well-Tempered Record Player must-auditions. Some will prefer the Axis's better looks, as well as its tweak-free nature and easy setup; I'm going to hang onto the Well-Tempered for a spell.

In case you had to ask: **Highly Recommended!**

### **Super Revolver turntable: \$950**

The Revolver Rebel (\$425 *with* arm) has been praised by critics and music-lovers alike as one of the best cheap turntables around; indeed, this price range abounds with mediocre Japanese direct-drive *drecks*. With this kind of competition, the Rebel has done well, becoming a success with those audiophiles whose heels are a little worn-down on the back. The Revolver turntable family also includes the next step up, the Standard Revolver, as well as the flagship 'table reviewed here, the Super Revolver.

The Standard Revolver shares the same plinth, subchassis, and platter system of the budget Rebel, but adds the better Standard tonearm and higher-grade isolation feet; the Super Revolver extends the upgraded performance with the still-better Super arm, this a more ambitious design with better bearings and tighter tolerances.

The included instruction booklet has a couple of unintentionally humorous statements, such as: "Revolver is a unique approach to turntable design which will be copied by others," and "The split-plinth concept is simplicity itself. . . explanations of this concept are beyond the scope of this small user booklet and are superfluous to musical enjoyment"!!

Well, perhaps, but I went ahead and hunted down Revolver's promo literature, which explains the 'table's technical aspects in greater detail; anyone who plunks down \$950 for a turntable is entitled to some explanation as to what he or she just plunked down their hard-earned shekels for.

The Revolver's "split-plinth" concept appears almost identical to that of the similarly priced Linn Axis; rather than softly sprung like the classic AR and Linn 'tables, the Revolver sits its subchassis on three rubber supports mounted to the base below. And like the Axis, while the Revolver offers more isolation than suspensionless turntables, it can't equal the performance of the softly sprung models. What this type of nonadjustable suspension *does* offer is ease of setup, and there're a lot of musicophiles out there who

<sup>12</sup> Interestingly, the Sumiko Blue Point cartridge I used for this review has gotten similar complaints about its bass quality from several members of The Audiophile Network BBS, but after about a week of break-in, I thought the Blue Point's bass was very good.



The Super Revolver turntable

simply don't want to futz with all the tweaking involved in getting a softly sprung 'table to sound good; for those of you reading this, the Super Revolver is as futz-free as they get get.

The Super's platter is belt-driven by a small AC synchronous motor coupled to the platter's outer rim with a round-profile rubber belt. Because the belt goes around the entire one-piece platter, changing the speed is simply a matter of moving the belt down to the lower pulley rim of the exposed motor shaft. The platter material itself is made of a nonresonant plastic compound Revolver calls "injection-molded glass-filled polyethylene." Maybe they're right—this kind of information *is* superfluous to musical enjoyment!

The Super also has several accessories claimed to improve the sound, the "Pig" and the "Star-mat." The Star-mat is an antistatic, semi-stiff thin fiber mat almost identical to the Discwasher mat I used to see in the late '70s on my friends' older brothers' Pioneer and BIC fully-automatic turntables, who claimed it improved the sound of *Workingman's Dead* even more than fresh bong water. The Pig is a real hoot—er, squeal: it's just a simple 1"-diameter rubber cap you pinch down onto the spindle to clamp the record. I'm not sure how they came to call it the "Pig"; it looks more like a "Nip," but hey, my hat's off to anyone who can inject a little subliminal sex appeal into a *turntable*!<sup>13</sup> Hopefully, squeezing

the Pig every time they put on a new LP will give more hermitlike audiophiles the push they need to get out and *par-tay*!<sup>14</sup>

Another addition to the Super Revolver came already installed<sup>15</sup>: the "Ringo" platter stabilizer. A *Ringo* on a *Revolver*?! Naaaaaah . . . surely it's a coincidence! The Ringo is a plasticized polymer donut that fits snugly into the underside of the platter, designed to provide still *more* vibrational damping, as well as increase the rotational stability of the platter by the flywheel effect. The attached sheet warns that "the materials used will support combustion, and fumes from burning could be harmful if inhaled," but Danger is my middle name.

The Super Revolver comes supplied with its own phono cable; listening proved it to be fairly rough-sounding, so I replaced it with Audio-Quest Sapphire.

Any description of the Super Revolver must include mention of the beautiful real-wood finish; I think the rosewood on the review sample looks *stunning*, and I'm a "paint it black" man! The ultra-thin split plinths and uncommonly tall supporting feet give the Super Revolver an ungainly, "where's the beef?" appearance, but the richly grained, deep-stained rosewood looks gorgeous.

**Sound:** I listened to the Super Revolver briefly

<sup>13</sup> And those of you who wrote in to complain about the filthy, disgusting cover art of Vol. 13 No. 7, the one with that slut of an LP *begging* for the erect cantilever, there's no need to write in *again*; I'll just assume you're appalled and save you the postage.

<sup>14</sup> Before you women call me sexist, I'd like to point out that *we* have nipples, too.

<sup>15</sup> Roy "Music" Hall told me that the review sample had already been around the block as a show demo. The box it came in *was* pretty beat-up, but the 'table looks brand-new.



at the beginning of my listening sessions with the three reviewed turntables, to make sure it was operational. During this short session, the Super Revolver struck me as a good-sounding, tuneful 'table. Nothing to get excited about, but nothing to really fault either.

Then I spent the next month listening to the Well-Tempered Record Player and the Linn Axis: two superior turntables that sounded so killer in my system I started buying new LPs again! By the time I returned to the Super Revolver, I had gotten used to the high standard set by both excellent 'tables; it was immediately apparent that this 'table wasn't nearly as good. It wasn't a case of one or two areas being weaker; the other two 'tables fairly wiped it.

Not that it sounded *bad*, though; far from it. In the British tradition, it "played the tune," be it rock, jazz, or blues, in a musically enjoyable way. But in comparison with the Well-Tempered, the music sounded just that much less involving, less *alive*. There was a consistent loss of detail that differentated the Super Revolver from the others, and while it wasn't offensive to these ears, it made everything sound just a little tame.

I tried the Super Revolver with all the different cartridges TJN sent along, and the Sumiko Blue Point performed the best, as it had with the other two 'tables. In the Super Revolver, the van den Hul MM-1 moving-magnet sounded very good as well, but the Blue Point was the best match overall. Interestingly, there was more similarity between the sounds of the different cartridges I tried in the Super Revolver than with the other 'tables. The Well-Tempered, especially, let each different cartridge show its true colors. I suspect that the level of coloration, whether in the arm, the 'table, or *both*, is high enough in the Super Revolver to obscure these differences in comparison to the Well-Tempered and the Linn.

One thing that the SR had that the other two 'tables didn't was a high level of "needle talk" emanating from the cartridge/headshell during playback. *All* turntables I've ever encountered, from the Lingo'd Linn LP-12 on down, suffer from this to some extent, but it seems the better ones have a lower "chatter" level. This is presumably due to the better 'table/arm combos offering these spurious resonances a sexier path to mechanical ground than the surrounding air; the Well-Tempered had as low a level of this audible<sup>16</sup> chatter as I've experienced, although I must admit I haven't spent much time with any

vacuum-platter 'tables. The Super Revolver had one of the highest levels of needle talk I've ever heard; the music could clearly be heard coming off the headshell, even down to the upper-bass! I first noticed this when I put on a record with the preamp's volume control turned all the way down, and thought I heard a trickle of the music coming through my speakers. But when I put my ears up to the drivers, I couldn't hear a thing; it was actually coming off the headshell! The Linn Axis also had a *much* lower level of needle chatter than the SR, and then only at the highest frequencies anyway. The high level of this chatter and the wide spectrum it encompassed lead me to believe that the Super arm needs a better mechanical ground.

The sonic consequence of all this was a slight smearing of the midrange and the aforementioned loss of detail. Transients that cracked like a whip on the WTRP had less impact, with far less intertransient silence. This made for a "busier" sound, as the space between the notes was reduced. Image specificity also suffered in comparison to the WT and the Linn, with tightly focused instruments becoming a bit wider and more diffuse.

The most striking tonal flaw of the Super Revolver/Blue Point combination was the lack of any real low bass; the lowest stops on the thunderous organ track from *Prof. Johnson's Astounding Sound Show* were almost completely absent. None of the other cartridges fared any better in this area. As I said in both the Linn and Well-Tempered reviews, this kind of BASS is a *very* rare occurrence if you don't listen to much classical, and if that describes you, you'll never hear the problem here.

**Conclusion:** As I said before, the inexpensive Revolver Rebel has had good success with budget-minded music lovers on both sides of the Atlantic; at the \$450 level, it's a good value. I'm not sure I can say the same for the Super Revolver. In rosewood or redwood, the Super retails for only \$45 less than both the Well-Tempered Record Player and the Linn Axis; both offer far better performance and freedom from coloration. The Well-Tempered, in particular, is a whole other level of sonic achievement. In the rarefied air of thousand-dollar turntables, the

<sup>16</sup> I say "audible," as in: The preamp is turned all the way down and you put your ear near the headshell. With the music playing at realistic levels, this needle talk is completely *inaudible* at the listening comfy chair.



Super Revolver comes up a bit short.

According to Revolver's literature, the only difference between the budget Rebel and the top-of-the-line Super Revolver are the addition of the Super arm and better isolating feet under the base; otherwise, they share the same platter, motor system, bearing, and plinth. The "split-plinth" design, while functionally similar to the Linn Axis's, is far less ambitious in materials and execution. In my opinion, the Super arm and three different rubber feet aren't worth the \$500 difference in price; they don't bring the

Super Revolver up to the level of the competition. The rosewood finish *is* beautiful, and there'll be those who value its looks above the performance, but at \$950 (and if you're going to spend \$950, you should really peel a few more off and spend the extra \$45), the Super Revolver is outgunned by 'tables like the Well-Tempered Record Player and the Linn Axis. I can safely recommend the Rebel as a good value, but I'm afraid I can't say the same for the Super Revolver. **S**

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## KRELL KSL LINE-LEVEL PREAMPLIFIER & KST-100 STEREO POWER AMPLIFIER

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Martin Colloms



Krell KSL line-level preamplifier  
Krell KST-100 power amplifier

Krell KSL line-level preamplifier. Gain: 10dB (x3). Frequency range: 0.5Hz–550kHz. S/N ratio: 95dB A-weighted. Input impedance: 48.5k ohms. Output impedance: 11 ohms. Maximum output voltage: 9.5V RMS, 28V p-p. Dimensions: 18" W by 2 1/4" H by 13.75" D. Serial number of unit tested: 17-39359. Prices: \$1800 (high-level), \$2100 (with phono section).

Krell KST-100 stereo power amplifier. Output power: 100Wpc/8 ohms (20dBW), 200Wpc/4 ohms (20dBW), 400Wpc/2 ohms (20dBW), 800Wpc/1 ohm (20dBW). Output impedance: 0.125 ohms. Damping factor: 150. THD & IMD: less than 0.1% under all conditions. S/N ratio: 96dB A-weighted. Slew rate: 50V/ $\mu$ s. Input sensitivity: 1.5V for full output. Input impedance: 47k ohms. Dimensions: 6.4" H by 18" W by 14.8" D. Serial number of unit tested: 14-16564. Price: \$2500.

Both: Approximate number of dealers: 55. Warranty: 5 years. Manufacturer: Krell Industries, 35 Higgins Drive, Milford, CT 06460. Tel: (203) 874-3139. Fax: (203) 878-8373.

There seems to be an inexhaustible supply of amplifiers; it's hard to choose which ones to review. Big-name operators are difficult to ignore, while smaller outfits often complain of neglect. In the case of a new and moderately priced introduction from Krell there's no need to find excuses: it's available, it's likely to be important judging from this company's track record, and we'd all like to see just how well it performs.

This review features two Krell components: the KSL stereo high-level or line preamplifier, and the matching KST-100 stereo power amplifier. Initially these products were differentiated from the more expensive Krell components by having an all-black livery. However, as customers showed a preference for Krell's traditional anthracite finish, the KS series is now also available in this finish.

The \$1800 KSL (\$2100 with phono section) is a one-box line controller/preamplifier, just 2.25" high, with a nominal voltage gain of 10dB, or 3x. Despite its moderate price, the KSL is distinguished by having balanced outputs (via industry-standard XLR connectors), as well as two balanced inputs. Conventional single-ended, unbalanced outputs are also available via a pair of gold-plated phono sockets. Two unbalanced inputs are provided, plus a third via the tape monitor switch. The tape output is unbalanced, derived from the selector switch setting, while the main outputs may be used independently or simultaneously. A medium-impedance, four-wire-lead headphone could be wired to a pair of XLR plugs and be fed directly from the balanced outputs, since these can provide up to 9.5V RMS from a low source impedance.

Though this option wasn't available at time of review, the KSL will also accept a sophisticated card for pickup cartridges, this broadly based on the sonically successful circuit used in the KSP-7B. This card merely plugs inside, together with some locking screws, and accepts both moving-coil and moving-magnet types, with variable gain and input loading. This card's price has been provisionally set at \$350.

AC connection for the KSL is via an IEC socket with an adjacent fuse, the remainder of the rear panel being well-packed with audio connections. Front-panel controls include, from left to right, the input selector, followed by the tape monitor, a switched-position balance control, and the unstepped volume pot, this said to have a custom taper. Finish is to

Krell's usual excellent standard.

The KST-100 is quite compact by Krell standards, its heatsinks contained within the overall width of the alloy front panel. Described as class-A to half power (more on this later), it is quite powerful at 100Wpc into 8 ohms (20dBW); *ie*, 50W 8 ohms class-A, with the specified power doubling into successive halvings of that impedance; with 800W quoted into 1 ohm. Simple removal of the top cover provides access to a mono switch which allows the amplifier to perform in unbalanced bridge mode, working as a monoblock delivering 400W into 8 ohms and 800W into 4 ohms (both equivalent to 26dBW<sup>1</sup>). Given the past history of Krell products being able to drive low-level impedances, these figures are believable.

Balanced and unbalanced working is possible: around 1.5V input is required for full output; only the highest-output CD player/processors, capable of giving 3–5V, will be able to drive it directly without a line amplifier.

On the subject of "class-A," the KST-100 simply does not run hot enough on first inspection for this to apply. In addition, the output stage bias current gives a voltage drop of 80mV over each of the four 0.5 ohm emitter resistors (there are four output transistors per totem); this gives a total standing bias of 160mA x 4 = 0.64A. This equates to an RMS class-A output of approximately 6.5W (8.2dBW); a standing current of 2A is required to comfortably support a class-A power of 50W into 8 ohms (17dBW). Krell quotes a 2A total idle current drawn from the 115V AC supply, which is "230W" before rectification. With a typical overall efficiency of 25% at these low powers, this alone would only support a class-A output of 29Wpc with optimum impedance matching, in this case into loads over 16 ohms. I therefore must refute the claim for the KST-100 to operate in class-A to one-half its rated power into 8 ohms, but I'm also happy to say, "So what!" Absolute proof that class-A is correct for the best sound is hard to come by. All that is required is a sufficiently healthy bias level at standing current to overcome crossover and related output-stage nonlinearities.

<sup>1</sup> Applying a -3dB correction for the halving of load impedance from the initial 8 ohm reference gives, I feel, a more easily understandable notion of the manner in which a power amplifier's output voltage drops with increased current. In other words, as a perfect amplifier will give the same number of dBW every time the load impedance halves when the -3dB correction is applied, the departure of a real-world amplifier from this paradigm is easily grasped. —JA

Like the KSL, power connection to the KST is via an IEC AC plug, while both phono and XLR input terminals are provided. In unbalanced mode, small shorting pins are provided for the unused XLR signal polarity. Five-way binding posts are provided for speaker connection, their hex heads allowing the use of a wrench for good contact. Two sets are present, to aid bi-wiring arrangements. The only front-panel control is the illuminated on/off rocker, a circuit-breaker type included in the amplifier protection system.

## Design notes

**KST-100:** A reduced-size KSA-80 running at a

much lower bias level, the KST-100, like the KSA-80, uses a single central toroidal transformer feeding separate rectifiers and reservoir capacitors for each channel. By normal standards, these are generously rated, this necessary in view of the 1-ohm load, 800Wpc rating. Eight high-current, TO3-can power transistors are used per output channel, arranged as complementary pairs, with two more employed as burst-proof emitter-follower drivers.

The design uses a fully complementary balanced circuit, symmetrical throughout, DC-coupled and DC-servo-controlled for output offset. Effective over-current, short-circuit, and overheating protection are provided.

## A Matter of Balance

Much has been written about balanced operation, but few real facts have been established except for its frequent use in professional studio applications, where it was primarily developed for low-level microphone signals and long cable runs, sometimes as long as 100m. By using an intimately twisted pair of conductors (which offers good rejection of external electromagnetic interferences when driven in a push-pull balanced mode), then shielding the assembly, often with two successive dense-wire braids, external hum and noise fields could be suppressed. The zero voltage point or ground reference is implied and allowed to float separate from the ground line proper. This isolates the signal path from the ground line, which often carries stray currents as well as any induced electrical noise. Any electrical noise which does get into the signal path is present on both; this is the common mode. At the receiving end of the cable, the +V and -V signals are differentially summed to produce a single voltage twice as big as either, while the noise signals present on both are supposedly identical and are therefore canceled out in the differential summing. This is termed common-mode rejection. Professional equipment often defines a figure for common-mode rejection at its input, a figure somewhat dependent on frequency according to the differential balance achieved over the frequency range. 60-80dB figures are possible with fine professional tolerancing for microphone circuits, while 40dB is

generally considered sufficient for line-level interfaces.

Consumer audio-cable runs are generally short, electromagnetic interference levels are fairly low, while signal levels are high. The vast majority of interconnections are successfully made with a simple unbalanced single-ended connection. However, at the highest-quality level it is argued that balanced working can improve quality—at a moving-coil phono input, for example—by reducing induced hum to the vanishing point. Likewise, any reduction in hum and noise is generally no bad thing; balanced working cannot harm line-level links and may well be beneficial in difficult situations. One of these would involve poor house power-supply quality with a noisy harmonic content, and with the potential for chassis current to flow between interconnected pre- and power amps. Balanced working allows for a high rejection of these chassis currents which could well carry signal-modulated components—in plain words, potential distortion.

"Tacked-on" balanced circuitry may well reduce the performance of a given amplifier system. However, if properly designed from the outset, with true bi-phase differential inputs and symmetrical phase-matched bi-phase outputs, balanced system design and use has the ability to help achieve the maximum performance obtained from audio components. It is, however, no magic recipe for improved sound quality. This has to be right from the start.—**Martin Colloms**

At the input, cascades of differential FET and bipolar stages are used to provide a true balanced input of beneficially high-input impedance. Following the practice of the latest series, the KST-100 is essentially "wireless," with the amplifier cleverly integrated on one full-sized printed circuit board which integrates with the large-screw terminal power-supply reservoirs.

This build quality is first-rate, and a claim to longevity is supported by the 5-year warranty.

**KSL:** While the main chassis is of steel, the top cover is of aluminum-alloy. Related to the power-amplifier circuitry, the KSL's line amplifiers are also all-discrete, using cascode pairs of differential FET and bipolar stages. Top-quality components are used throughout, though I thought the long track routing to the selector switch more a concession to layout style than to sonic fidelity.

Though located inboard, the power supply is quite substantial, in the KSP league, and separated discrete double regulation is used for each channel. All in all, the KSL has an impressive build quality. Krell has not compromised their high standards to achieve this design's price.

## Sound

A well-judged assessment of equipment of this quality requires several conditions to be satisfied. First, the equipment must be conditioned, run-in for several days, and well warmed up. Second, its mode of use and the chosen interfaces should be carefully selected, with allowance made for some experimentation to determine the optimum arrangement. This area includes balanced and unbalanced operation, and the choice of cables. Third, it's valuable to have a handful of comparable and reference components with which to compare. In the case of the KSL controller these included the Krell KBL and KSP-7B, the C-J PF-1, and the Classé DR6a preamps. I have also recently had experience with the C-J Premier 7A, Audio Research LS1, and Threshold FET 9.3. On the power-amplifier side, units available included the Krell KSA-80B and KSA-150B, the Threshold SA3.9, the C-J MF-200, and the ARC Classic 120 monoblocks.

Finally, the ancillaries must be up to the task. These included a Goldmund Studio/T4/Koetsu Rosewood 2 plus a Lingo Linn/Aro/Troika, these preamplified and conditioned via the KSP-7B. For digital replay, an ARC DAC1 was available,

supplemented by a Meridian 606 and fed from a Meridian 602 digital transport, as well as a Wadia WT-2000/DM64-4 combo, digitally linked via a wideband twisted-pair cable. While on the subject, most of the cables were of silver Teflon grade, not unlike Kimber, supplemented by MasterLink Black. Two classes of speaker were used for the auditioning: a low-impedance, power-hungry panel in the form of an Apogee Duetta Signature, and a sensitive moving-coil represented by the Spendor S100. (My other choice would have been a Spica Angelus, though a pair was not available at the time.)

Program included a mix of rock and classical, from the limited-edition remix by Monster Cable of Michael Jackson's album *Bad* to recording engineer Tony Faulkner's purist CD production of Pachelbel's delightful *Hexachordum Apollinis* organ music on the small Greg Harrold instrument played by John Bult at Hertz Hall, Berkeley (MHMU907029; M50 tube mikes, Paravacini tube mixer, upgraded DCS Delta-Sigma 20-bit A/D). On LP, Rickie Lee Jones's *Girl At Her Volcano* continues to do sterling service backed by a selection of old favorites from Sheffield Lab, Reference Recordings, and the early Decca/Argo catalog.

**KST-100:** First impressions were of a thoroughly up-to-date, low-feedback sound, one of greater delicacy, air, and transparency than the sound traditionally associated with solid-state electronics. The KST-100 did have a good proportion of Krell character: a firm, confident approach, highly stable imaging, and a strong, highly controlled bass. I rate Krell's KSA-150B highly, and found it to have much in common with the (relatively) budget-priced KST-100. In this context, it was a touch more dynamic and a shade clearer than the KSA-80. Given that the '80 came top in its class only a year or so ago, this is high praise indeed for the KST-100.

Taking the stereo performance in more detail, it was close to today's best in image depth and the transmission of hall and stage acoustic. It could help define the performance of top digital replay systems, and sounded genuinely transparent. Direct comparison with the '80 showed the latter to have a mildly cloudy effect with a shortfall in stage depth. Here the KST has moved rather closer to the ARC Classic 120. Specific focus was also close to the best, held both in terms of width and



depth. Stage width was virtually to the limit of available program, and only fractionally less than the best monoblock amplifiers in percentage terms.

Possessing a fine tonal balance (to be discussed separately), the KST-100 was also capable of a strong presentation of perspective, with convincing layering of players in large orchestral recordings. I do not believe height is a property of electronics which are inherently neutral; however, certain combinations of room acoustic, phase, and perceived system frequency response, particularly in the 2–8kHz range, can give rise to sensations of image height which may be enhanced by the accurate and transparent reproduction of recorded ambience. In this latter respect, the KST was very capable.

The KST-100 conveyed a dynamic, lively quality well beyond its class, remaining interesting and alive over long listening sessions.

Dynamics do not only relate to inner vigor but to an overall feeling of power, specifically dynamic range. Technically, this can be described as the range in dB between the inherent background noise and the maximum level possible with a given loudspeaker load. Subjectively, this also concerns an amplifier's ability to reproduce low- and moderate-level detail while being exercised by powerful ones, and its ability to sound unchanged and unstrained when crescendi arrive.

The power amplifier passed this test with traditional Krell imperturbability. The much more expensive KSA-150 does have more authority, notably expressed in the bass as an additional measure of slam and extension. I rate the KST highly, but on the bigger speakers it lacked a little in gut-wrenching ability. Nevertheless, the KST's bass was taut, agile, tuneful, and had good extension; I doubt that there is a class rival for bass precision.

The broad midrange was highly neutral, in the KSA-150 mold, and this continued way into the treble register. This formed the foundation for its ability to portray perspectives. The mids sounded easy on the ear, very low in solid-state artifacts. Glare, hardness, etc. were all at very low levels.

However, the story strayed from the true path as we entered the high treble. Here the KST descended somewhat from the heights, showing a lazier, mildly emphasized effect in the last half-octave of audible treble. With clas-

sical program, and much CD material reissued from older tapes, this region is rarely entered with any power; here the KST was as good as gold. However, more recent pop material, with Aphexed or similarly doctored, "zingy" vocals, gives the KST a hard time. The resulting effect is akin to hearing a distant wasp's nest, and took a little getting used to.

This is a sensitive area. One's perception of this anomaly depends on many factors, including the treble quality and smoothness of one's chosen speakers, the "cleanness" of the sound of the system cables, and finally the preceding audio chain, both source and control unit. Cables with sweet treble and speakers without any lift in the high treble are advised for use with the KST-100.

Taking all these points into consideration, in absolute terms, the KST-100 matches the performance level of the earlier KSA-80B without sounding the same. Here preference might well play its part.

I found the KST and KSL highly complementary. The best subjective and objective dynamic range was obtained with the balanced link used between them, in this case one of the Dutch Siltech Silver cables, balanced and screened. Interestingly, the KSL also showed a tinge of the same "zippy" quality in the high treble, but overall worked so well with the KST that it would be difficult to suggest an alternative.

**KSL:** At last we have a solid-state match for the delightful Audio Research LS1. The KSL made no excuses, sailing directly into the top control preamp group. When the KSA-80/160 power amp series was introduced, I said that the situation was embarrassing because far too few preamps were up to the task of driving them, regardless of cost. Now in the years of the KSA-150/250, there are certainly better preamps available.

Despite its comparatively moderate cost, the KSL really delivered at the top level. Its general performance level was amazingly close to the costly two-box Krell KBL, and even reached beyond the established and still highly rated KSP-7B.

Much of my description of the KST's sound is closely paralleled by that of the KSL, indicative of great component matching. The notes include such comments as "a crisp clean bass, devoid of any emphasis or restriction." Krell has managed to make the KSL's bass sound



open and deep, but always completely in control.

The KSL's midrange was of very good quality, encompassing clarity and lack of grain, free from hardness or edge-type colorations, and with lively, explicit delivery. The mid was judged to be a shade lean or cool in tonal balance, a small shift to the blue end of the spectrum. Conversely, this was sufficiently mild so as not to significantly disturb tonality or perspective on orchestral strings or brass.

By preamp standards the treble was very good, little removed from a good-quality passive controller—that's praise indeed. Its active electronic origins were just perceptible in a tinge of "haze" and zing high in the treble register, audible when less than tidy program was played. However, in context, its magnitude was significantly less than that noticed with the KST-100.

However, it was in the area of dynamics and rhythmic drive that the KSL left much of the competition behind. It was subjectively more articulate, involving, and rhythmically coherent in the true sense of a musical performance, and capable of stretching the best digital replay in this area.

The KSL proved capable of generating a large-scale soundstage with top-class depth and perspective. High transparency is essential for such a performance, and the quality and consistency of stereo focus were also much admired.

Thus the KSL finds itself up with the best available, with a balanced input and output capability to match.

## Measurements

**KST-100:** Rated at a straight 100W, 20dBW into 8 ohms, and supplied with standard line voltage (50Hz supply in the UK), the amplifier delivered a continuous 136W (21.35dBW) into 8 ohms, with a single channel driven. At both 4 and 8 ohms the power bandwidth was superb, with maximum falloff of only 0.25dB at the 20Hz and 20kHz frequency extremes. The flat-out maximum power (using a 10ms 1kHz toneburst) was 138Wpc into 8 ohms (21.4dBW) with 246W available into 4 ohms (20.9dBW) and 418W into 2 ohms (20.2dBW), comfortably meeting Krell's specification. This was backed by a peak-current capacity of 40A, sufficient for all but the most impossible speaker loadings. Krell claims an 800W short-

term delivery into 1 ohm, and I can believe it!

Claimed at 0.125 ohms, my measured figure for output impedance was close at 0.15 ohms, rising to 0.2 ohms by 20kHz. This was where Krell's specified damping factor of 150 appears to be optimistic: 0.2 ohms for an 8 ohm load gives a damping factor of 8 divided by 0.2—40 in anyone's math. As a matter of interest, 0.125 ohms yields a figure of 64. The output impedance was more than sufficiently low regardless of the claims of yesteryear—I remember 4000 being claimed for an early Phase Linear design. Nevertheless, with very low impedance speakers and a moderate cable impedance, a very slight interaction is theoretically possible with a speaker impedance which was not uniform with frequency. Its moderate output-impedance value is a consequence of the low overall feedback factor adopted for the KST-100 in keeping with the philosophy of the KSA-150.

Likewise, while full-power distortion figures were wholly satisfactory, they set no records. The specification indicated a 0.1%, -60dB figure "under all conditions," whatever that means. With a rated-power measurement of -63dB at low frequencies, worsening to -54dB by 20kHz, there was broad agreement with the spec. At 1W, a moderate volume cruise level, the harmonic distortion content had fallen to below -83dB over the audible range. A spectrum analysis showed that the distortion harmonics fell rapidly and progressively with order; *eg*, third at -65dB, fourth at -75dB, and fifth at -80dB with negligible high-order products.

The amplifier was checked for high-frequency intermodulation with an 8 ohm load, a drive of equal-amplitude 19 and 20kHz tones reaching peak level. Here the amplifier proved to be highly linear, delivering a 1kHz difference tone at -88dB, or 0.004%. This good behavior can be seen in the resultant spectrogram (fig.1). Even at 1W, an excellent -70dB spurious figure was recorded on this test. Another modulation test concerns driving the amplifier to  $\frac{2}{3}$  rated level into a 4 ohm load, with a low-frequency signal of 37.5Hz, this harmonically related to the 50Hz UK line frequency. This test stresses the power supply and seeks to explore supply modulation appearing at the audio output. With fig.2 covering a dynamic range of 96dB (including some spectrum-analyzer noise-floor "grass") and a linear frequency range of 200Hz, no 50Hz-related breakthrough can be seen,

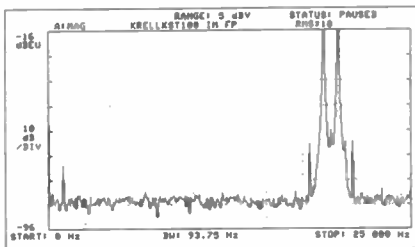


Fig.1 Krell KST-100, spurious spectrum DC-25kHz, full-power 19+20kHz tones (linear frequency scale, 10dB/vertical div.)

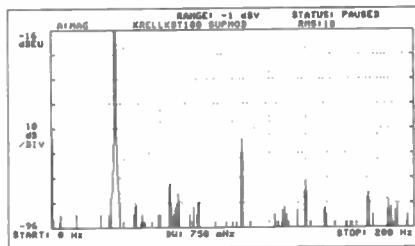


Fig.2 Krell KST-100, spurious spectrum DC-200kHz, 37.5Hz tone at 135W into 4 ohms (linear frequency scale, 10dB/vertical div.)

indicating excellent power-supply rejection and negligible supply-modulation effects.

Channel balance held to a 0.02dB tolerance and DC offset at the output registered as 0mV; *ie*, less than the 1mV instrument sensitivity, a fine result. On frequency response, there was considerable low-frequency extension, to 1.2Hz, -0.5dB with a trace of treble rolloff, reaching -0.5dB at 18.5kHz; the -3dB points were at 1Hz and 52kHz. Using the DC mode of the Hewlett-Packard 3561A spectrum analyzer, the low-frequency response was plotted (fig.3), revealing an interesting but innocuous 2dB of lift at 2.2Hz before the final rolloff.

Easy to drive, the input impedance was virtually as claimed, measuring 48k ohms in parallel with 95pF of capacitance. A 1.6V input was required for program clip or maximum output, nearly 10dB above typical maximum levels from normal CD sources of 0.7V. This explains the 10dB of gain provided in the matching KSL and means that CD sources of normal 2V peak output level will not produce a loud enough level for direct connection. An input of 145mV was required for 1W output. Signal/noise ratios were fine, the "A"-weighted result of 84dB corresponding to a subjectively biased assessment while the 101dB unweighted reading con-

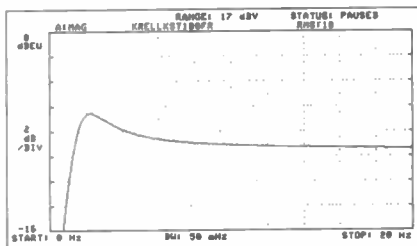


Fig.3 Krell KST-100, low-frequency response DC-20Hz (linear frequency scale, 2dB/vertical div.)

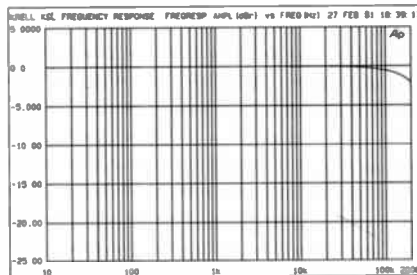


Fig.4 Krell KSL, frequency response 10Hz-200kHz (10dB/vertical div.)

firmed the absence of electrical hum. (Both results are referenced to the KST-100 full rated output.)

Channel separation was checked, and in single-ended mode was satisfactory at 71dB (1kHz) and 55dB (20kHz). In balanced mode, just 45dB separation was measured at 20Hz, compared with 60dB unbalanced, this "averaged" result being partly to do with the command power-supply arrangements and the input balance circuitry which doubles as a phase splitter for monaural operation. In mono-block mode, with two KSTs used for stereo, each channel would now deliver a basic 400Wpc into 8 ohms, 800W into 4 (both 26dBW), with the recommendation that speaker loads known to rate lower than 5 ohms be avoided as the peak current limit of this powerful amplifier is approached. In this mode I can see the KST as a worthy choice for studio monitoring, where its more compact package and superior value make sense compared with the bigger Krells. The sound quality of the mono KST amplifier will leave most "professional" amplifiers for dead. A trial short circuit at half-power resulted in a harmless spark and successful protection operation. This is a fine set of results from a well-designed amplifier.

**KSL:** As might well be expected, harmonic distortion levels were negligible—better than  $-83\text{dB}$  over the measured  $20\text{Hz}$ – $20\text{kHz}$  range at a nominal  $0.5\text{V}$  IHF output level. With class-A circuitry, fully complementary harmonic orders were low, with quite negligible upper-range harmonics. The two-tone high-frequency intermodulation test generated a very low  $-89\text{dB}$  level of in-band difference tone. Little variation was observed at higher or lower signal levels. Virtually a little power amplifier in its own right, the KSL could deliver a maximum voltage swing of  $8.7\text{V}$  RMS from a very low DC-coupled source impedance of  $13\text{ ohms}$ . With a simple adapter, it would make an exquisite amplifier for high-quality dynamic headphones for personal listening—sacrilegious in this context. Electrical noise levels were comfortably low,  $-90\text{dB}$  CCIR-weighted, this using the more demanding  $1\text{kHz}$  reference frequency. "A"-weighted, these results would be  $5$  or  $6\text{dB}$  better. Note that these figures are to the IHF  $0.5\text{V}$  input standard, and if referenced to the  $1.5\text{V}$  input sensitivity of the KST-100 a practical "A"-weighted result for a CD input level would reach  $110\text{dB}$  or so. No electrical hum was present.

While the tape output showed no offset (direct-coupled to the source), the main output showed a larger than expected  $21\text{mV}$  worst-case offset, single-ended, which, given a typical  $26\text{dB}$  of power amplifier gain, translates into  $0.4\text{V}$  at the amplifier output in the absence of servo correction (in practice, the KST-100's servo does correct this offset after a short interval). In balanced mode, the residual offsets balanced out to some degree.

As a matter of record, the frequency response is shown in fig. 4, perfectly flat from below  $5\text{Hz}$  to  $50\text{kHz}$ . The  $-0.5\text{dB}$  limits were  $2\text{Hz}$  and  $100\text{kHz}$ ,  $-3\text{dB}$  at  $0.88\text{Hz}$  and  $200\text{kHz}$ . I could well support more rolloff in the ultrasonic band to provide sources, especially digital ones, with some RFI filtering. The input overload figures were simply the maximum available from the signal generator; *ie*,  $9\text{V}$  or so.

Very high channel-separation figures were not expected, bearing in mind the KSL's shared internal power supply, but the measured figure of  $71\text{dB}$  midband was fine, falling to  $46\text{dB}$  by  $20\text{kHz}$ —more than satisfactory according to the psychoacoustic references. An overall single-ended gain of  $7\text{dB}$  was recorded,  $13\text{dB}$  for a balanced input to a single-ended output.

The values for line gain may be on the low side for low-output tape decks and tuners used with low-sensitivity amplifiers and speakers.

Volume tracking for the two channels was fine at high settings but deteriorated at low settings. At a  $-60\text{dB}$  "whisper" setting, the imbalance reached  $5.4\text{dB}$ , unacceptable, I feel, in a product of this class. Krell should attend to the volume-control tolerancing. No mechanical hum was produced by the KSL. As regards input impedance, the parallel capacitance was negligible while the resistance value was  $48\text{k}$  via the buffered balance input, typically  $30\text{k}$  via the direct single-ended input.

## Conclusions

**KST-100:** In creating the KST-100, Krell has succeeded in trimming the fat from the audiophile KSA series. This recent introduction is definitely not a cheap version of the old KSA-80; rather, it is a cost-effective cousin of the new KSA-150. In absolute terms it equals the sonic performance of the KSA-80 and has a comparable power-output delivery, though it did not sound quite the same. Here you have to balance performance in terms of the bass speed of the KST and the absolute slam of a bigger Krell, or the lively, quick, detailed midrange of the KST *vs* its mild zippiness in the high treble.

Given a wise choice in the matching system—for example, a clean-sounding analog cartridge or digital source, plus a speaker without any treble fizz (leaning more to Apogee than Magneplanar, for example)—I would rate the KST highly, undeniably a class leader. Where this standard is required at a much higher power level, remember the facility for the use of a pair of KST-100s as  $400\text{W}/8\text{ ohm}$  mono-blocks. These would be leaders in their power class too.

With the option of balanced and unbalanced working, excellent finish, durable build quality, plus the five-year transferrable warranty, the KST-100 represents a worthy audio investment.

**KSL:** Here Krell has addressed the need for a high-performance line-control amplifier, with balanced and unbalanced working, at a realistic price. The surprise is that the acknowledged performance of the upmarket KBL preamplifier has not suffered unduly in the exercise, and that the KSL is worthy to drive not only the KST-100 but also the KSA-150, and any other products of comparable merit. As a line amplifier, the

KSL is close to the state of the art, not far removed from the concept of a perfect potentiometer with gain. As well as gain, the advantage it presents over a passive control is its powerful cable-driving ability, even over long runs, and the addition of a balanced interfacing which can result in lower noise floors in difficult AC-supply situations.

One note of criticism concerns the poor channel balance at low volume settings. While the gain provided is fine for normal volume set-

tings with CD-level sources, check your other possible signal sources for sufficient output. Ultimately, what matters is sound quality: here Krell delivers a very fine standard for the price, a worthy equivalent of the Audio Research LSI, but with balanced facilities if these are required.

I suggest the KSL will begin to supplant Krell's own KSP-7B. In any case, it significantly brings down the cost of a top-line Krell system—for example, a KSL plus a KSA-150 costs \$5750. **S**

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## MUSE MODEL 18 SUBWOOFER

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Robert Harley



Muse 18 subwoofer

Powered monophonic slot-loaded subwoofer. Drivers: two 10" long-throw woofers. Alignment: 6th-order. Internal amplifier power: 225W. High-pass filter type: 4th-order passive with active buffers. High-pass gain: unity, with 100 ohm output impedance. Maximum high-pass output level: 10V RMS. High-pass -3dB point: default at 50Hz, selectable with different "personality cards." Low-pass -3dB point: default of 50Hz, selectable with different "personality cards." Controls: 3: level, damping, and delay. System -3dB point: 18-25Hz depending on damping control setting. Acoustic output: capable of 109dB at 1m from 18Hz to low-pass cutoff frequency. Weight: 155 lbs. Dimensions: 25" on a side. Finish: clear oak, other finishes available on request. Price: \$2500, personality cards \$25 each. Approximate number of dealers: 30. Manufacturer: Muse Electronics, P.O. Box 2198, Garden Grove, CA 92642. Tel: (714) 554-8200. Fax: (714) 554-5643.

I should begin this review by confessing that I've never been a fan of subwoofers. Most sub-

woofer systems I've heard have been plagued by a familiar litany of sonic horrors: poor inte-

gration between subwoofer and main speakers, boom, bloat, tubbiness, slowness, excessive LF output, and an overall presentation that constantly reminds the listener he is hearing a big cone moving. To me, subwoofers often sound detached from the music, providing an accompanying thump that bears little relationship to the sound from the main speakers. Rather than revealing the music's harmonic underpinnings, subwoofers often obscure them in a thick morass of featureless boom. In addition, adding a subwoofer often destroys the qualities of the main speakers that made you buy them in the first place—just to name a few of my observations.<sup>1</sup>

Other than that, I like subwoofers.

Given my disposition toward subwoofers, why on earth would I ask a subwoofer manufacturer to send me one for review? Well, there are several reasons. At the Winter CES I took a listen to the Muse Electronics Model 18 mated to a pair of Rush Sound Monument 2s and was encouraged by what I heard—seamless integration, quickness, no bloat, and *unbelievable* extension. In short, not your typical subwoofer. In addition, the Model 18 incorporates some innovative design techniques which, to my knowledge, have never before been used in a subwoofer. Finally, I have great respect for the design talents and audiophile sensibilities of the Model 18's designers, Kevin Halverson and Jim Rush (electrical and acoustic design, respectively). (Theirs is one of the few rooms at shows that rely primarily, if not exclusively, on LP playback.)

What really piqued my interest, however, was the Model 18's "personality cards," a series of small interchangeable printed circuit boards that adapt the Model 18 for use with a variety of popular loudspeakers. On hearing that a personality card had been designed especially for the Hales System Two Signatures, my reference loudspeaker, I was hooked.

In my review three months ago of the lower-priced of the two Hales models, the \$3000 System Two,<sup>2</sup> I attempted to convey this loudspeaker's exceptional musicality while pointing out my reservations about the lack of low-frequency extension. These comments also hold true for the Hales Signatures—both loudspeakers are stunning in their ability to involve

the listener in the music, but lack that visceral and vital component of music—the lowermost octaves. The Signatures have a -3dB point of 52Hz, above much musical information.

I saw in the Hales System Two/Muse Model 18 combination (\$5500) the potential for world-class performance in a fairly reasonably priced system—provided, of course, that the Muse didn't exhibit any of the unmusical characteristics cited in the first paragraph of this review.

Talking about unmusical characteristics, I get a kick out of catalog ads for subwoofers that tout "Thundering bass! Stun small animals and rattle pant legs!" Since when does music sound like thunder? And why would anyone want to stun small animals?

We want to know how they reproduce *music*.

## Technical description

The Muse Model 18 is fairly large as subwoofers go, measuring 25" on all sides. A variety of finishes is available, including clear oak and a stained walnut designed to match the finish on the Hales loudspeakers. The review sample was clear oak, the same as the review pair of the Hales System Two. When placed between the pair of Hales, the Model 18 looked like it came from the same factory, such was the similarity of finish. The sidewalls are made from ¾" veneered particle board, and all edges are radiused hardwood. The top panel is a flat-black material, surrounded by the hardwood. Four feet lift the unit 1¼" from the floor.

The rear panel holds a large (16¾" by 7¾") metal plate on which the electronics are mounted. The plate is dominated by a heatsink that protrudes from the panel, providing dissipation for the unit's internal amplifier. Three knobs, marked "Damping," "Level," and "Delay," occupy the plate's top left corner. Four gold-plated RCA jacks (stereo input and stereo high-pass output) provide line-level system connection. On the opposite side of the plate, a small door held in place by hex bolts allows access to the personality card socket. A captive AC cord, line fuse, and power on/off switch finish off the rear-panel plate.

The Model 18's bottom is made from two particleboard panels separated by a 2"-wide slot that runs down the unit's width. The slot provides the acoustic outlet for the dual 10" woofers. Removing the bottom panel closest to the electronics plate gives a clear view of the

<sup>1</sup> I refer to the majority of poorly executed subwoofers, not all subwoofers.

<sup>2</sup> Vol.14 No.4, April 1991, p.200.



Model 18's innards. The amplifier, mounted on the plate, is one half of a Muse Electronics Model 100 stereo amplifier (reviewed by Corey Greenberg in Vol.14 No.4). When loaded by the two woofers, it can provide 225W of power output. A large transformer and two 10,000 $\mu$ F electrolytic filter caps, each nearly the size of a soda can, form the bulk of the power supply. This supply is quite beefy; the stereo Model 100's supply is used here to power the summed mono channel.

Opposite the amplifier, on the internal particle board panel that makes up the slot, lies the crossover board. The 10 $\frac{1}{2}$ " by 8" board contains the LF summing circuit, high-pass filter, low-pass filter, and crossover power-supply filtering and regulation. The crossover power supply is fed from the amplifier's 10,000 $\mu$ F filter caps; additional filtering and regulation are performed on the crossover board. A ribbon cable runs from the crossover board to the personality card socket mounted behind the rear plate.

The input RCA jacks on the rear plate accept a stereo line-level signal and output a high-pass-filtered, line-level stereo signal that drives the main amplifier(s). This filtering is done on the crossover board, which also sums the stereo input signal to mono, then low-pass-filters it before the Model 18's internal amplifier. The crossover uses discrete transistors in the high-pass section and op-amps in the low-pass. The circuit topology is interesting: all filtering is passive, surrounded by active buffers. Kevin Halverson feels that passive filters provided better sonics.

Three buffers and two filters per channel comprise the high-pass section. The buffers are wide bandwidth, with high input impedance and low output impedance. This ensures that the load impedance seen by the filters is constant at all frequencies. The final buffer drives the "HF Output" RCA jacks.

Each channel's passive filters are connected by the previously mentioned ribbon cable to the personality card socket. This allows the filter frequencies, damping, and slopes to be modified by whatever personality card the user installs in the socket. Changing personality cards is fast and simple, taking about two minutes to swap cards. There are now 28 personality cards available, with more being added as demand suggests. Personality card parameters are chosen after several samples of a par-

ticular loudspeaker have been measured. The lowest possible crossover frequency is chosen in an attempt to maintain the characteristics of the main loudspeaker as much as possible. In loudspeakers with severe phase shift at the suggested crossover frequency, a higher frequency is chosen along with a steeper slope to provide a smoother transition to the Model 18.

The low-pass filter incorporates sixth-order equalization, damping control, a delay line, and a level control. The low-frequency cutoff is adjusted by the damping control, varying the -3dB point between 18Hz and 25Hz. To ensure correct phase relationship between the subwoofer and main loudspeakers, a delay control provides up to 6ms of delay in the low-pass section. This amount of delay corresponds to physically moving the subwoofer nearly 7'.

When the Model 18's designers set up the subwoofer in my listening room, they used an interesting technique to adjust the delay control. Kevin Halverson had built a relay box that polarity-inverted the signal passing through it. The relay box was connected between the main amplifier's output (the VTL) and one of the main loudspeakers, and a long cable allowed the relay to be operated from the listening chair. With one person behind the Model 18 to adjust the delay control and one person in the listening chair with the remote polarity inverter, a 52Hz sine wave—the transition frequency between subwoofer and main speaker—was fed through the system. The relay was switched back and forth as the delay control was rotated. With the main speaker's polarity inverted, the optimum delay setting is achieved when the null is greatest—indicating the subwoofer and main speaker are 180° out of phase. When the inverting relay is removed from the system, there should therefore be correct phase alignment in the system. This technique reportedly saves weeks of trial and error in the listening room.

Moving on to the acoustical configuration, two 10" long-throw woofers are mounted vertically in the cabinet, firing into the slot that runs down the enclosure's center. The acoustical output is omnidirectional, appearing around the clearance between the cabinet's bottom edge and the room's floor. At least a  $\frac{3}{4}$ " clearance is needed, requiring that the Model 18 be put on feet or Tiptoes in thickly carpeted listening rooms.

The Model 18 uses a sixth-order alignment,

with a tuning frequency of 18Hz. This high-order alignment was chosen for its deeper extension compared to fourth-order (half an octave less extension) and second-order alignment (1½ octaves less extension), given the same drivers and enclosure size. Although the sixth-order alignment increases the group delay, it shifts it to a lower frequency, presumably making it less audible. According to Muse, the sixth-order alignment produces less group delay above 30Hz than even a second-order alignment in the same enclosure volume.

Incidentally, the Model 18 is an outgrowth of a subwoofer shown at *Stereophile's* 1990 Hi-Fi Show in New York. That subwoofer used the same electronics, but had two 18" woofers in each huge cylindrical enclosure, with a weight of 300 pounds apiece!

Overall, the Model 18 appears to be a well-thought-out product. The construction quality is excellent, especially the cabinetry. Although the enclosure is fairly lively when rapped with the knuckles and isn't braced as extensively as the Hales Signatures, it was designed to be relatively resonance-free over the narrow band of frequencies it reproduces. I was concerned, however, about the fact that the high-pass-filtered signal is put through about 6' of ribbon cable, not the ideal conductor for audio signals. Although the cable is about 18" long, the signal goes up and back twice: the personality card is connected to each channel's two passive filters.

## Listening

I spent nearly two months with the Model 18 in the usual reference system. The three loudspeakers auditioned with the subwoofer included the Hales System Two Signatures, Hales System Two, and the Phase Tech PC-80s. For comparison, I had on hand a Phase Tech PC-90 passive subwoofer (\$550) and an Infinity Modulus active subwoofer (\$2000). (The PC-90 is reviewed next month.) Although neither is as expensive or as ambitious as the Model 18, they nevertheless provided a basis for comparison.

Associated electronics were the VTL 225W Deluxe monoblock power amplifiers and an Audio Research SP-11 Mk.II preamplifier. Analog source was a Well-Tempered Turntable and arm, fitted with the superb AudioQuest AQ 7000 cartridge, stepped up with the Expressive Technologies SU-1 transformer and connected with Expressive's IC-1 interconnects. The turntable and most of the electronics were sup-

ported by the excellent Merrill Stable Table. The digital front end varied over the auditioning, including at one time or another the Wadia WT-3200 and Esoteric P-2 transports, Wadia 2000, Audio Research DAC1, and VTL digital processors. Interconnects were AudioQuest Lapis (preamp to subwoofer and subwoofer to VTLs) and AudioQuest Diamond (digital processor to preamp). Loudspeaker cable was a 3' bi-wired pair of AudioQuest Dragon/Clear. The dedicated listening room has optimum dimensional ratios for room-mode distribution.

When driving the Hales Signatures without the Model 18, I usually left the pair of Phantom Acoustics Shadows in the corners behind the loudspeakers turned off. The Hales' bass is lean, and the presentation was warmer without the Shadows removing bass energy from the room. With the Model 18, however, I acquired a renewed appreciation for the Shadows. When the room was driven by the kinds of pressures the Model 18 can deliver, the Shadows really did their job. (I originally reviewed the Shadows with the TDL Reference Standard, a huge transmission-line system.)

The auditioning began with the Hales System Two Signatures in their usual location with the Model 18 between them and 26" from the rear wall (measured from the back panel).

Before hearing the system with the Model 18 installed, I was concerned that its high-pass electronics would degrade the sound. I'm always wary of *adding* electronics to the signal path, preferring instead to remove passive and active devices—replacing a preamplifier with a passive control unit, for example. This is especially true of the Hales Signatures driven by the VTLs: the Signatures are very revealing of upstream electronics, and the VTLs have a sweetness and musicality uncorrupted by solid-state electronics. If the Model 18 introduced any grain or hardness to instrumental textures, or interfered with soundstaging, I would have been unable to recommend it—regardless of its low-frequency performance. Natural timbres, soundstaging, and lack of electronic brittleness take a much higher priority in my book than bass extension. Any detrimental effect on the overall presentation and the Model 18 would be an unwelcome and brief visitor to my listening room.

Imagine my surprise, therefore, when the mid and high presentation *improved* after adding the Model 18. The soundstage became

noticeably wider, there was greater clarity and transparency in the mids, and transient attacks were sharper and more lifelike. The Model 18 did add a trace of hardness to the presentation, but the improvement in soundstaging and dynamics was well worth the tradeoff. The most obvious reason for the improvement is that the Hales didn't have to try to reproduce very low frequencies with their two 7" woofer/midranges operating up to 2kHz. The Model 18 kept low frequencies out of them, thus letting the woofers do their job in the mid-range without being burdened by large cone excursions.<sup>3</sup>

The Model 18 passed the first and most important test.

The next most important factor in my musical hierarchy is the ability of the subwoofer to integrate with the main loudspeakers. The two should sound as one, with the listener never reminded of the subwoofer's presence. Again, the Model 18 took me by surprise. The transition between the Signatures and the Model 18 can only be described as seamless. This is a word used too liberally in describing subwoofer performance, but in this case it is deserving. There was a coherence to the entire bass presentation that enhanced rather than detracted from the music. Solo piano and acoustic bass are particularly revealing of discontinuities. On *Dick Hyman Plays Fats Waller* (Reference Recordings RR-33CD), descending and ascending left-hand lines (as in "Viper's Drag") were continuous and undisturbed by the Model 18. Other piano recordings—including *Stereophile's* latest LP, *Intermezzo*—were similarly impressive in this regard. There was never the impression that the instrument's character changed as it crossed the transition between

subwoofer and main speakers. (The lowest note on a 9' piano is 27.5Hz.)

Plucked acoustic bass, featured in much of my favorite music, was a joy. There was a weight and depth to the instrument not conveyed by the Hales themselves. In addition, the textures were round and liquid, with precise pitch definition. Ray Brown's excellent bass work on Bill Evans's *Quintessence* LP (Fantasy F-9529) was particularly impressive. It had a body and finely detailed texture that gave it an air of presence and palpability. Its character was the antithesis of synthetic, wooden, and uninvolved.

At the same time, the presentation never became tubby or bloated—the Signature's agility and precise pitch articulation remained intact. The Model 18 subtly enhanced, rather than overpowered, the Signatures. This was another source of concern over adding the Model 18 to the system: the Signatures' bass is among the best defined and most articulate I've heard. I could easily imagine the Model 18 blurring the Hales' precision. I was again pleasantly surprised by the Model 18. All the qualities that make the Signatures' bass so musical were left intact, while the Model 18 provided effortless extension *below* the Hales' LF cutoff.

In addition to adding body and depth to instruments with *some* energy in the Model 18's frequency range, recordings of instruments with substantial LF content were nothing short of stunning. The Dorian *Pictures at an Exhibition* (DOR-90117), obligatory in subwoofer demonstrations, took on a radically different perspective. The instrument's—and thus the music's—size, power, and tonal shadings were fully realized. I quite enjoy this performance apart from its superb sonics; through the Model 18/Signatures combination, it was transcendental. Correct reproduction of the bottom two octaves is essential to experiencing the full impact of this music, the pedal tones, some reaching as low as 16Hz, being the tonal foundation of the work. The Model 18 reproduced them with effortlessness, power, and authority. Even with the lowest notes at high playback levels, the Model 18 never showed signs of strain. In addition, the depth to which the Model 18 reached was stunning. The sheer physical power of this music was enormously satisfying. At the conclusion of "The Great Gate at Kiev," I felt physically and emotionally drained in a pleasant way, unable to continue the auditioning until the following day.

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<sup>3</sup> When the Model 18 was first connected to the system, the improved soundstage focus and width were immediately apparent to everyone in the listening room. Kevin Halverson offered his theory of why image outlines sharpened and soundstage width increased: He thinks the improvements are due to an increase in overall system bandwidth. Instead of the SP-11 driving the VTL 225W monoblocks, I saw the Model 18's input buffer. He theorizes that the VTLs, with gain at the first input stage, load the preamp with high capacitance. This capacitance he refers to is not intentional capacitance, but parasitic capacitance caused by the Miller Effect. Vacuum tubes have capacitance between the grid and the plate, which is multiplied by the tube's gain. This is the so-called Miller capacitance that puts capacitance in parallel with the input resistance, contributing to HF rolloff just above the audio band. By buffering the signal in the Model 18's crossover, the VTLs are driven by a much lower source impedance device (and through a shorter interconnect) than the SP-11, increasing the system's bandwidth. Although the Model 18's input impedance is 25k ohms, less than the VTL's 137k ohms, the 25k ohms is reportedly nearly purely resistive.

Naturally miked recordings took on a new size and sense of space. The feeling of the listening room being replaced by an expansive acoustic environment was greatly enhanced by the Model 18. Much of a hall's character and size is conveyed by low-frequency reverberation—cues not audible without a full-bandwidth loudspeaker. Although much of this information isn't consciously heard as LF reflections, these cues nevertheless infuse the presentation with a "bigness" and feeling of a vast expanse of space.

The Muse Model 18 also contributed greatly to music in which electric bass and kickdrum work together to drive the rhythm. In the studio, much attention is paid to the interaction of bass guitar and kickdrum, both tonally and rhythmically. With correct tuning, good-sounding instruments, and great players, these two instruments form a synergistic combination that infuses the music with life and vitality. After adding the Model 18, music took on a new sense of vigor and energy. High-energy rock, fusion, and blues became even more high-energy with the Model 18. Importantly, kickdrum didn't become blurred with the bass—it retained its dynamic punch and tonal integrity, working with the bass to propel the rhythm. Coupled with the superb transient abilities of the Signatures, the Model 18 produced an overwhelming feeling of transient impact. Listen to the superb *Sheffield Drum Record* (Sheffield Lab CD-14/20). No other drum recording matches this one for capturing the transient steepness of a stick hitting a drum head—making the recording ideal for assessing a system's dynamic performance. What was especially noteworthy about the Model 18 was its ability to reproduce kickdrum without slowness and overhang. The initial impact was sudden, forceful, and razor-sharp, and the decay was equally fast. There was no smearing of the transient—at either edge. This lack of overhang made the presentation taut, quick, and agile. There was a complete lack of plodding slowness, the characteristic that makes the kickdrum lag behind the music, putting a drag on the rhythm. There was a foot-tapping dynamic bounce to the bass that infused music with drive and energy. Despite its delicacy and ability to reveal nuances, the Model 18 can rock'n'roll when appropriate.

I do have a few complaints, but these are more a result of recordings than the Model 18.

Some recordings produced very disturbing thumps and inaudible pressure waves from footsteps, bumped microphones, and even a piano's pedals. At times, there was no audible perception of low frequencies, just a queasy feeling and the sound of the listening room's walls creaking under the pressure (the house is virtually new!). On *Dick Hyman Plays Fats Waller*, for example, the pedals produced distracting thumps that I'd never heard before on this recording. On the first track of Jan Akkerman's CD *The Noise of Art* (IRS IRSD-82041), the synthesized bass has very low-frequency components completely out of proportion to the rest of the music. I suspect that the engineers, lacking a monitoring system having the Model 18's subsonic extension, were unaware of these low frequencies.

Another minor criticism—again with recordings—was the need to adjust the Model 18's level control for different recordings. Most records and CDs were about right with one setting, but if there was excessive bass on the record, the Model 18 made it overpowering. What would have been a little warm and full on the Hales Signatures by themselves became omnipresent and annoying through the Model 18.

## Measurements

Starting with the high-pass electronics, I measured the crossover slopes with different personality cards. Fig.1 shows the slopes with the Hales System Two Signature (52Hz rated) and the Rush Monument 2 (100Hz rated) cards. Interchannel crosstalk in the high-pass electronics, shown in fig.2, was fairly good, measuring about 60dB up to 10kHz, decreasing slightly to 55dB at 20kHz. I repeated the crosstalk measurements without a personality card (and its ribbon connecting cable) in the circuit. The card and ribbon cable didn't degrade the channel isolation.

The high-pass section's output impedance was 256 ohms at 70Hz, 108 ohms at 1kHz, and 104 ohms at 20kHz. A 100mV 1kHz input signal produced 93mV at the output, nearly unity gain. Input overload was 11.1V p-p (3.95V RMS), not exceptionally high, but above the capabilities of most signal sources. Bandwidth was quite wide, the high-pass section rolling off by just 0.8dB at 200kHz (the Audio Precision System One's bandwidth). THD+Noise was very low, measuring less than 0.009% throughout the passband.

The Model 18's nearfield response with the Hales Signature card is shown in fig.3. The kink

at about 18Hz is a measurement anomaly since it doesn't appear on other plots taken at slightly different places. This measurement was made with the B&K microphone parallel with, and 0.5" above, the floor, and 1" from the slot opening. I repeated the measurement with the microphone in various positions, but felt that this curve is most representative of its in-room performance. Note the steep rolloffs on either side of its pass-band (which is quite narrow) and the remarkable low-frequency extension. This curve confirms the claimed -3dB point of 18Hz. I drove the Model 18 with a variable-frequency sine-wave oscillator, listening and feeling for cabinet resonances. The enclosure was quite inert except at about 23Hz, where it shook up and down like a paint-mixer when driven at high levels. Incidentally, the amount of air the Model 18 moves at this frequency is surprising; putting my hand into the slot felt like putting it into a washing machine.<sup>4</sup>

Finally, I used the magazine's MLSSA system to look at the averaged  $\frac{1}{2}$ -octave response with the Model 18 and the Hales System Two Signatures in-room. This curve, shown in fig. 4, is an average of seven measurements taken with the microphone at different positions near the listening area. This technique reduces the effects of standing waves and room characteristics on the measurement. The curve is quite smooth, but with some excess energy in the 20–40Hz octave, a slightly depressed lower treble, and a rise at about 10kHz. Some of these effects are the result of the listening room's influence on the measurement; the general trends are apparent in other in-room measurements made with different loudspeakers (see the curves in the Phase Technology PC-90 review in the next issue).

## Conclusion

The Muse Model 18 subwoofer is an exceptional product worthy of my highest recommendation. It has forever changed my standards of low-frequency reproduction. Quite apart from its ability to reproduce the lowermost frequencies with an effortless authority, its dynamic agility and superb resolution of textures and pitch, what *really* makes it special is how easily it disappears into the music, never becoming obtrusive or sounding like a subwoofer. The integration with both pairs of Hales and the Phase Tech PC-80 (this with a personality card for a different speaker, no

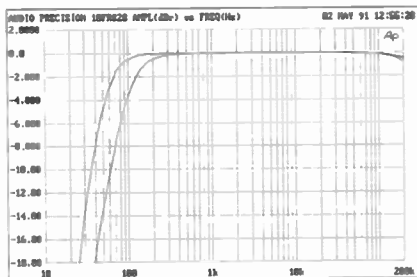


Fig. 1 Muse 18, high-pass output response with 52Hz and 100Hz personality cards (2dB/vertical div.)

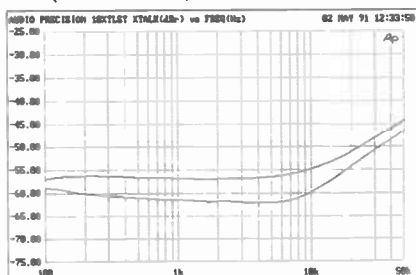


Fig. 2 Muse 18, high-pass output crosstalk (5dB/vertical div.)

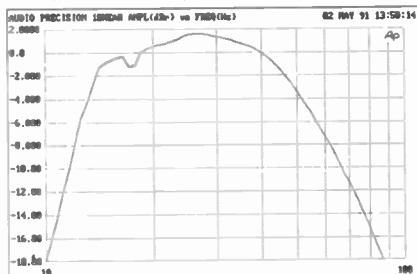


Fig. 3 Muse 18, nearfield acoustic response (2dB/vertical div.)

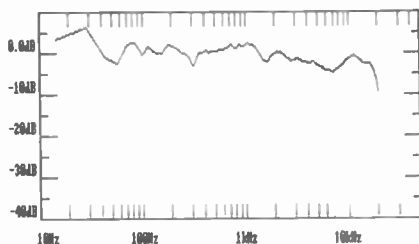


Fig. 4 Muse 18 & Hales Signature,  $\frac{1}{3}$ -octave, spatially averaged in-room response (10dB/vertical div.)

less) was nothing short of stunning.

I suspect that if the Model 18 can integrate so well with the Hales System Two and System Two

<sup>4</sup> Do not attempt either of these at home.



Signatures, it will work with many other loudspeakers. The two Hales models, with their tight, precise bass, presented the Model 18 with a tough integration challenge. If the Model 18 weren't up to their standards, the transition between them would have been thrown into sharp relief. (I didn't audition the Model 18 with planar loudspeakers, however, which can be more difficult to integrate with a subwoofer.)

Further, the Model 18's electronics are clean, transparent, and didn't add veiling, glare, or hash to the presentation. In fact, many aspects of mid and treble reproduction *improved* after adding the Model 18, especially soundstaging and resolution of image outlines. The trace of hardness the Model 18 added was more than compensated

for, in my opinion, by its improvements in other areas.

A question raised—and answered—during this review was of the importance of bass extension in conveying the musical experience. Quite apart from Telarc cannon shots, sonic booms, jet takeoffs, and other dubious reasons to buy a subwoofer, there is something about bass extension—when done right—that opens up a whole new musical vista. To *feel* the full measure of the music without the distracting and unmusical side effects is an experience I may never be able to live without.

If you're in the market for a subwoofer, audition the Muse Model 18—but be prepared to be dissatisfied with anything less. **S**

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## HOW WE SPENT OUR SPRING BREAK

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Stereophile has a Close Encounter with nine (mostly) inexpensive loudspeakers<sup>1</sup> (as well as renewing its acquaintance with the Snell Type K/II).

### Thomas J. Norton begins with the why and how, the why and how, the why and . . .

The delivery-truck horn was unmistakable as it barreled past the *Stereophile* offices, rolling its load off the open tailgate as it went, then disappearing in a cloud of blue exhaust. Danny Sandoval, *Stereophile's* long-suffering head of shipping and receiving, was out the door like a shot, retrieving the package before it was clobbered by the next tourist or low-rider<sup>2</sup> to cruise past our high-rise Santa Fe headquarters.

"Another pair of loudspeakers," he moaned. "Where do I put them *this* time?"

Matters were coming to a head. The influx of small, moderately priced loudspeakers to our 208 Delgado address was far outpacing the outgo. We were victims of the usual lack of reviewer motivation when confronted with the low ends of most manufacturers' loudspeaker lines. True, the compromises inevitable in the bargain basement can provide the crabby critic

with plenty of ammunition if his or her usual listening is to a loudspeaker having loftier ambitions; catchphrases like "sets high standards and fails to meet them" spring immediately to mind. Still, the appeal of possibly finding an unanticipated gem is always there.

"We have ten pairs of small loudspeakers waiting for review," I said, grabbing JA's attention with the subtlety of a sledgehammer. "Interested?"

JA, likely recalling his recent marathon sessions with earlier contenders for low-priced, high-end wannabees, raised one eye from his PC screen, the other firmly planted in the CRT glow of his latest "As We See It." His expression was at first pained, but he regained his footing with a startling suggestion.

"Why don't we set up a listening-panel session?" he countered. "We could evaluate them as a group and write up the results."

Why not, indeed. This was born a first for *Stereophile*: our first semi-regular, semi-blind (no wisecracks; I'll explain shortly) panel listening test for small loudspeakers.

The problem of choosing which loudspeakers to include had already been solved. Or so it seemed. We did have those ten pairs of loudspeakers on hand, all suitable for stand-mounting, all two-ways selling for between \$400 and \$1300/pair, most for under \$1000/pair. But one

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<sup>1</sup> Thomas J. Norton, who organized and ran this whole ball of wax, broke out his calculator, analyzed the numerical results, and tore his hair out collating the subjective comments, all the while being constantly interrupted by other reviewers insisting on chiming in with observations from their own individual auditions. Robert Harley describes the products, telling you everything you always wanted to know about sawdust and glue, vinyl and veneers, and woofers and tweeters, but were afraid to ask. And John Atkinson joined Mike and Melissa to measure them all.

<sup>2</sup> Or tourist in a low-rider.

<b>Manufacturer:</b>	AR	B&W	Epsa	Icon	JBL
<b>Model:</b>	Spirit 162	DM310	ES11	Lumen	XPL-90
<b>Type:</b>	Stand-mounted	Stand-mounted	Stand-mounted	Stand-mounted	Stand-mounted
<b>Tweeter:</b>	1" treated-cloth dome	1" metal dome	1" Al dome	1" Al dome	1" Ti dome
<b>Woofer:</b>	8" polypropylene-cone	8" polypropylene-cone	6.5" polypropylene-cone	6.5" polypropylene-cone	6.5" polypropylene-cone
<b>Bass loading:</b>	Sealed-box	Reflex	Reflex	Reflex	Reflex
<b>Approx. LF extension:</b>	58Hz	40Hz	52Hz	36Hz	56Hz
<b>Crossover frequency:</b>		2.5kHz	60Hz-20kHz	1.5kHz	3kHz
<b>Frequency range:</b>	52Hz-22kHz	53Hz-30kHz		55Hz-22kHz	50Hz-25kHz
<b>Frequency response:</b>		70Hz-20kHz ( $\pm 2dB$ )			
<b>Sensitivity:</b>	90dB/W/m	90dB/W/m	82dB/W/m	82dB/W/m	82dB/W/m
<b>Nominal impedance:</b>	8 ohms	8 ohms	8 ohms	8 ohms	6 ohms
<b>Minimum impedance:</b>	6.2 ohms	3.9 ohms	7 ohms	5.4 ohms	5 ohms
<b>Amplifier requirements:</b>	10-125W	10-100W	25-75W	20-150W	Up to 400W
<b>Height:</b>	17.5"	18.8"	14.75"	18"	15.5"
<b>Width:</b>	9.125"	10.3"	8"	9.5"	9.5"
<b>Depth:</b>	10.9"	8.7"	10"	10.5"	9.75"
<b>Enclosure volume:</b>	19 liters	17.6 liters	17.6 lbs	26 lbs	20 lbs (shipping)
<b>Weight:</b>	17.6 lbs	15.8 lbs	\$850	\$795	\$1300
<b>Price per pair:</b>	\$1000	\$499			
<b>Approximate number of dealers:</b>	55	200	80	Factory Direct Lifetime	Not disclosed
<b>Warranty:</b>	5 years			0100308/A	01003040
<b>Serial numbers tested:</b>	G1 001889/90	005117/8	001480/90	Icon Acoustics	JBL Inc.
<b>US Distributors:</b>	Acoustic Research 330 Turnpike Street Canton, MA 02021 (617) 821-2300 (617) 784-4102	B&W Loudspeakers USA P.O. Box 653 Buffalo, NY 14240 (416) 751-4520 (416) 751-4526	Music Hall 106 Station Road Great Neck, NY 11023 (516) 487-3663 (516) 773-3891	13 Fortune Drive Billerica, MA 01821 (800) 669-9662 (508) 667-7891	240 Crossways Park West Woodbury, NY 11797 (800) 645-7484 (516) 496-3633
<b>Tel:</b>					
<b>Fax:</b>					

of the ten—the Morel Duet, which had been around the longest—dropped out. When we called to check on its currency, Morel advised us that the Duet had undergone minor cross-over revision. We returned our review pair, but replacements did not arrive in time for testing, reducing the number of contenders to nine. The Snell Type K/II (reviewed in Vol. 14 No. 1), though not specifically under test, was selected to be added to the listening sessions as a representative Class D loudspeaker.

Those of you tempted to skip the following sections and cut right to the chase will be spared some eyestrain, but will also miss being informed about the hard choices and compromises required in setting up and running any test of this nature; information which will help you make more intelligent use of the results. If you don't read it now, you'll want to check it out later.

## Location, Location, Location

Location is at least as important to an evaluation of this nature as it is to the real-estate crowd. In our case, the three locations are the listening room itself, the placement of the loudspeakers within the room, and the placement of the listeners relative to the loudspeakers. None of these matters are trivial.

The room chosen for the listening sessions was *Stereophile's* own listening room, which is a bit of a misnomer since it is the room used, at present, primarily by Dick Olsher and myself for our own listening evaluations. It's also used for preliminary listening sessions when visiting

manufacturers elect to drop off products for review in person, as happens 10–20% of the time. (Other *Stereophile* reviewers do their listening at home.) This room measures 20' long by 15.5' wide by 9' high. The walls are fairly solid (two each of plaster over concrete block and plaster over drywall). The floor is suspended, and the ceiling is more solid than most, consisting of wood supported by vigas (shaved logs). This makes the ceiling moderately dispersive—certainly more so than the norm. Carpet with padding covers most of the floor, and the large window area on one short wall (behind the loudspeaker location) is covered with medium-weight lined drapes which were closed for the testing. A fair amount of damping material is distributed in strategic locations around the room, most heavily on the wall behind the listeners.

The reverberation times of the listening room are slightly lower (making the room slightly more damped) than the optimum recommended by the IEC as a standard. Using DRA Labs' MLSSA system, we measured the room reverb time to be 0.4s at 40Hz (IEC rec 0.8s), 0.6s at 100Hz (upper bass fatness region), 0.34s at 250Hz (IEC rec 0.34  $\pm$  0.08s from 250Hz to 4kHz), 0.22s at 1kHz, 0.22s at 4kHz, and 0.19s at 10kHz (IEC rec 0.2s). The measurements were made with two people in the room and the drapes closed. Because of measurement limitations, the room figures below 250Hz are very approximate. In very general terms, this room tends to sound warm rather than reveal clinical detail.

<b>Manufacturer:</b>	MB Quart	Mordaunt-Short	PSB	Wharfedale
<b>Model:</b>	498 MICS	MCS 3.3B	48 Mill.II	Diamond 4
<b>Type:</b>	Stand-mounted	Stand-mounted	Stand-mounted	Stand-mounted
<b>Tweeter:</b>	1" Ti dome	1" Al dome	¾" textile-dome	¾" metal-dome
<b>Woofer:</b>	8" pulp-cone	8" polypropylene-cone	8" polypropylene-cone	4.75" polypropylene-cone
<b>Bass loading:</b>	"Moving Control System"	Reflex	Reflex	Reflex
<b>Approx. LF extension:</b>	50Hz	40Hz	44Hz	62Hz
<b>Crossover frequency:</b>	2.1kHz	4.8kHz	2kHz	3.5kHz
<b>Frequency range:</b>	37Hz-32kHz	60Hz-22kHz	39Hz-21kHz	50Hz-25kHz
<b>Frequency response:</b>			70Hz-20kHz (±1.5dB)	
<b>Sensitivity:</b>	89dB/W/m	90dB/W/m	90dB/W/m	86dB/W/m
<b>Nominal impedance:</b>	4 ohms	8 ohms	6 ohms	8 ohms
<b>Minimum impedance:</b>	3.8 ohms	7 ohms	4.6 ohms	5 ohms
<b>Amplifier requirements:</b>	up to 100W	15-100W	10W-150W	100W max.
<b>Height:</b>	17.3"	18"	21"	10.5"
<b>Width:</b>	10.5"	9.25"	10.25"	7.25"
<b>Depth:</b>	11.2"	10.8"	11"	7.25"
<b>Enclosure volume:</b>	23 liters			
<b>Weight:</b>	24.3 lbs	18 lbs	22 lbs	
<b>Price per pair:</b>	\$849	\$459	\$440	\$400
<b>Approximate number of dealers:</b>	95	50	50	250
<b>Warranty:</b>	5 years			
<b>Serial numbers listed:</b>	15415/6	208787/8	316494/5	
<b>US Distributors:</b>	MB Quart Electronics USA 25 Walpole Park South Walpole, MA 02081 (508) 668-8973 (508) 668-8979	Mordaunt-Short/TGI Inc. 1225 17th Street, Ste. 1430 Denver, CO 80202 (303) 293-9737 (303) 293-9738	PSB International, Inc. 633 Granite Court Pickering, Ontario L1W 3K1 Canada (416) 831-6333 (416) 831-8936	Vector Research 1230 Calle Suerte Camarillo, CA 93012 (805) 987-1312 (805) 987-1956
<b>Tel:</b>				
<b>Fax:</b>				

It was decided early on that a maximum of two locations on the short wall (the usual wall used for loudspeaker setup in this room) would be used as required: one location near the rear wall for loudspeakers needing the added reinforcement, another well out into the room for those more suited to this type of siting. The latest version of *The Listening Room* computer room setup program was called into play to simplify the task of selecting these locations. If you've seen the Vol.13 No.12 review of that program, you'll realize that there are a number of possible, reasonably appropriate setup locations for any given room, *none* of which is likely to be *the* absolute best. Setup is almost always an educated (one hopes) compromise. Finding a suitable position well clear of adjoining walls was easy compared with the problem of finding a decent near-wall location. The latter might well give *more* bass, but it's not at all difficult to end up with a lumpy, more erratic low-end response in the bargain.

Once the placement choices were narrowed down by computer, the locations were subjected to a preliminary audition.<sup>3</sup> It was soon decided that the computer-derived, out-in-the-room placement was a good one, if not necessarily the location which would be favored by all listeners in all circumstances. It was further determined that the near-wall location, in this room at least, resulted in no net gain in

overall performance for the four loudspeakers considered for this positioning. Therefore the same "free-space" location was used for all loudspeakers under test. This had a fortunate side-effect: moving each loudspeaker would have meant moving the *listeners* as well, in order to maintain listener-to-loudspeaker spacing and thus keep the same general ratio of direct to reflected sound for the panel in each session. Maintaining the loudspeaker location for each session eliminated that variable.

All loudspeakers were placed on 24"-high, lead-shot-filled Celestion stands. These were spiked to the floor, and at the top of each were placed three (small) SimplyPhysics Tone-Cones, points up, to support the loudspeakers. Loudspeakers and stands were toed-in toward the center row of listeners. Most readers are aware, I trust, that there is an optimum height for loudspeakers, usually (but not always) corresponding to the tweeter being located at, or slightly above, ear height. Although it's not possible to optimize the height for *every* seated listener and every loudspeaker in a listening panel evaluation, the loudspeakers were all measured before the listening tests to insure that the chosen height was as close to optimum as was reasonably possible.<sup>4</sup>

The chosen locations for the listening chairs necessarily involved some compromise. The

<sup>3</sup> The preliminary setup auditions, including placement, level checks, etc., were done by yours truly (TJN), *not* by the entire panel. They took several hours, which would try the patience of any group waiting for the real action to start.

<sup>4</sup> The potential compromise in impartiality that this might entail was minimized by the blind nature of the listening test; JA was unaware of which loudspeaker he was listening to at any given time, so could not relate the measurements he had already taken to the loudspeaker being played. TJN assisted in the measurement setups, but did not observe the results before the listening sessions.

"optimum" location from *The Listening Room* was chosen as the center row of seats; two seats were placed in this row, another seat in front of these, and another behind them (two were in this back row on the first day, when LA participated). Fortunately, *The Listening Room* predicted that the rear row would be nearly as good as the center. The front seat was in the best position for stereo imaging, though the "aim point" of the toed-in loudspeakers was slightly behind this spot. Each of the middle seats were slightly off from the "sweet spot" (which was *between* them), and the rear seat had the most obstruction—three people in front of it. Clearly, choosing seating locations for a panel of more than one person is no trivial matter.

### See no evil

I decided early on in the planning stage that, as long as we were going to do a panel test in the first place, it would be desirable to conceal, to the maximum extent possible, the identity of each loudspeaker being auditioned from the panel members. The only exception would be yours truly (TJN), who would be responsible for running the test and changing the loudspeakers between sessions, at which time the rest of the panel would leave the room. We obtained enough grille-cloth material to create an acoustically transparent screen running from ceiling to floor across most of the width of the room in front of the loudspeakers. This was *nearly* opaque visually—it was just barely possible to make out the location and vaguely defined shape of the loudspeakers behind the screen from the panel's location in front of it. (Because of this, I placed a grille and frame from one of the larger loudspeakers *behind* the Wharfedale Diamond IV on its second session, effectively obscuring its small frontal cross-section—just visible as a shadowy outline at the listening position.)

No grille cloth is totally transparent to sound, but our measurements showed that the chosen cloth had a relatively small effect (fig.1's bottom trace shows the response of an ideal system, the top trace the same system with grille material nearly flush with the baffle). These measurements were taken with the cloth very close to the cabinet. Farther away (as we used it), where the possibility of reflections between the grille material and the nearby cabinet face is reduced, the effect should be even

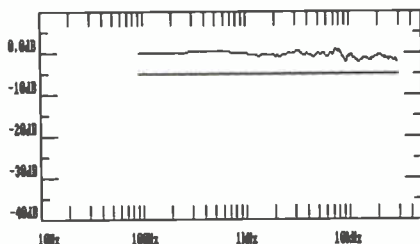


Fig.1 Difference made to anechoic response of Epos ES11 by Snell grille cloth used in blind listening tests

smaller. The material was obtained from Snell Acoustics, which has a particular interest in the neutrality of the cloth they use since, unlike most manufacturers, they recommend that all of their loudspeakers be used with the grille *in place*. To avoid any undue effect from having a *double* grille thickness between loudspeaker and listener (not to mention the more significant effect of a grille frame), each loudspeaker's grilles, if provided, were removed during the auditions.

### Music, Music, Music

The music chosen for the panel test was selected with an ear to material which would vigorously exercise the loudspeakers with as broad a sonic spectrum as possible. It was decided in the early planning that we would restrict the program material to CD-based material. This would eliminate the possibility that a particular phono cartridge's spectral balance would skew the results. If you don't accept this argument for using CD, then consider this: each selection would be played 10–11 times on each of two test days. What's the potential for sonic change—most certainly degrading—due to simple vinyl fatigue over this period? Not to mention wear and tear on valuable—even irreplaceable—recordings supposedly selected for their superior sonic qualities? Transfer of vinyl selections to open-reel tape or DAT was considered briefly, but that would have opened up a whole other can of worms.

The program material chosen was excerpted from the following:

Non-musical selections: Pink Noise, *Hi-Fi News & Record Review* Test Disc HFN003, band 40 (played in mono, left loudspeaker only); J. Gordon Holt, "Why Hi-Fi Experts Disagree," *Stereophile* Test CD STPH002-2, band 5, index 19 (Description: this spoken-voice selection was recorded in mono with EAR's The Mic, and played through both loudspeakers).

Musical selections: 1) Amanda McBroom: "Amanda," *Growing Up in Hollywood Town*, Sheffield Lab CD-13. A classic audiophile favorite, and a very naturally recorded female vocal.

2) Henry Eccles: Sonata for Double Bass and Harp, *Allegro con spirito; Staccato 2*, *The Second Audiophile CD-Sampler, Audio Magazine* (Germany). The bowed double bass is a good test for low-frequency loudspeaker resonances and natural extension without making excessive dynamic demands on the loudspeaker.

3) Baltimore Consort: "Jockey Loves His Moggy Dearly" from *On the Banks of Helicon*, Dorian DOR-90139. Description: Early Scottish music using a variety of original instruments such as treble viol, bass viol, tenor viol, bandora, recorder, and Renaissance flutes. Also includes soprano voice, all captured with a natural ambience in the superb acoustics of the Troy, NY Savings Bank Music Hall.

4) James Newton Howard: "Slippin' Away II," *James Newton Howard & Friends*, Sheffield Lab CD-23. Rock-oriented instrumental with synthesizer, piano, drums, and percussion. Relatively un gimmicked, as this sort of thing goes—punchy, dynamic, and clean.

5) Eric Bibb, Bert Deivert: "Anneli," *River Road*, Opus 3 CD 8017. Male vocals (baritone and tenor) with guitar in a moderately close-up perspective.

6) Mike Garson: "Without Self," *The Oxnard Sessions*, Reference Recordings RR-37CD. Jazz group in a very natural acoustic space. A solid low end (especially good on double bass) and a deep, three-dimensional soundstage.

7) J.S. Bach: Toccata & Fugue in d, BWV 565, *The Great Organ of St. Eustache, Paris*, Dorian DOR-90134. A warhorse to be sure, but the low end captured here gives these small loudspeakers a real workout, and the sense of ambient space and depth on this recording can be truly stunning.

8) Chopin: Scherzo in b-flat, Op.31, *Stereophile Test CD STPH002-2*. A JA favorite piano recording, which he also engineered.

9) Arnold: "Solitaire-Polka," Lyrita SRC.201. This selection has dynamics to spare, a very clean sound (cleaner, in my judgment, than some of the other selections on the disc, though all are good), and solid bass-drum whacks that test the mettle of even expensive loudspeakers.

10) Prokofiev: "Alexander's Entry into Pskov," *Alexander Nevsky Cantata*, Op.78, Telarc CD-

80143. JGH, when he reviewed this recording in Vol.11 No.4, had some minor reservations about the sound, but still called it "the best-sounding CD Telarc has ever done" as of that date (early 1988). Awesome dynamics here, and complex scoring which challenges even a Class A loudspeaker. Less precise image than above, but there's also a lot more going on.

After the above were selected (program selection auditions were conducted over the Apogee Stage loudspeakers), an optimum playback level for the center row of seats was chosen by playing back each piece over the Snell Type K/II loudspeakers. Peak playback levels on most selections ranged from the mid-80 to the mid-90dB range, though the final chord on selection 10, with orchestra and chorus in full cry, exceeded 95dB. Selection of optimum level at the center row of seats resulted in another compromise inevitable with several listeners: the listener in front was subjected to levels somewhat higher than optimum, those in the rear slightly lower. One might expect the listener in front to be less than delighted with forward-sounding loudspeakers—unless his taste ran strongly in that direction. Rear-seat listeners, on the other hand, might occasionally find the sound slightly lacking in punch.

After choosing the desired playback levels for each selection over the Snells, these levels were related to the known sensitivity of each of the other loudspeakers, which in turn were related to an appropriate level setting on the Rowland Consonance preamplifier to equalize levels from loudspeaker to loudspeaker. (Needless to say, all of this was done in advance of the sessions and annotated on reference sheets.) Sensitivities were measured using MLSSA and a 1kHz, 1/2-octave warble tone. Differences in spectral balances between loudspeakers will often result in a perceived difference in playback level when matching is done at 1kHz, and for this reason some experienced researchers recommend the use of pink noise to set relative levels. But this merely averages the level over a broader band of frequencies; the problem of subjective level matching in the presence of inevitable spectral differences remains a compromise at best.

## Getting to the point

The first of the two test days was finally at hand. John Atkinson was in the center front seat, Robert Harley left seat, middle row (as refer-



enced from behind the row), yours truly (TJN) right seat middle row, Guy Lemcoe left seat back row, and Larry Archibald right seat back row. Since LA could not participate on the second day, GL was able to center his seat at that time. Prior engagements prevented DO from participating.

The first loudspeaker to be played was the Snell Type K/II. As previously noted, this was included as a typical, solid Class D loudspeaker, and it was identified prior to its initial run-through. Its tweeter-level control was set at 9:00 o'clock, as a compromise between the marked optimum setting (12:00) and the setting recommended by RH (7:00) in his Vol.14 No.1 review. It was subsequently included twice again in the sessions, once on the first day, again on the second, but on the latter two occasions it was *not* identified. The order in which the other loudspeakers were played following the Snells was chosen at random. And, to repeat, only TJN knew their identities. On the first day, three of the loudspeakers were not auditioned because of time limitations and, more significantly, listener fatigue—the Icon, B&W, and Epos. When the order was shuffled for the second day in a new random sequence, these three were mixed into the first eight, to insure that they wouldn't be bypassed completely should the second day's session also be cut short. (As it turned out, we easily got through all of the loudspeakers on the second day.)

Listeners were cautioned to avoid any verbal or nonverbal communication until after a session was complete and all comments had been committed to paper. Since I was the only one listening non-blind, I refrained from reviewing the scoresheets after the first day, to avoid any possible influence from others' opinions prior to the second day's sessions.

It should be noted that all listening, with the exception of pink noise (one channel) and the JGH spoken selection (mono, played back over two channels), was done in stereo. Some argue that a monophonic recording played back over a single loudspeaker is a more revealing (and more controllable) test. There are good arguments for such a procedure, chief among them that, freed of the distractions of stereo's spatial attractions, listeners may more easily spot timbral inaccuracies. But for this test we chose to listen, with the exceptions noted, to stereo playback. It not only gave us a wider choice of

potential program material,<sup>5</sup> but is also the primary listening mode of most of our readers (not to mention the reviewers on the panel).

## Tabulation

Each participant was asked to provide a numerical score, from 0 to 10, for each program selection over each loudspeaker. Space was also provided for written comments. The score-sheets were later averaged to the second decimal place, and final scores calculated for each loudspeaker, both overall and for each separate piece of program material. The overall scores are indicated in the text for each loudspeaker, the separate scores for each piece of music are in Table 2, the latter rounded off to the first decimal place. (You'll also find the scores for each piece of music as heard over the Apogee Stages listed there; the reasons for this are explained later.) Because of the limited number of listeners, my ratings are included in the overall scores. Since I was the only listener not operating in the blind (because I also conducted the test), statisticians may (and probably will) take issue with this. But at least you're aware of it up front.

## Individual auditions

Following the panel sessions, JA, GL, RH, and TJN cast lots to each take two of the reviewed loudspeakers (in GL's case, three) home to listen to in their own systems at a more leisurely pace,<sup>6</sup> after which they submitted brief summaries of their impressions. None of the panel members listening in the blind (JA, LA, RH, GL) were given any results from the blind panel listening tests until their individual auditions and writeups were completed. Though I tabulated the panel score sheets and wrote up the results, I refrained from

<sup>5</sup> Combining the two channels of a stereo recording will *not* give a proper mono mix unless the recording was recorded with coincident microphones (even then there is likely to be some compromise in the upper octaves due to interchannel phase differences). The use of a single channel of a stereo recording is definitely *not* a good idea.

<sup>6</sup> When the editors of *Rider*, a touring motorcycling magazine, wanted to test four "luxo-tourer" motorcycles, they rode them from Los Angeles to Taos, New Mexico, a distance of over a thousand miles—without a rest stop. The four riders traded motorcycles along the way, evaluating each bike as the trip progressed. Toward the end of the journey, I suspect that which motorcycle one wanted to ride the *least* was an important indicator of that bike's comfort. This evaluation technique is in sharp contrast to their usual method of riding the test motorcycle under normal conditions for a few weeks.

<sup>7</sup> I see an analogy between this method of testing and spending two days listening to the same music segment over 10 pairs of inexpensive loudspeakers. The only way the parallel could be closer is if the *Rider* editors chose 125cc dirt bikes for their +1000-mile marathon!

—RH

	<i>Pink Noise &amp; Voice (JGH) (Combined Rating)</i>	<i>Female Vocal ("Amanda")</i>	<i>Double Bass &amp; Harp</i>	<i>Early Scottish Music</i>	<i>James Newton Howard</i>	<i>River Road ("Anneli")</i>	<i>Oxnard Sessions</i>	<i>Bach (organ)</i>	<i>Chopin (piano)</i>	<i>Arnold Solitaire Polka</i>	<i>Prokofiev Alexander Nevsky</i>	<i>Loudspeaker Score</i>
AVERAGE <sup>1</sup>	4.4	4.9	4.6	4.8	4.9	4.8	4.9	5.0	4.8	4.9	4.7	
Snell Type K/II <sup>2</sup>	4.9	5.0	4.5	5.1	5.0	4.7	4.8	4.8	4.5	4.8	4.8	4.80
Epos ES11	4.8	5.5	5.4	5.6	5.9	5.4	6.0	5.9	6.0	6.1	5.8	5.66
PSB 40 Mk.II	4.9	5.3	4.7	5.4	5.3	4.9	5.3	5.4	5.1	5.4	5.1	5.17
Icon Lumen	4.8	5.0	4.8	4.4	5.3	5.0	5.3	5.4	4.7	4.8	4.9	4.92
MB Quart 490 MCS	4.5	4.8	4.8	4.8	4.9	4.8	5.1	5.1	4.5	5.1	5.2	4.87
Mordaunt-Short MS 3.30	4.5	5.0	5.0	4.8	4.7	4.8	4.7	5.0	4.9	4.7	4.5	4.78
Snell Type K/II <sup>3</sup>	4.5	4.9	4.4	4.7	4.9	4.9	4.7	4.8	4.8	4.7	4.6	4.73
AR Spirit 152	4.2	4.6	4.8	4.5	4.7	4.9	5.1	4.7	5.1	5.0	4.4	4.72
Wharfedale Diamond IV	4.0	4.7	4.5	4.6	4.9	4.9	4.9	4.8	4.9	4.6	4.4	4.65
B&W DM310	4.1	4.5	4.4	4.8	5.1	4.3	4.5	4.9	3.8	4.9	4.4	4.50
JBL XPL-90	4.1	4.8	3.9	4.3	4.5	4.1	4.3	4.4	4.4	4.2	4.4	4.31
Apogee Stage	6.6	7.9	7.8	8.3	8.3	8.4	8.4	8.5	8.1	8.3	8.4	8.24

<sup>1</sup> Apogee Stage not included

<sup>2</sup> Open audition

<sup>3</sup> "Blind" audition

TABLE 2: Ratings by Music Selection

looking at these sheets until after I had completed my individual assessment of the two loudspeakers I had drawn.

These individual assessments proved enlightening, not always agreeing in all respects with observations made during the panel listening. Characteristics which irritate in group sessions may "blend into the woodwork," so to speak, when observed at a more leisurely pace over a more extended period. Or they may become *more* annoying. Positive or negative qualities of seemingly minor importance in a brief exposure may loom large over the long haul. And remember that, in the individual auditions, the rooms were different, the associated equipment was different, and the program material was different. (I used the *Stereophile* listening room, as I usually do, for my listening, but made a single change in the asso-

ciated equipment, substituting the Classé DR-8 amplifier for the Rowland One for no other reason than to change the mix slightly. I also chose different setup locations from that used in the panel sessions—my preferred setup location could not be used in the latter as it would not have allowed sufficient space for three rows of listeners.)

### Testing, testing

Using the DRA Labs MLSSA system and a B&K microphone, the impulse response of each speaker was captured at a 42" distance on the tweeter axis, 7.5° and 15° to each side of that axis, 7.5° and 15° above it, midway between the woofer and tweeter, and on the woofer axis, with both 5kHz and 30kHz bandwidths. (Each speaker was positioned on a high stand to place the tweeter midway between floor and ceiling,

and Sonex foam was used to kill the early reflections.) These impulse responses were windowed to eliminate the effects of the remaining room boundary reflections and converted to quasi-anechoic frequency responses with the Fourier Transform.

The horizontal responses across the resultant 30° window were averaged to minimize position-dependent interference effects, and plotted from 200Hz to 1kHz with 15Hz resolution, and from 1kHz to 30kHz (the microphone's upper limit) with 88Hz resolution. To give a complete picture, the spliced-together quasi-anechoic response was plotted on the same graph as the individual nearfield responses of the speaker's woofer and port taken up to 200Hz. The level matching between the former and latter can only be approximate, but was done to JA's best guesstimate. As mentioned earlier, each speaker's sensitivity was measured with MLSSA by capturing the waveform at 1m of a 2.828V warble tone, 1/2-octave wide and centered on 1kHz, and then using MLSSA's "Calculate SPL" function. Each speaker's impedance magnitude and phase were measured with *Stereophile's* Audio Precision System One.

As already indicated, all program material for the blind listening tests was CD-based. The CD player consisted of the Wadia WT-3200 CD transport feeding (via a Wadia coaxial digital cable) the Stax DAC-X1t D/A converter. Electronics consisted of the Rowland Consonance preamp and Model One power amp. Interconnects were AudioQuest Lapis Hyperlitz from DAC to preamp, balanced Cardas Hexlink from preamp to power amp (the latter located near the loudspeakers), and AudioQuest Dragon Hyperlitz loudspeaker cable. Since only some of the loudspeakers were configured for bi-wiring, we chose to audition all of the loudspeakers in the single, mono-wired mode in the panel sessions. Before you write complaining about our sanity in using over \$20k of equipment (not including cables) to drive what are, after all, relatively inexpensive loudspeakers, consider that our intent was to feed a top-quality, CD-based signal<sup>7</sup> to the input terminals of those loudspeakers.

The overall numerical panel score for each loudspeaker is shown immediately below the listening tests heading for that loudspeaker.

Where a loudspeaker was auditioned more than once, the scores for each day are indicated in parentheses; *ie*, overall score (day 1 : day 2). The overall, average score for all listeners and all loudspeakers, on all days, was 4.80.

**Snell Type K/II: 4.73 (4.64 : 4.85).** The Snell's score is included here as a reference point. Recall that it was auditioned once in the open, at the beginning of the first day, and twice more, in the blind (except, again, for TJN, who was running the test and also participating in the listening and scoring)—once on each day. The score shown above was the average for the *blind* auditions. The K/II's score for the open audition, believe it or not, was 4.80—exactly the same as the average for all of the loudspeakers on both days. The \$465/pair Snell was chosen as a reference point as a solid, Class D loudspeaker, which certainly appears justified based on the results.

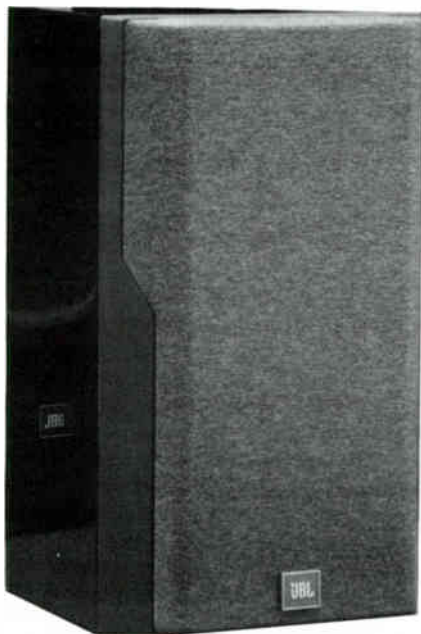
### **JBL XPL-90: \$1300/pair**

The XPL-90, a two-way ported design featuring a 6" filled polypropylene woofer and a 1" titanium-dome tweeter, is the lowest-priced loudspeaker in JBL's XPL line. This same tweeter is found in all the XPL products, including the \$2498/pair XPL-160 reviewed by TJN in Vol.14 No.2. It features a diamond-shaped pleated surround made of the same material to reduce nonlinearities.

The enclosure is made of 3/4" MDF, with part of the front baffle employing a second layer of MDF. This second layer supports the woofer, resulting in a tiered baffle that recesses the tweeter and achieves some measure of time alignment between drivers. The gray grille is contoured to follow the baffle shape. A layer of rubber material damps the baffle, and the edges are beveled. In addition, the enclosure is slightly trapezoidal, narrower at the back than at the front. The rear is rounded rather than squared, which reportedly results in a more rigid cabinet and discourages the generation of standing waves. Finally, the cabinet is finished in gorgeous gloss-black lacquer. Available cabinet finishes include gloss white, black ash, and walnut.

The crossover frequency is quite high at 3kHz, with second-order slopes. Monster Cable internal wiring is used throughout, and a single pair of gold-plated five-way binding posts provides system connection. Construc-

<sup>7</sup> Digiphobes will consider this an oxymoron. Whatever.



JBL XPL-90 loudspeaker

tion quality and appearance are superb, establishing the XPL-90 as the best-looking loudspeaker in the group.

**Listening Tests Panel Score: 4.31 (4.26 : 4.38).** The panel in general could not express a great deal of enthusiasm about the JBLs. To be sure, some positive comments were expressed. Remarks about the soundstage, while not plentiful, were generally favorable, at least as regarded imaging. The XPL-90s were also felt to have a good “sock” quotient. “Weighty and punchy,” commented RH on the James Newton Howard, and much of the panel seemed to agree. GL felt that, on the orchestral pieces, the JBLs captured a “sense of majesty.” TJN commented, “studio punchy quality” on the *Oxnard Sessions*, which was not intended as an entirely favorable observation. He felt rather strongly that the sound was overly forward in perspective and largely two-dimensional. The panel did not entirely agree in this. Aside from comments on good soundstaging, there were some positive notes about depth and success in conveying a sense of the hall sound. RH commented favorably on the early-music selection that the “voice has bloom, surrounded by air and space.”

Beyond this, however, things went downhill.

While the low end scored better with some panelists than others, it was generally downgraded for a too-warm, muddled quality, particularly higher up in the bass range. The JBL's reproduction of the folk selection, “Anneli,” was heavily criticized. “Seemed to keep stimulating resonances,” wrote LA, which pretty well summarized the general consensus. Bottom-end extension was a bit more favorably received; on the Bach, JA commented that the organ had “great weight and reasonable space,” but added that it was “sort of confused,” this probably relating to a lack of clarity through the mid- and upper bass.

The JBLs' top octaves received only minor comment, the lack of news here probably indicating at least a respectable showing. JA had the most criticism, noting a grainy quality on at least two occasions, turning to “peaky and hard” on a third. RH also noted some grain, but generally made little comment on the high-frequency response. TJN felt that it tended to crispness and perhaps lacked air (JA agreed on the early-music selection that the top octave was a little rolled-off), but otherwise had little negative to say.

The dividing line between the midrange and the lower treble is a fuzzy one at best, however, and it was through the midrange (extending into that lower treble, where some concerns were expressed) that the XPL-90s came in for more negative responses. Aside from TJN's previously voiced concern with its rather two-dimensional perspective—finding the James Newton Howard, especially, “rather flat and blarey”—JA commented several times on “midrange congestion” and “confused mids.” RH elaborated with “some hardness to upper mids, some grain and glare” on the symphonic/choral works.

But it was on the classical selections—which, to be fair, gave many of the loudspeakers in this survey the colic—that the JBLs disappointed most. They simply did not, to quote JA, “go loud gracefully!” He felt he heard some bottoming on bass drum (or perhaps wind noise from the port). Though GL, to repeat, liked the JBLs' majestic quality on the orchestral material, and RH felt that the top end was smooth, the panel reaction in general was not particularly favorable.

The JBL *is* beautifully built, and it cannot be ignored that it came in near the top of two panelists' individual lists (see below) on the sec-

ond day's scoring. But it bears the unfortunate double burden of being the highest-priced loudspeaker in the survey and coming in last in the overall tabulation, the latter not tempered by the written comments. Just to insure that a low score from any one panelist did not unfairly skew the results, I recalculated its average point total after throwing out the best and worst scores from the panel over both sessions. The score remained at the bottom—in fact, it dropped slightly, to 4.26.

**Robert Harley comments on the JBL XPL-90:** For a description of the playback system, see my review in this issue of the Muse Model 18 subwoofer.

I listened to the XPL-90s on the 24" spiked and lead-shot-filled Celestion stands, and was impressed with some aspects of their performance—but not others. The XPL-90s had a smooth, clean treble that was never forward or obtrusive. There was a pristine purity to the upper octaves, allowing musical detail to emerge without being aggressive. The treble was polite without being rolled off. I did feel that there was a slight lack of air and extension in the uppermost octave, giving the presentation a less than open feeling.

The soundstage was quite wide laterally, but with less than impressive depth. Instruments appeared beyond and between the loudspeaker boundaries, with good image outlines. However, I never got the impression of a deep soundstage before me. This characteristic was most noticeable on minimally miked recordings like *The English Lute Song* (Dorian DOR-90109) and JA's piano recording on the *Stereophile* Test CD. The instruments were presented as being all between the loudspeakers rather than behind them. In addition, reverberation and the hall acoustic never fully bloomed around the instrumental outlines.

There was fairly good pitch resolution in the mid- and upper bass, but this tended to be somewhat ill-defined in the lower registers. There was also a lack of tightness and punch in the bass. Kickdrum, for example, tended to be a "whoosh" rather than a "pow." Left-hand piano lines could become congested during complex passages, rather than taut and detailed. Consequently, music lacked much of its rhythmic drive and urgency. LF extension was moderately good for such a small enclosure, but not as deep as the Mordaunt-Short MS 3.30. The

midrange was uncolored tonally apart from a slight chestiness to female vocal, but had a trace of opacity that seemed to prevent the presentation from opening up and soaring.

Although there was nothing overtly wrong with the XPL-90, I never quite warmed up to it. The treble was sweet and detailed, and the levels of coloration appeared quite low, but they didn't focus my attention on the music. There wasn't a foot-tapping enthusiasm to continue listening. The overall presentation could be described as constrained rather than vibrant and alive. The JBL XPL-90s didn't offend, but neither did they engage me musically.

**Measurements:** The JBL's 1kHz sensitivity measured even lower than the Diamond's, at 88.3dB/W/m, the second lowest in the group. Its impedance, shown in fig.2, features a minimum value of 5 ohms in the upper bass and reveals the port tuning to lie at 55Hz. As can be seen from the nearfield measurements in fig.3, the port is responsible for most of the bass output below 100Hz or so; this may correlate with the panelists' general dislike of the XPL-90's bass quality.

The quasi-anechoic spatially averaged response shown above 200Hz in fig.3 is commendably smooth and flat, broken by just a small degree of upper-midrange peakiness—perhaps contributing to the "grainy" presentation—and a very slight rise at the limit of audibility. As can be seen in fig.4, however, which shows the 7.5° and 15° off-axis responses normalized to that on the tweeter axis, the '90 suffers from limited dispersion above 10kHz, which undoubtedly contributed to its sounding rolled-off to many of the listeners.

Vertically, the flattest response was that on the tweeter axis, without too much change as the listener moves down to the woofer axis.

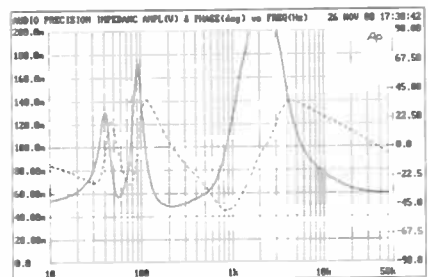


Fig.2 JBL XPL-90, electrical impedance and phase (2 ohms/vertical div.)



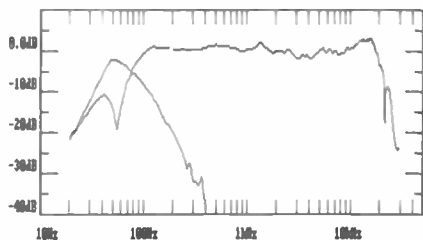


Fig.3 JBL XPL-90, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

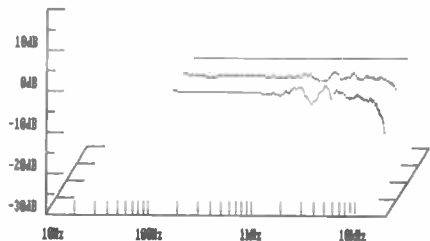


Fig.4 JBL XPL-90, lateral response family at 42°, normalized to response on HF axis, from back to front: reference response; anechoic response 7.5° off-axis; 15° off-axis

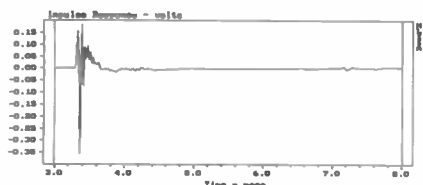


Fig.5 JBL XPL-90, impulse response on tweeter axis at 42° (5ms time window, 30kHz bandwidth)

Above the tweeter, however, a significant notch appears at the crossover frequency, making the use of high stands mandatory. If you can see the top of this JBL, you're sitting too high or your stands are too low.

The XPL-90's impulse response can be seen in fig. 5, with the equivalent waterfall plot in fig. 6. Here is another possible source for the listeners' "hardness" and "grainy" comments: a degree of low-treble hash can be seen in the impulse's decay.

### B&W DM310: \$499/pair

Although B&W is known among audiophiles for their more expensive products, primarily the 801 Matrix, their bread and butter is small, inexpensive boxes like the DM310 included in this survey. The DM310 is an 8", two-way design with a front-firing port. The woofer diaphragm is made from reinforced polypropylene and the driver uses a diecast (as opposed to stamped) basket for rigidity. A 1" metal-dome tweeter finishes off the driver complement. The fluid-cooled tweeter's first breakup mode is 27kHz, higher than most other metal-domes'. Rather than recess the tweeter in the baffle, B&W has mounted the tweeter in a diffraction-reducing panel. The plastic molding disperses diffraction points with a series of "V"-shaped grooves which, from the tweeter's point of view, are asymmetrical. The similar grooves around the port are purely cosmetic. To further reduce diffraction, the baffle edges are beveled.

The enclosure is constructed from 15mm (5/8") particle board, with no internal bracing.

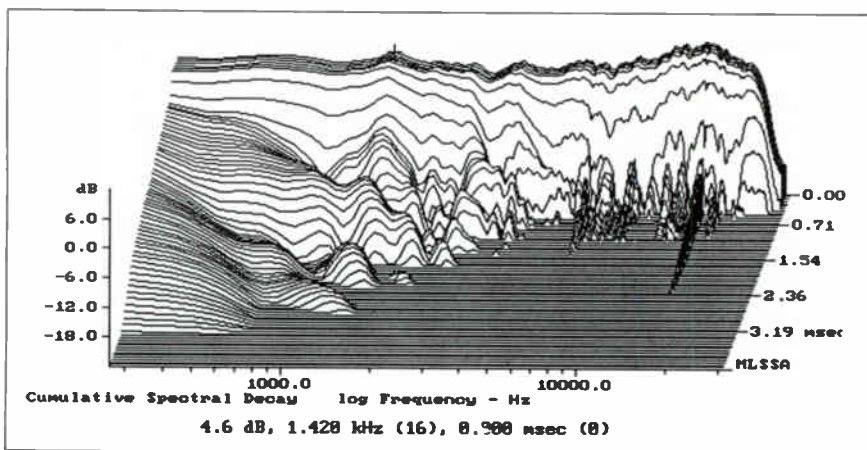


Fig.6 JBL XPL-90, cumulative spectral-decay plot



B&W DM310 loudspeaker

Crossover frequency is 2.5kHz, employing a second-order (12dB/octave) slope in the low-pass and third-order (18dB/octave) in the high-pass. These are electrical slopes; the effective acoustic rolloff is somewhat steeper. The higher-order high-pass section provides a little more delay than the low-pass section, resulting in better time alignment of the drivers. The tweeter is thus "moved back" electrically nearer the woofer's acoustic center. The cabinet finish is vinyl, and two pairs of five-way binding posts are provided for bi-wiring.

**Listening Tests Panel Score: 4.50.** Scoring below average in the group sessions, most of the panel found the DM310s to offer a reasonably pleasant sound overall. The treble was judged a little etched and the mid-treble perhaps "a little peaky" (JA), but it was not found to be, in general, irritating. While JA felt that the tape hiss on the Chopin was too prominent, and RH noted some hardness to the attack on the same program material, TJN felt the highs, overall, to be decent, "detailed yet inoffensive."

At the bottom of the range, the B&Ws were praised as having reasonably good weight and extension. "Bass, Bass!!" wrote GL of the Bach selection—no doubt reacting to the lack of same in some previous session. TJN noted a "nice, shuddering quality to the low notes" on the Bach. And JA remarked on the "good bass slam and weight" on James Newton Howard. But although the bass extension was praised, the midbass came in for some criticism. RH thought the midbass to be "tubby, with poor pitch definition," and thought it "thick and murky" on the *River Road* selection. TJN noted on the *Oxnard Sessions* a "small layer of upper-bass/lower-midrange mud above which the sound is okay," and made a similar comment on the Bach. And JA, though he liked the "good bass richness" on the early music and found "good bass extension" on the Eccles, also felt that on the latter this extension was "offset by upper-bass boom."

In the important midrange, JA commented favorably on the B&Ws' "good jump factor." RH remarked on their "very good dynamics and effortlessness" on the orchestral/choral selections—the latter not a quality widely observed with the other loudspeakers in the listening sessions. JA commented on the same program material that the B&Ws "do go loud," and TJN remarked that the brass attacks were "clean with the proper weight." But these favorable remarks were accompanied by criticisms of some mid hardness when loud, and some stridency. Still, its abilities on the complex full-symphony and choral works has to be judged a cut above many of the loudspeakers here. As to midrange coloration, a certain boxiness was noted, particularly on solo voice, which reduced clarity and realism. JA called it a "hooty shadow" or a "cardboardy" quality, GL simply referred to it as "slightly nasal."

Although TJN, on one selection (the early-music piece), liked the three-dimensional quality of the presentation, in general both he and the rest of the panel commented on a lack of image depth from the B&Ws. The sound they produced seemed generally flat and two-dimensional. RH referred to it, at one point, as "homogenized."

JAs conclusion on the DM310s seemed to be, broadly speaking, representative of the group. "Not unpleasant," he wrote, "but bass too uncontrolled. Despite good weight, a big, loose sound, untidy, lacking image depth with an

uneven treble and peaky upper mids." That may be a bit harsh; the B&Ws did draw some positive response, and their price is not really out of line with their overall sound quality. But it has to be said that nothing about them, in our panel session, really lit anyone's fire.

#### **Guy Lemcoe comments on the B&W**

**DM310:** The B&Ws were auditioned in my home system (described in Vol.14 No.5). Additional electronics used were a Muse Model One Hundred stereo power amplifier (CG was right-on in his review of this product) and a Counterpoint SA-5000 preamplifier (currently under review). Sand-filled and floor-spiked Chicago Speaker stands were used to position the speakers such that my ears, in the listening seat, were at approximately the same level as the tweeters (40"). The speakers were placed on Model 40 120 Audio Selection cones (three per speaker) from German Acoustics, ensuring firm coupling to the stands. In order to condense my listening impressions, I've relied heavily upon selections from the Astrée sampler (Astrée E 7699).

The B&W DM310s immediately impressed me with their recovery of ambient information. Dowland's "Fantasie" placed Paul O'Dette within a palpable canopy of air with a good ratio of direct to reflected sound. The presence of extraneous, low-bass rumblings (outside traffic noises?) indicated extended bass response, confirmed on the De Grigny organ selection. The lute's upper register was a bit soft for my taste—the leading edges of the notes seemed dull compared to what I was used to (and what I heard on the ARs). The lower mids also sounded a bit honky, lessening the perceived sense of articulation in this important range.

This was confirmed in Gaultier's "Tombeau de Mezangeau." My listening notes describe the sound as "thick." Blandine Verlet's harpsichord on the Couperin was quite pleasant to listen to, however. The instrument was rendered with an appropriate sense of lightness, yet maintained a "weighty" character in the bass which lent a solid texture to the music. Detail was excellent on this cut (as it was on all the others). The softening of the upper treble, which can alleviate some of the "jangling" nature of the instrument, made this performance involving, easy to listen to.

I was unprepared for the amount of low bass

I heard on De Grigny's "Recit de Tierce en taille." The organ pedals were forceful, solid, and had acceptable pitch definition. If the sound was not as authoritative as I've heard on larger speakers, it was nonetheless compelling. My only major criticism of the sound on this cut was the lack of "scale" in the presentation. I got little sense of the size of the cathedral in which the recording took place. The decay of the final chord was compressed temporally as well as spatially, lasting neither as long as nor receding as deep into space as I've heard before. Thus, a significant amount of the majesty I associate with this instrument and the music was lost. String bass was rendered extremely well on the B&Ws. The bass line on "Abide With Me/Blue Monk" sounded great, with just the right amount of body and weight. No complaints here, though I was a bit disappointed with the sound of the clarinet. It lacked the woody quality I usually associate with the instrument. It sounded too airy and lightweight—as if made of balsa instead of hardwood.

Male voice can summon the deathblow to any loudspeaker, and the B&Ws barely escaped this unhappy fate. Chet Baker's voice on "Imagination," from *Let's Get Lost*, sounded unconvincing and colored. It was way too "chesty" (usually a quality we applaud!) and plagued with an unfortunate resonance which imparted a sort of "halo" around the notes. It's as if the microphone was at the end of a reflective cylinder within which Chet's head had been placed. This is indeed unfortunate, as I was beginning to really like these speakers. But, if speakers can't get Chet's voice right, I don't want 'em.

In summary, I found the B&Ws' most rewarding characteristic was their ability to retrieve the ambience captured in a recording—an element important in lending a performance credibility. They do this at the expense of depth, though. It seems that you can't have your cake and eat it too (at least at this price-point!). The distressing colorations of the 310s in the midrange, especially on male vocals, cannot be shoved under the carpet. Removing the grilles gave a little more life to the music, but was not sufficient to alleviate their overwhelming sense of politeness. Warmth and liquidity are welcome characteristics of good sound, but achieving these qualities should not compromise others. These speakers may be an excellent choice in a CD/receiver-based system.

**Measurements:** The DM310's sensitivity at 1kHz was slightly higher than spec at a measured 91.4dB/W/m, while the plot of its impedance and phase (fig. 7) reveals that it drops quite low in value in both the upper bass and high treble. There are some very slight wrinkles in the midrange, which probably correspond to cabinet problems—strong side-wall modes could be found between 200 and 350Hz and at 600Hz—while the port tuning is revealed by the minimum impedance at 40Hz, this confirmed by the nearfield responses of port and woofer shown to the left of fig. 8. Note the generally high level of the low frequencies and good LF extension implied by these measurements: to point out a correlation with the panel's general liking for the B&W's bass performance seems almost unnecessary.

The quasi-anechoic response on the HF axis, averaged across a 30° horizontal window and plotted above 200Hz in fig. 8, indicates a smooth midrange and treble, broken only by a lack of energy in the crossover region on this axis. Sitting a little below the tweeter smooths the speaker's output in this region, however, though sitting even slightly above the tweeter results in an even deeper suckout. Guy Lemcoe being tall, it's possible that the recessed nature of the speaker's treble that he described was due to this kind of effect. Horizontally, the 310 shows a reasonably even dispersion, the response getting just a little untidier in the mid-treble off-axis: perhaps, in combination with the suckout noted, this was the root of JA's finding the 310's treble to be "peaky." (The mea-

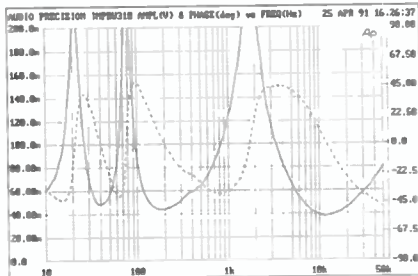


Fig. 7 B&W DM310, electrical impedance and phase (2 ohms/vertical div.)

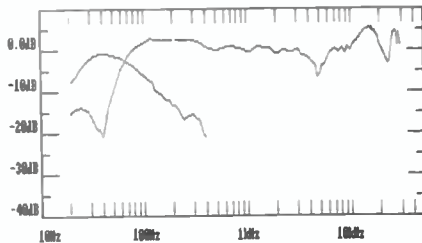


Fig. 8 B&W DM310, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

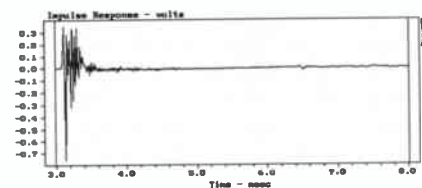


Fig. 9 B&W DM310, impulse response on tweeter axis at 42° (5ms time window, 30kHz bandwidth)

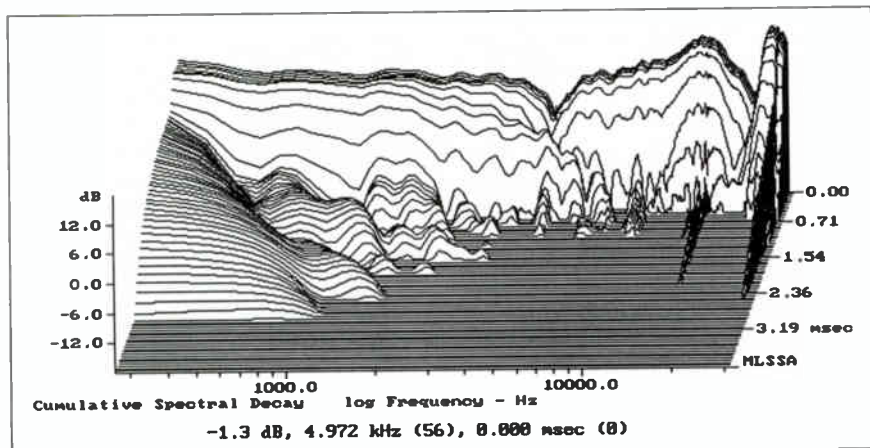


Fig. 10 B&W DM310, cumulative spectral-decay plot



sured top-octave boost is generally not heard as "brightness" or "peakiness" but as "fizz," "air and space," or "excess sibilance."

Fig.9 shows the 310's impulse response on the tweeter axis, this featuring a considerable degree of ultrasonic ringing from the metal-dome tweeter. Translated into the frequency domain and looking at how the resultant frequency response decays with time gives the waterfall plot shown in fig.10. Some disturbances can be seen below 2kHz which may be associated with the nasality noted, but this B&W is relatively well-behaved throughout the treble. Note the large double peak just below 30kHz, due to the tweeter dome breaking up. This is well above audibility, however.

### Wharfedale Diamond IV: \$400/pair

The diminutive Diamond IV features a 5" woofer made of Wharfedale's MFHP (Mineral Filled Homopolymer of Polypropylene), which reportedly combines the self-damping of conventional polypropylene with the superior strength-to-weight ratio and low mass of paper cones. The woofer is made with a patented "Build Ring," a self-jigging mechanism that reportedly results in better manufacturing consistency and higher power handling.

A metal-dome tweeter, crossed over at 3.5kHz, is ferrofluid-cooled, and the voice-coil is wound on an aluminum former. The Diamond IV uses second-order slopes in both high-pass and low-pass sections. Both drivers are designed and manufactured by Wharfedale. The baffle was designed with no sharp edges to minimize diffraction effects, and the grille is a wraparound design. The MDF enclosure was developed with the aid of laser interferometry, a technique that analyzes vibrational modes. The baffle is made from a thicker material than the side walls to reduce cabinet-sourced coloration.

The rear panel holds the small port and a single pair of five-way binding posts.

**Listening Tests Panel Score: 4.65 (4.72 : 4.57).** This loudspeaker was, by a generous margin, the smallest and lightest of the bunch. Indeed, if a Diamond IV were a computer, it would be a notebook model, and if its data-retrieval capabilities are less than a "power user" might desire, that user would still find it valuable in places where a larger model simply



Wharfedale Diamond 4 loudspeaker

wouldn't do.

After that upbeat introduction, let me come down to earth a bit and state that a general recommendation of this model is not in the cards. It does have limitations which I'll get to presently. And although it's a real budget model in its home market (the UK), over here it's a rather pricey little devil—all things considered. But you just might find it of interest. Certainly Wharfedale has been refining it for several years now, and, unlike movie titles, the Roman Numeral after the name is not, in this instance, something to be strictly avoided.

Upbeat comments on the Diamond IVs were not scarce among the panel. "Quite lively, voice sounds good. Sings!" remarked LA (emphasis his). He found them, on various musical selections, "pleasant and lively" with "bouncy bass" and "quite tuneful." He felt that there was "almost the right tonality to the lower registers," though they were "somewhat lightweight." JA also found the sound from the Diamonds "lively."

Most of the comments on the Wharfedales' top octaves were positive. Though there was the occasional remark about a forward lower treble (JA) or the highs being somewhat forward and zippy (TJN), most thought the treble good. RH remarked that it was "smooth on top," conveying a sense of "room and air." JA



thought the treble to be generally "clean," and remarked, as did others, on the good resolution of space and ambience. And JA, who was seated in the best location to comment on such matters, felt the soundstaging, in general, to be excellent. There was a comment or two about some lack of air at the very top, but overall Wharfedale seems to have the top end of the Diamond IVs well sorted out. And it's definitely worth remarking that, with the exception of one comment from GL about the piano on the Chopin sounding "like a baby grand" (probably a reflection of the Wharfedales' ultimate low-frequency capabilities—which I'll get to quicker than the Flash), no one on the panel made any reference to the minuscule Diamond IVs sounding "small."

Would that the kudos had continued into the bottom of the range. We would then have had something of a baby wonder on our hands. No such luck. There was simply no real bass extension from the tiny Wharfedales—which was no surprise, really. In addition to GL's above remark, he also commented that the double bass sounded more like a cello. RH thought the bass-drum reproduction "a bit fat," which may relate less to the fundamental than to the mid-bass harmonics of the drum. On a more positive tack, note again LA's above remark on the "bouncy bass" (certainly meant as a favorable comment). And add JA's observation (repeated in both sessions) about a good sense of "pace."

But there were other reservations. Five panelists disliked the rendition of guitar on *River Road*. LA thought it "too warm," TJN remarked that the "body sound of the guitar was slightly blurred," JA commented on "some lower-midrange overhang," GL raised concerns about the guitar's "questionable resonances," and RH noted that "some guitar notes stick way out." But the worst of the negative comments on the mid- and upper bass seemed reserved for this particular program selection, with some concerns on the Eccles a distant second.

The Diamond IV did have some definite midrange limitations, particularly in the lower midrange. On the most difficult of the tests, pink noise and speaking voice, all of the panelists made similar, less than flattering comments. LA thought the pink noise peaky, the voice forward, with a colored lower midrange. TJN thought the sound in this region to be slightly smothered, boxy, and slightly nasal. JA—though he commented, as he did on none

of the other loudspeakers, on a well-defined central image with JGH's monophonically recorded speaking voice—thought that voice to be a bit "hooty" with lower-mid overhang. RH thought it "hooded, slightly dark" and with "wooden resonances," and GL commented that the voice sounded "hollow," with "little body." If all this seems rather distressing, matters were not quite so blatant on the musical selections. TJN found less midrange boxiness on the first selection, "Amanda," than he anticipated, given his reaction to the pink noise/voice preceding it, though he commented on a trace of "hi-fi-ish" coloration. JA did find the low mids boxy and the upper mids forward, but commented on the good articulation of the overall sound.

The Wharfedales performed remarkably well with the full mass of symphony orchestra and chorus. There were definite criticisms from the panel, to be sure, which mostly repeated those mentioned above. But while these selections usually tended to significantly magnify the problems noted in the less challenging material, with the Diamond IVs the problems—with the expected addition of some sense of sonic confusion, strain, and congestion—were no more severely criticized than they had been with the previous program material. The fact that, lack of weight excepted, *no one* made any comment which noted a reduction in the *scale* of the sound, is, I feel, no mean achievement for such a small loudspeaker.

With more weight and a slightly cleaner midrange, Wharfedale would have something rather special here. The biggest thing working against the little Diamond IVs is the transatlantic price penalty.

**Guy Lemcoe comments on the Wharfedale Diamond IV:** Listening to these speakers was a maddening experience. They did some things better than any of the others. They crapped out, though, on certain material sooner and more dramatically. The Diamonds impressed me as having excellent dynamics. Dowland's "Fantasie" on the Astrée sampler unfolded in a spirited way, due to the Diamond's ability to capture the nuances of O'Dette's expressive playing. I tended to overlook the lack of "bloom" to the notes and the limited ambience. I detected a hint of slowness in the midbass, which clouded up the sound

in that register. I swear, though, I heard performance details that I have *never* heard before! The fact that they weren't well integrated makes me suspect a few "humps" in the response curve.

The sound of the hall was more prominent on the Hume, with a fair ratio of direct to reflected sound. The bow bouncing off the strings was harsh. The Gaultier was beautifully articulated, especially the many finger-twisting embellishments Hopkinson Smith pulls off with such ease. The Diamonds seemed capable of unraveling a spider web without damaging the silk. However, I didn't like the sound on the Couperin at all. A far too forward perspective on the harpsichord coupled with an almost total lack of midrange warmth lent a steely, lightweight quality to the sound. I sensed a lack of extension in the highs as well, which robbed the music of sparkle. Focus on the instrument was poor. The Diamonds literally barked with protest on the organ cut. Quite audible was the sound of the bracing resonating when low organ pedals were played. I also detected air escaping from around the plate which holds the binding posts. Tightening the screws did not help this situation. I put VPI Magic Bricks on top of the speakers to dampen vibration. This helped a little, but still could not control what I heard from the speaker.

Not wanting to damage the speakers, I changed music. Chet Baker's voice on "Imagination" (from *Let's Get Lost*) sounded too "hooty." A shame, because I thought his trumpet sounded fine. The drums sounded bad on this cut and the piano was "shouty." I never became aware of the speakers losing control of the highs, though. On the contrary, I thought they were handled well. I was quite impressed with "Abide With Me/Blue Monk." I felt the tiny speakers were doing a credible job. I was surprised at how nice the string bass sounded; it implied "heft." And all the notes were there! The clarinet was a bit on the lightweight side, but entirely plausible. Detail was superb.

Placement of these speakers was extremely critical. I ended up with them just a little over 6' apart about 18" from the side walls, well out from the rear wall. Placing them closer to the rear wall helped the bass but eroded depth.

All told, I was quite impressed with certain qualities of these speakers. Detail retrieval was excellent. Their articulation was marvelous, as was their sense of dynamics. On recordings of

solo stringed instruments, I think they'd be dandy. But they have limited bass, poor image focus in my system, and only acceptable soundstaging. The peaky upper mids might cause distress on some recordings.

Verdict? For \$400/pair I think you could do better. If they were \$250-\$300/pair I could recommend them. After listening to these speakers, I felt like Peter Finch's character in the movie *Network* shouting, "I'm mad as hell and I'm not gonna take it anymore." Ditto.

**Measurements:** As might be expected from its diminutive size, the Diamond is not very sensitive, the 2.83V 1kHz warble tone giving a measured level of 88.7dB, though this was still louder than either the JBL or the Epos. The impedance plot (fig.11) shows that the Diamond is easy to drive, though the high port tuning, revealed by the minimum at 62Hz, and the woofer tuning, revealed by the peak at 105Hz, imply a limited bass extension, with no real weight to the sound—as the panel found. There is a hint of a cabinet resonance in the impedance plot at 300Hz, and indeed, the walls did shake a great deal at this frequency, this resonance undoubtedly having a hand in the listeners' feeling that the speaker sounded somewhat boxy. The cabinet was also generally live in the 80–200Hz region.

Measured in the nearfield, the individual responses of the port and woofer are shown to the left of fig.12 below 200Hz. The level matching between these is a guesstimate, and the port output, reaching a maximum of -3dB with respect to the woofer output, is still almost certainly plotted too high in level. In fact, the Diamond has little output below *ca* 75Hz in-room, though this factor can be played with by placing the speakers near the rear wall: the close proximity of the speaker to the wall will actually alter the bass tuning as well as adding boundary reinforcement. (As pointed out by GL, however, this will also confuse soundstaging.)

The right-hand side of fig.12 shows the speaker's quasi-anechoic response on the tweeter axis, averaged across a 30° horizontal window. The slight rising trend through the woofer's range is not unexpected, but note that the response is pretty smooth overall—until the low treble, when a step down to the tweeter output occurs. This is GL's "hump." But again, note how smooth the tweeter's output is, with

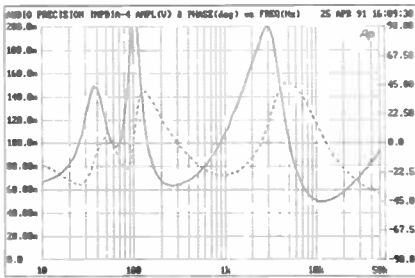


Fig.11 Wharfedale Diamond IV, electrical impedance and phase (2 ohms/vertical div.)

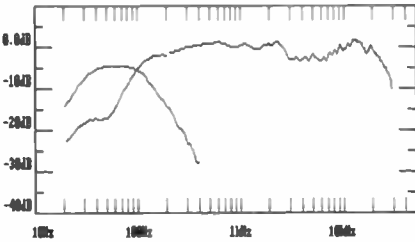


Fig.12 Wharfedale Diamond IV, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

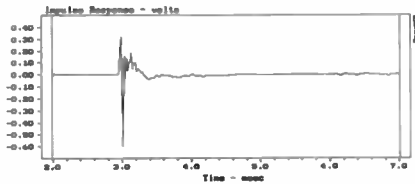


Fig.13 Wharfedale Diamond IV, impulse response on tweeter axis at 42° (5ms time window, 30kHz bandwidth)

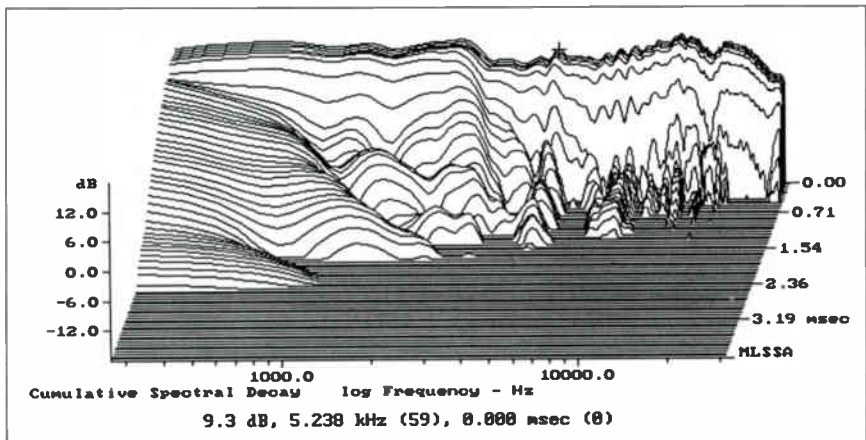


Fig.14 Wharfedale Diamond IV, cumulative spectral-decay plot

only a slight top-octave rise. Horizontally, as might be expected from its small baffle width, the Diamond offers wide dispersion—don't place it near a side wall if you don't want imaging accuracy to suffer—while vertically, it's reasonably uncritical, as long as you're on or below the tweeter axis.

Fig.13 shows the Wharfedale's impulse response on the tweeter axis, with the waterfall plot shown in fig.14. One strong resonance can be seen at the cursor position—5.2kHz—while the step in the anechoic response can also be seen to be associated with a degree of ringing, this probably contributing to the colorations noted during the auditioning.

### Acoustic Research Spirit 152: \$1000/pair

The Spirit 152 is the most ambitious two-way loudspeaker in the six-product Spirit loudspeaker line. The 8" woofer is made from carbon-loaded polypropylene and features a specially contoured cone and a nonresonant dustcap. A fluid-cooled 1" cloth-dome tweeter completes the driver complement. Both drivers were designed and manufactured by AR. Unlike the other eight loudspeakers in this survey, the Spirit 152 is a true sealed-box design.

No low-pass crossover elements are used apart from a small series air-core coil to bring the midrange sonically in line with the bass when wall-loaded. The woofer was designed to have the ideal acoustic low-pass rolloff to match the tweeter, which is fed by a hard-wired 12dB/octave high-pass filter.

The enclosure features a "dual-density baf-



AR Spirit 152 loudspeaker

flc," a laminate of medium-density fiberboard (MDF) and particleboard. The resulting 1.4" baffle is reportedly very rigid and self-damping. The "frameless grille" fits into a slot in the baffle to reduce diffraction-causing edges. To further reduce diffraction, mounting bolts are covered with trim pieces. The enclosure is finished in real wood veneer, and two pairs of gold-plated five-way binding posts are provided for bi-wire connection.

**Listening Tests Panel Score: 4.72 (5.07 : 4.30).** With this UK-designed, US-built AR, we come to a loudspeaker which scored rather ambiguously with the panel. It was highly rated on the first day's session but dropped significantly in the point totals on the second. Every panelist who participated on both days gave it a lower score on the second day—in JA's and TJN's cases, lower by a full point or more.

The principal cause for this reaction seems to have been the panel's response to the ARs' low end. Comment after comment referred to the lack of weight, the uptilted balance. On the first day, when the ARs were the first loudspeakers to be auditioned blind after the reflex-loaded Snells, the panel was perhaps more

inclined to respond to the 152s' more positive traits; on the second day, after having listened to ten pairs of loudspeakers, including repeats, we were less able to look past the ARs' decidedly light balance. There was, to consider the positive side, no boom or excess fullness to the bass and midbass. "Good upper bass definition," commented JA. TJN seconded the feeling with "no mud or boom," but countered with "no real sensation of weight, either." On the Bach, he remarked on the natural, shuddering quality of the air in the pipes, but felt that it was not supported by any real bottom-end extension. On *River Road*, TJN commented that the "baritone is lightened and slightly thinned," while GL commented similarly that the "voice sounds anemic." On the classical works, GL remarked on the loss of "majesty."

Reactions to the AR's top end were somewhat varied, perhaps depending on whether a panelist reacted to the generally uptilted feel of the loudspeakers or was able to observe the highs independently of the overall balance (not at all easy to do). TJN felt that the sound was, in general, pleasingly open and airy. JA, though he shared the general impression of "uptilted highs," also noted that those highs were smooth, with a "detailed and articulate" quality and "excellent treble detail." While he also commented on the "excellent focus" on the guitar in *River Road*, both GL and RH felt that the fingering noises (something of a distraction on this piece even under the best of circumstances) were too pronounced. And several panelists, though not all, reacted negatively to another HF quality. "Excess sibilance," commented GL on "Amanda," and TJN added, on the same selection, "sibilant highs—a trace splashy."

Through the midrange there were some comments on coloration, though most of the objections were relatively mild. RH commented several times on a forwardness in the upper mids, his observations ranging from "horns stick out" on *Oxnard* (GL was also less than thrilled with the horn sound on this recording over the 152s) to "upper mids forward" on "Amanda" and "midband peak?" on pink noise. JA commented several times on mid colorations—three times referring to it as a "cupped hands" quality. He also commented on the ARs' displaying some feeling of congestion, especially when the going got loud. RH also commented on "harshness and glare" in



the chorus on *Neusky*. Still, JA felt that, bass excepted, the 152s had an even balance and "excellent image focus and definition."

Clearly, then, a mixed result. The AR was among those loudspeakers which may have been put at a disadvantage by the free space positioning. Certainly its main failing in the panel tests was its uptilted balance and lack of low-frequency solidity. GL was asked to reconcile this potential problem in his individual report, which follows. But it does not appear at this point that a general recommendation is called for, given the panel results and the AR's price.

#### **Guy Lemcoe comments on the Acoustic**

**Research Spirit 152:** My first impression of the AR Spirit 152s was one of bewilderment. Where had all the ambience gone that I was accustomed to hearing on my favorite recordings? For example, the Dowland "Fantasie," on Astrée E 7699, sounded as if recorded in a studio instead of a hall. Though image focus on the soloist was good, the relationship between direct and reflected sound was not well pronounced. The sound of the lute was bright and lively, lending a keen sense of articulation to the performance. (Incidentally, I found that in my room, with my electronics, I preferred the sound with the grille cloth *on*. Removing the grille cloth lent an unnaturally harsh edge to the already prominent treble.) Detail retrieval was excellent, being integrated into the overall sound instead of sounding "slapped-on." Low-bass rumblings, which I heard clearly on the B&Ws, were less noticeable on the ARs, raising a question in my mind as to their low-frequency definition and extension.

The leading edge of the notes on Jordi Savall's viol in Hume's "Hark, Hark" was captured extremely well on the ARs (less so on the B&Ws). The sinewy character of the instrument was well preserved, though the reflected sound of the bow bouncing off the strings toward the end of the piece was not convincing. The timbre of the lute on Gaultier's "Tombeau de Mezangeau" was convincing, and I enjoyed the somewhat forward perspective (relative to the B&Ws, that is) on this performance. The harpsichord in the Couperin had excellent presence. The instrument sparkled, with well-controlled, extended highs. The midbass was somewhat weak, however, resulting in a lack of richness to the sound. Detail was excellent,

each nuance of the performance being heard clearly. The low organ pedals in the De Grigny had ample energy and volume but sounded confused and plodding. Again, a pronounced reduction in upper-bass energy contributed to what I perceived as an irregular spectral balance—the low bass seemed to "burp" at the listener, separate from the other registers.

The ARs fared better on less demanding music. On "Abide With Me/Blue Monk" from *Begin Sweet World*, Richard Stoltzman's clarinet had credible timbre, not sounding as emaciated as it did on the B&Ws. Eddie Gomez's bass, though, lost a bit of body and sounded less palpable. The ARs passed the Chet Test ("Imagination" from Chet Baker's *Let's Get Lost*) with flying colors. Chet's voice lost most of the "halo" it had on the B&Ws, and the chestiness was lessened. The voice sounded noticeably brighter, richer.

The ARs captured depth well but fell far short of conveying stage dimensions, leaving me with a relatively narrow view of things. In addition, separation between instruments and vocalists seemed constricted, lending an almost two-dimensional perspective to a musical event. The music consistently arose from a space behind the speakers, rarely extending forward of the grille cloth. This was a shame, for these are really articulate loudspeakers with good definition and speed (except in the low bass). Had the presentation been more dimensional, I would have had less difficulty in recommending them.

Listening to the 310s, I missed the sense of excitement music is capable of evoking. The ARs reminded me more of the Mirage M-3s—lively, articulate, and involving. What the ARs lack, in addition to their attenuation of ambience, is bass speed and control. The ARs had less coloration than the B&Ws through the midrange, but had a tendency toward brightness. They may be just the right speaker to use in an all-tube system, though I suspect the somewhat "flabby" bass may be exacerbated as a result. Above all, the ARs did not deprive a performance of vitality and pace. They involved me in the music to a greater degree than the B&Ws. Are they worth almost twice what the B&Ws cost? I don't think so. If the low-bass problems can be corrected, however, they could be serious contenders in their price range.

**Measurements:** This AR appeared to be the



most sensitive of the group, a  $\frac{1}{2}$ -octave, 2.83V warble tone centered on 1kHz giving a 93.3dB spl at 1m. Fig.15 shows its electrical impedance and phase: dropping below 7 ohms only in the upper bass, this suggests, with the high sensitivity, that the 152 will be easy for even low-powered amplifiers to drive. The kink at 300Hz coincides with a strong cabinet-wall resonance, but apart from that the cabinet seemed reasonably inert. The impedance peak at 58Hz, due to the sealed-box tuning, suggests the speaker to have reasonable low-frequency extension, this confirmed by the nearfield measurement shown to the left of fig.16 below 200Hz, which suggests a reasonable -6dB point of 47Hz referenced to the level at 200Hz.

Note, however, that the bass region is depressed compared with the rest of the response, this a quasi-anechoic measurement averaged across a 30° horizontal window on the HF axis. It's no surprise that the panel generally felt the 152 to have a lightweight bass

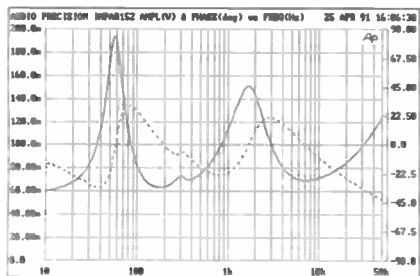


Fig.15 AR Spirit 152, electrical impedance and phase (2 ohms/vertical div.)

register, though its well-arranged sealed-box tuning accounts for the positive comments made about the quality of what bass it did have. Somewhat surprisingly, in view of the comments made about the AR's treble being uptilted, fig.16 indicates that it doesn't measure that way. However, note the broad rise in the upper midrange which might be due to the woofer being allowed to "run free," without equalization to compensate for its increasing directionality at the top of its range. In conjunction with the depressed bass region, this will

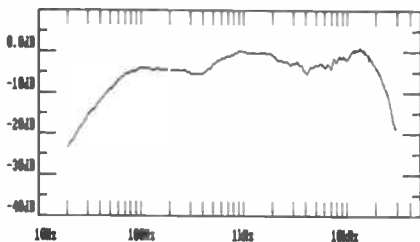


Fig.16 AR Spirit 152, anechoic response on tweeter axis averaged across 30° lateral window, with woofer nearfield response plotted below 200Hz

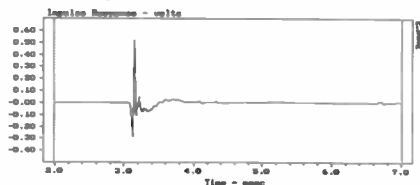


Fig.17 AR Spirit 152, impulse response on tweeter axis at 42" (5ms time window, 30kHz bandwidth)

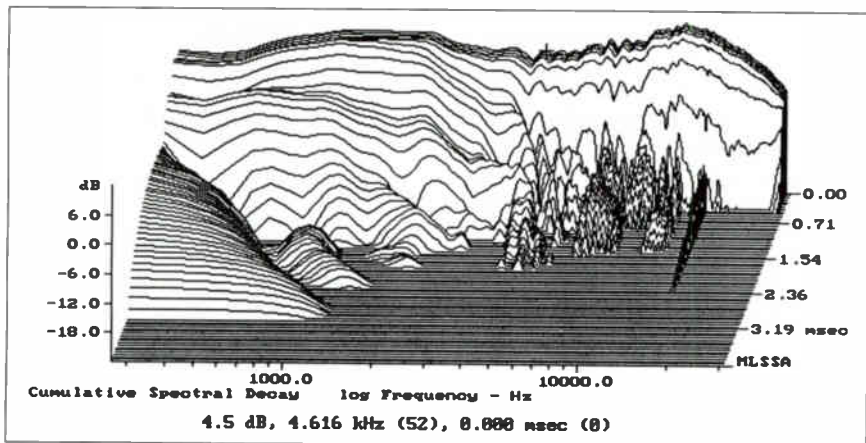


Fig.18 AR Spirit 152, cumulative spectral-decay plot

probably result both in the perception of the speaker's sound as being brighter than it really is, and in the "cupped-hands" coloration noted by some.

Certainly fig.16 suggests that the Spirit 152 would give better performance in closer proximity to the rear wall, where the prominent treble would be better balanced with the now-reinforced lows. While the AR shows reasonably even dispersion across a 30° window, it is rather more critical in the vertical plane, the most even response being obtained on or just above the tweeter axis. Sit too high and a suck-out appears in the presence region; sit too low and the same region becomes a little peaky.

Fig.17 shows the speaker's impulse response on the HF axis—no surprises here apart from the tweeter polarity, which appears to be inverted, while fig.18 shows the manner in which the AR 152's response decays after being excited by a pulse—the so-called "waterfall" plot. This reveals the AR to be well-behaved regarding resonant overhang. Though a slight degree of hash can be seen in the treble, this is relatively minor in degree. Note again, though, the broad excess of energy in the upper midrange.

### **Mordaunt-Short MS 3.30: \$459/pair**

The Mordaunt-Short MS 3.30 is a 6½" two-way with a front-firing port. Like many loudspeakers in the survey, the woofer is made of polypropylene, mounted in a diecast chassis. The 1" aluminum-alloy dome tweeter is made by MB Quart to Mordaunt-Short's specifications, and is fluid-cooled. The woofer is manufactured by Mordaunt-Short and features a 32mm (1¼") high-temperature voice-coil. Both drivers are flush-mounted in an injection-molded polypropylene baffle with rounded edges to reduce diffraction. Mordaunt-Short has included an overload protection device in the MS 3.30 called POSITEC. If the input power is excessive and threatens the drivers, the POSITEC circuit reduces power to the endangered drive-unit. This is essentially a resistor whose resistance changes with temperature. At normal temperatures, its resistance is 2.5 ohms, but increases to 25 ohms when overdriven. Underpowered amplifiers driven to clipping are the most common cause of engaging the POSITEC circuit.

The enclosure is made of 15mm-thick particleboard, covered by either black, ash, or



Mordaunt-Short MS 3.30 loudspeaker

rosewood vinyl. An internal figure-eight brace reduces enclosure resonances. The crossover is a single polypropylene cap on the tweeter; the woofer is run wide open, relying on its natural 6dB/octave acoustic low-pass rolloff. Crossover frequency is quite high at 4.8kHz. A single pair of gold-plated five-way binding posts is included on the rear panel.

**Listening Tests Panel Score: 4.78 (4.80 : 4.77).** Scoring almost a straight average score—JA, in fact, must have been carrying his crystal ball, as he dubbed the 3.30s, in his scoresheet summary, "average by definition"—the Mordaunt-Short generated a rather oddly mixed reaction from the panelists. GL liked it a great deal on day 1, less well on day 2. TJN's reactions were the reverse. JA scored it nearly a point lower on day 2 than he had on the first day; RH similarly downgraded it—but only slightly—the second time around. And LA, who only listened on the first day, didn't rate it well at all. On the point average, however, it

came out respectably well. (If we discard the best and worst individual scores, it averaged only a marginally higher 4.83 overall).

Beginning with the top octaves this time around, on the second day (when his reaction to the 3.30s was the decidedly more positive) TJN found the highs to be clean and sweet, with a decent sparkle and no hardness. JA was a bit less generous, noting some low-treble peakiness. And LA, though he commented on "lots of air" and "good ambience" on the Bach, also noted some peakiness on top. But the reactions to the Mordaunt-Shorts' top end were fairly mild; if it did have some small degree of peakiness, it was more often than not judged to be inoffensive, if somewhat lifeless.

There was generally thought to be a rather laid-back, even somewhat uninvolved quality to the 3.30s' midrange. RH commented several times on the recessed quality of the mids, LA felt that the sound of instruments in the early-music selection was "all wrong." Certainly the Mordaunt-Shorts could not be described (and weren't) as "punchy." Some boxiness or nasality was noted, but reaction to this was relatively restrained. The up side of all of this was that the sound was never brash, forward, or pushy. TJN summed this up in commenting on the classical selections—the most dynamically demanding music used in the panel sessions—by stating that the Mordaunt-Shorts had less life than some of the other loudspeakers in the group, but weren't analytical or brash. They had a good sense of space, and though sounding slightly confused on the *Nevsky* climax, they never turned obnoxious.

Apart from an occasional comment on veiling through the mid- to upper bass—JA noted some confusion between the low notes on the double bass and those higher up—the quality of this region escaped serious general criticism. The guitar body sound on *River Road* and the low end on the Chopin, both of which were less than satisfying through a number of the loudspeakers surveyed, fared well with the 3.30s. About the most serious criticism was TJN's "a trifle foggy in the upper-bass/lower-midrange," though JA observed a bit of midbass congestion on the Bach. At the lowest end of the scale there was felt to be no true extension, the bottom end being a bit lightweight. But bass drum had a decent amount of impact.

Overall, despite a somewhat mixed reaction from the panel members, the Mordaunt-Short

3.30s turned in a solid, middle-of-the-group showing.

#### **Robert Harley comments on the Mordaunt-Short MS 3.30:**

The MS 3.30s were auditioned on the inexpensive plastic stands specifically made for them. Four screws hold the loudspeaker to the stand, and three carpet-piercing spikes support the stand/loudspeaker. The short (20") stands put the tweeter at 37", one inch above my listening axis.

From the first record, I knew I would like the MS 3.30. They had a big, open, and lively quality that infused music with life and vitality. First, the bass had good extension and a real sense of dynamics and bounce. Low frequencies had clearly articulated pitch and, at the same time, a warmth and roundness that conveyed body and weight. The bass wasn't perfect, however; some notes seemed to stand out more than others, especially in the lowest registers. These resonances tended to be narrow, making their audibility infrequent. LF extension, however, was excellent for the 3.30's size; kickdrum had more than a hint of the lowermost component, with a satisfying punch.

The feeling of a hall existing before me returned with the MS 3.30. The previously mentioned Chopin *Scherzo* and *The English Lute Song* took on an entirely different dimension, surrounded by air, space, and depth. The piano was enveloped by the delicate acoustic, yet distinct from it. Similarly, Julianne Baird's voice was bathed in room reflections, conveying the character of the hall. Image outlines, however, were slightly more diffuse than through the JBL XPL-90s, and less anchored in the soundstage. High frequencies were well-balanced, but lacked the purity heard through the XPL-90s. A trace of grain added a slight edge to instruments rich in high frequencies, but was never an annoyance. The upper mids were particularly impressive, with a sense of palpability, energy, and immediacy. I felt there was very little in the way between the music and me. The amount of inner detail in the mids was surprising for a loudspeaker of this price. The horn section on Roland Vasquez's *Urban Ensemble* LP (Arista/GRP 5002), for example, was energetic and immediate, greatly adding to the vibrancy of this music. I felt, however, that the upper midrange was a bit forward, and with a trace of hardness, a characteristic that could become fatiguing.

In short (no pun intended), I enjoyed the time I spent with the Mordaunt-Short MS 3.30.

**Measurements:** The MS 3.30's measured 1kHz-band sensitivity was the second highest in the group, at 92.4dB/W/m (though, as with the AR, this is partly due to the speaker having a midrange-forward balance). Its benign plot of impedance magnitude and phase is shown in fig.19—no surprises here, though the dimple in the traces at 200Hz is somewhat ominous. (Remember that both JA and RH noted some pitch confusion in the upper bass.) The 40Hz port tuning implies good low-bass extension but, as with the AR, the bass and lower-midrange registers are shelved down (fig.20), this perhaps contributing to many of the listeners feeling that the speaker had a rather recessed midrange. RH did note that the upper midrange was rather forward, and this can also be seen in fig.20. In general, however, the treble is clean.

Horizontally, the MS 3.30 featured wide, even dispersion, meaning that the speaker should not be placed close to a sidewall. Vertically, though, the listening axis was critical, significant cancellations in the crossover region appearing both below and above the tweeter axis. Usefully, Mordaunt-Short's stands for the 3.30s offer considerable flexibility to get the speaker's reference axis at ear level.

The 3.30's impulse response (fig.21) is overlaid with a complicated pattern of ultrasonic ringing, this due to more than one resonance, as can be seen from the waterfall plot (fig.22). This behavior will be inaudible, however.

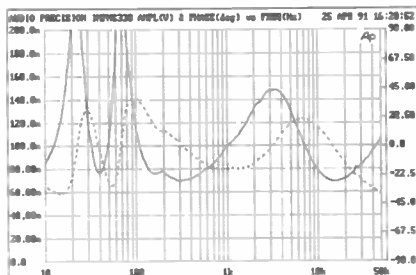


Fig.19 Mordaunt-Short MS 3.30, electrical impedance and phase (2 ohms/vertical div.)

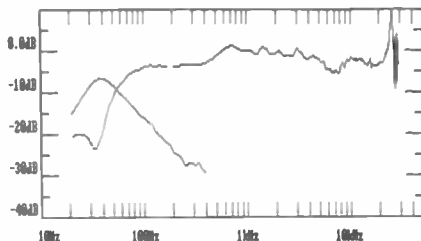


Fig.20 Mordaunt-Short MS 3.30, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

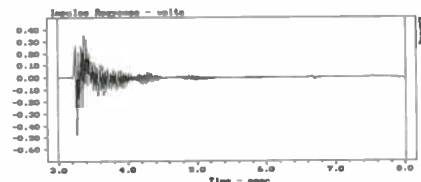


Fig.21 Mordaunt-Short MS 3.30, impulse response on tweeter axis at 42" (5ms time window, 30kHz bandwidth)

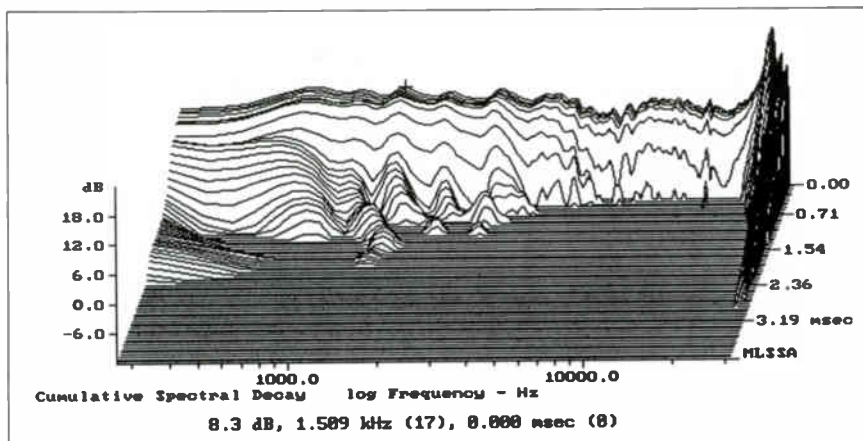


Fig.22 Mordaunt-Short MS 3.30, cumulative spectral-decay plot

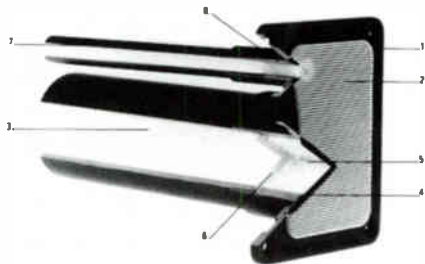
## MB Quart 490 MCS: \$849/pair

The third-from-bottom-of-the-line 490 MCS is the least expensive speaker from German manufacturer MB Quart to incorporate their Moving Control System (MCS). This patented system looks like a vented enclosure but behaves more like a closed box. Briefly, the MCS reportedly combines the advantages of reflex and sealed enclosures, without the overhang and resonance of a reflex design. The port-looking MCS mechanism on the front panel is actually a fairly elaborate system that protrudes into the cabinet. Note that no energy emerges from the MCS "dynamic vent." The silicone-impregnated paper-cone woofer is specially made to work in the MCS enclosure, with high excursion and stiffness.

Since MB Quart is a large raw-driver manufacturer, both the 7½" woofer and 1" titanium-dome tweeter are made in-house. The tweeter is a new version of the highly regarded titanium dome found in the Hales and Avalon loudspeakers, among others. MB Quart can include such an expensive tweeter in an inexpensive product because they manufacture it themselves. Although both drivers are rebated in the baffle, the woofer cone is set far back, creating a fairly deep well. Crossover frequency is 2.1kHz, with second- and third-order slopes.



MB Quart 490 MCS loudspeaker



MB Quart's "MCS" vent system

The enclosure is 7/8"-thick, five-layer variable-density particleboard, and the baffle is 7/8"-thick MDF. Although the cabinet isn't braced, construction is tongue-in-groove for greater rigidity. The baffle has also been treated with a synthetic "flocking" for greater damping. The enclosure is wood veneer, with solid wood corner strips. Terminals are a single pair of knurled posts that will accept banana plugs. The MB Quart is available in raw oak, hand-rubbed oak veneer, walnut veneer, matte white lacquer, and matte black lacquer. Pine and cherry veneers are available on request.

**Listening Tests Panel Score: 4.87 (4.82 : 4.94).** With its origins in Germany—visions of loudspeakers and cuckoo-clocks being turned out side-by-side by Black Forest elves and all that—the MB Quart promised something a bit different, and that is indeed what we received. On the point scores alone the MBs slid into the above-average group, and were well liked in a number of respects.

While JA's score sheets on the MBs are sprinkled here and there with remarks about definition problems in the mid- and upper bass, and RH diverged from the group in not caring for the MBs' overall performance in the low end, most reactions about the 490 MCSes' bottom end were quite favorable. GL commented that the sound of the bass drum was excellent, saying that the "sound has ample weight"; LA liked the "pleasing bass foundation," remarking on the jazz selection (*Oxnard Sessions*) the "convincing piano rumble" at the beginning and the sense of "real rhythm" conveyed. TJN remarked on the "punchy, tight low frequencies, almost overdamped." LA was, however, less taken with the bass response on the double bass and Chopin selections, finding it "furry." But in general the 490s' bass and midbass were well liked.



Some criticisms were voiced about midband colorations, but they were not severe. JA thought Amanda McBroom's voice a little "hooty," and made a similar observation about the guitar on *River Road*. Yet he also felt voice on the latter to be quite real sounding, with a palpable guitar image. The major criticisms seemed to be reserved for the 490s' rendition of the Chopin, where the midband colorations were in just the right place to make the panel disagreeable. JA disliked the image focus and "upper-mid confusion" there, while RH found the piano sound to be "shut-in, unnatural." On other selections, however, LA liked the "convincing size" and "nice power" on the choral and orchestral pieces, and although JA felt the image to be rather flat (as did RH), and the image precision a bit smeared, he liked the wide soundstage and the MBs' ability to "go loud" and its "easy, detailed sound."

The top end of the Quart 490s came in for a fair amount of comment, not all of it favorable. TJN, especially, did not like it, finding it "too toppish." He felt that the double bass had a "definite emphasis on the rosin on the bow," that the sound of the air from the pipes on the Bach was too prominent, and that, in general, the sound was too etched, too "hi-fi." But the problem seemed confined to the mid- and upper treble—and only JA expressed any concern about the smoothness of the mid-treble. Only a single comment referred to any hardness in the sound; the treble, if somewhat over the top, was not felt to be in any way "bright" or hard (as would indicate too much low- to mid-treble energy).

The MB Quart 490 MCS had a lively, tight, frequently appealing sound. Not entirely neutral at the top, and not entirely uncolored in the mids, it nevertheless came in comfortably above the average margin and managed to grab more than a fair share of positive reactions from the panel.

#### **JA comments on the MB Quart 490 MCS:**

The MB Quarts, quite large, handsome-looking speakers, were set up on 24" stands, well away from room boundaries and driven by a Mark Levinson No.23.5 amplifier via 2m lengths of AudioQuest Dragon cable. Despite this speaker's size, its overall balance was quite lightweight, the superb Harmonia Mundi recording of the Kodály cello sonata (HMC 901325) being endowed with more of a viola tonality. Organ

recordings, however, revealed the speakers to have quite good extension, and I began to feel that the lightweight sound was more due to a rather forward upper-midrange and treble balance than to any intrinsic lack of midbass frequencies. The 490's tight, rather overcontrolled bass would probably usefully loosen up with the use of a good tube amplifier.

The piano on my Chopin recordings on the *Stereophile* and *HFN/RR* Test CDs reproduced with too "small" a piano tone, lending weight to my feeling that the mids and highs were too prominent, while some piano notes jumped in front of the body of the instrument's tone. Recorded strings took on rather too much of a rosiny edge, though this wasn't unpleasant, the sound not being grainy or fatiguing. Nevertheless, there was just too much top-octave energy for ultimate comfort. While not contributing to any feeling of brightness, this did push treble images forward in the soundstage, with the result that even when plenty of recorded ambience could be heard, the reproduced stage remained flat and one-dimensional.

It was in the area of imaging in general that the 490 fell down. The soundstage test tracks on the Chesky sampler CD (JD37) reproduced with little depth, unstable center imaging, and almost no image height on the LEDR tones. While the image was wide, it felt pulled to the sides.

Overall, the MB Quart 490 will play loud and offers a smooth, if somewhat boosted HF, a rather forward but articulate midrange balance, with a slight touch of midrange congestion (perhaps due to a very lively cabinet in the lower-midrange region) and a well-defined, somewhat overdamped bass region. It would probably work best nearer the rear wall than well out in the room, and its bass balance would benefit from use of a tube amplifier. However, for this listener its flat, rather unstable soundstage has to count as a major strike against recommendation.

**Measurements:** With a measured 91.7dB/W/m sensitivity, the MB Quart 490 MCS will play loud with even moderately rated power amplifiers, though its impedance dip below 4 ohms (fig.23) requires that these amplifiers be generous with their current delivery. The slight wrinkle at 300Hz in both impedance amplitude and phase plots correlates with a very strong cabinet vibration at this frequency which added a

“woody,” congested character to the lower midrange/upper bass regions. The single bass peak in fig.23 also shows that the touted MCS system doesn't change the speaker's intrinsic behavior much from that of a sealed box, tuned in this instance to 42Hz—the bottom note of the double-bass and bass guitar. The 490 can be seen to have reasonably good bass extension—something noted during the panel listening in the warm-balanced *Stereophile* room—but its overdamped nature rendered the sound too lightweight in JA's less warm-sounding room.

Measurement in the nearfield (fig.24) showed that the speaker's bass output does indeed come from the woofer, the MCS port not contributing any significant acoustic output. The quasi-anechoic response on the tweeter axis, averaged across a 30° horizontal window, can also be seen in fig.24. The rising high end in the top two audio octaves was heard by all who listened to this speaker, while the generally uneven nature of the midrange probably contributed to the somewhat music-dependent nature of the listeners' value judgments.

Vertically, the MB Quart's listening axis was reasonably critical, the flattest response being obtained on or just above the tweeter axis. Horizontally, a significant degree of low-treble peakiness appeared to the sides of the reference axis, this perhaps helping to confuse image precision for off-axis listeners (though JA has to say that the 490, with its wide baffle, asymmetrical drive-unit layout, recessed woofer, and protruberant hardwood strips to the sides of the baffle, is in any case a recipe for image imprecision).

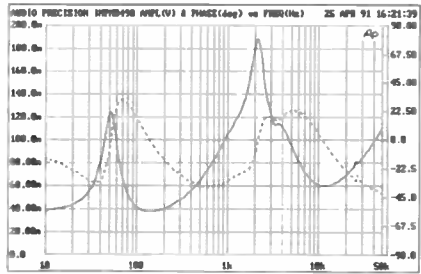


Fig.23 MB Quart 490 MCS, electrical impedance and phase (2 ohms/vertical div.)

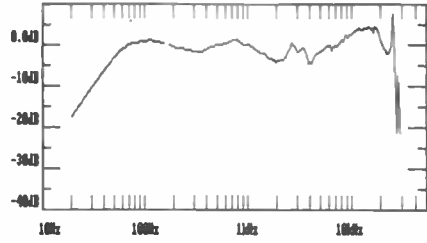


Fig.24 MB Quart 490 MCS, anechoic response on tweeter axis averaged across 30° lateral window, with woofer nearfield response plotted below 200Hz

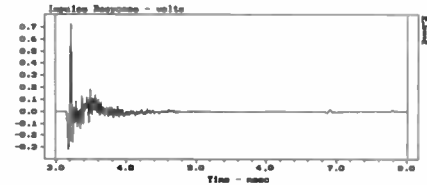


Fig.25 MB Quart 490 MCS, impulse response on tweeter axis at 42" (5ms time window, 30kHz bandwidth)

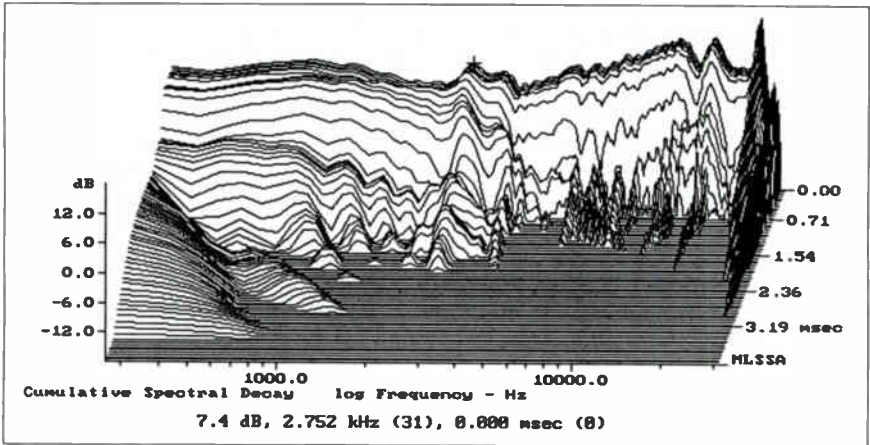


Fig.26 MB Quart 490 MCS, cumulative spectral-decay plot

The 490's impulse response on the tweeter axis is shown in fig.25, with the associated waterfall plot in fig.26. The excess of high-frequency energy can again be seen, while a strong resonant ridge—perhaps a woofer cone problem—appears at the cursor position, 2750Hz, this helping both to push treble images forward and to pull them away from the center of the stage. To a greater extent than the excessive top octaves, this peak, being in the region where the ear is most sensitive, will accentuate violin rosin noise and render the 490's sound too "etched."

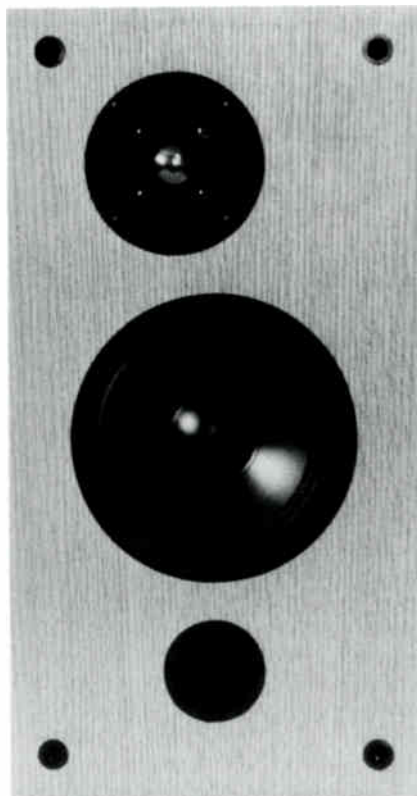
### Icon Acoustics Lumen: \$795/pair

The Lumen is the second of the two loudspeakers offered by Icon Acoustics, the other being the Parsec (reviewed by JA in Vol.13 No.12). Both speakers are sold factory-direct on a 30-day home-trial basis.

The 6½" polypropylene woofer is sourced from Vifa, the 1" aluminum-dome tweeter from SEAS. The ported enclosure is made from ¾" wood-veneered MDF and braced internally with a diagonally angled support. Crossover frequency is a low 1500Hz, with first-order (6dB/octave) slopes in the high-pass section and second-order (12dB/octave) in the low-pass section. A front-firing port is mounted just below the woofer.

Somewhat tweakier than other loudspeakers in this price range, the Lumen features the French Chateauroux polypropylene capacitors bypassed with proprietary polystyrene types, AudioQuest internal wiring, and two pairs of gold-plated Tiffany five-way binding posts. All internal wiring is hand-soldered. Available cabinet finishes include natural oak, American walnut, and black oak. The real wood finish is used on all six cabinet sides. Fit 'n' finish and overall appearance are superb, giving the Lumen an expensive look compared with the other loudspeakers in this survey.

**Listening Tests Panel Score: 4.92.** Taking the Show position in the overall numerical scores, the Icon Lumen fared better on the panel tests than in the individual auditioning. Even TJN, who performed the latter, found it more to his taste in the group session—held in the same room in which he does his personal listening. Different number of people in the room? Different listening location? Phases of



Icon Lumen loudspeaker

the moon, perhaps?

At the bottom end, RH remarked on the Icon's lack of extension, and JA referred to the bass as "lightweight." But its overall bass range was well received. It was, in GL's words, "tight and focused." JA commented on the "refreshing lack of upper-bass boom," and felt the Lumens to have "excellent bass definition but no low bass." Overall, he thought the Icon's bass alignment was "very well managed."

There was felt to be some emphasis at the other extreme of the spectrum, particularly in the low treble. This lent a definite sparkle to the sound, which didn't sit well with all of the panelists. TJN liked its open presentation, "very lively, highs slightly prominent but very clean." He agreed with GL that "sibilants were a bit pronounced," and thought the highs to be "slightly prominent but not displeasing." Only on the full orchestra and chorus did TJN remark that the "sibilants detach somewhat from the overall sound," and "that slight brightness is an irritation." JA found the tape hiss on

the Chopin to be too prominent, but liked the sense of treble detail on the Bach.

There was felt to be a degree of noticeable coloration through the midrange. JA remarked about nasality (“makes double bass sound more like a cello”), was also troubled by some confusion through this region, and thought the sound “too forward,” with a “shallow soundstage.” RH found the forwardness “off-putting” on the Bach, the upper mids “brash” on the early music. TJN agreed to a point, but felt the sound to be “immediate yet not pushy,” and found the “tight and punchy sound” to be a plus on the James Newton Howard.

All told, the panel had some strong feelings about the Icon Lumens, and while there was a fair amount of specific criticism, these speakers certainly didn't bore anyone. As you'll see, TJN was a bit more put off by the forward quality of the sound in his individual auditions (perhaps more evident from the “sweet spot” used there in place of his slightly less “optimum” position on the panel). This may merely emphasize the continuing importance of careful system matching—no less significant in moderately priced products than in the cost-no-object class.

#### **Thomas J. Norton comments on the Icon**

**Lumen:** The Icon Lumen is so well built relative to most of its competition here that I wanted to like it better than I ultimately did. I wrestled with my conclusions, but kept coming back to my initial impressions. On the positive side, I found its top end to be clean, open, and extended. It reminded me a great deal of the top end of the Signet SL280 which I reviewed in Vol.13 No.10—as well it might, since it uses the same (or a very similar) SEAS tweeter. That edge or bite which I noted in the PSB 40 Mk.II was gone. Hi-hat cymbal was airy and properly metallic without spit or sizzle. There was a degree of delicacy—a high-end quality to the high end, if you will—which the less expensive PSB could not match. The sound was detailed without being analytical. It was not soft or forgiving, but I only found it irritating on program material of questionable quality. The Icon also produced a tight low bass, though not one more extended than you might expect for its size.

Through the mid- to upper bass, the Icon exhibited a trace of excess fullness; some resonances were heard, for example, as dou-

ble bass slid down the scale into the warmth region. It did not trouble me a great deal, but did, I feel, detract somewhat from the openness and clarity of the overall sound.

My main problems with the Icon were a trace of boxiness and a definite forwardness. The former was only an occasional distraction, the latter was hard to ignore. While the sound was not in-your-lap, the perspective was very definitely up-front. This was not entirely a negative by any means; the sound was punchy and substantial. But I also found it spatially compressed: the Icons, despite their excellent high end, were not particularly open-sounding. I very definitely missed the transparent, three-dimensional soundstage I'd noted with the PSBs, which, despite the latter's definite raggedness around the edges, made them—for this listener at least—more convincing at creating the illusion of real instruments in real spaces.

**Measurements:** The Lumen's sensitivity was about average for this group at a measured 90.3dB/W/m. Its impedance (fig.27) possibly reveals a couple of areas where the cabinet has problems: the wrinkles around 210Hz and 600Hz. Sweeping a sinewave through this region with a stethoscope held against the side-wall revealed the 210Hz resonance to be so strong that a metallic-sounding, pitched echo could be heard at this frequency. This resonance, also seen as a wrinkle in the nearfield woofer response—TJN wondered if it was associated with the woofer frame—could well contribute to the occasional lower-midrange confusion noted in the auditioning, though the high Q of this resonance will make its audibility very music-dependent. Other than that, fig.28 suggests that the speaker will be easy to drive and has a reflex port tuned to 34Hz or so. Though this might be thought to imply reasonably good bass extension, the panel overall found this speaker's bass to be somewhat lightweight. From the left-hand side of fig.28, which shows the responses of the port and woofer measured in the nearfield, it can be seen that the port only really takes over below 60Hz; with its relatively small diameter, its level as plotted in fig.28 is probably optimistic.

Looking at the upper-frequency response, averaged across a 30° horizontal window on the tweeter axis, the Lumen can be seen to be generally flat, though with a broad suckout in the presence region, surprising considering

that the panel generally found the treble too forward. However, it's possible that the depression leaves the upper region a little exposed, resulting in the feeling of emphasized sibilants. Another factor might have an impact here: Unlike any other speaker in the group, the Lumen has wide, even dispersion in both the horizontal and vertical planes. Fig.29 shows the anechoic responses of the Lumen, normalized to the tweeter-axis response, taken (from front

to back) on the woofer axis, midway between the woofer and tweeter, on the tweeter axis (a straight line, of course), level with the cabinet top, and 7.5° above the cabinet top. You can see that the speaker's response is flattest just below the tweeter axis. But the main implication from fig.29 is that the Lumen puts out a lot more high-frequency energy into the room than usual. There wasn't time in the measurement schedule to further explore this aspect of per-

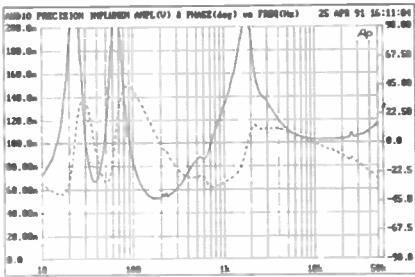


Fig.27 Icon Lumen, electrical impedance and phase (2 ohms/vertical div.)

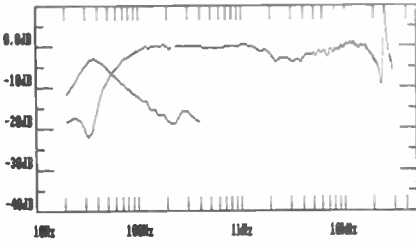


Fig.28 Icon Lumen, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

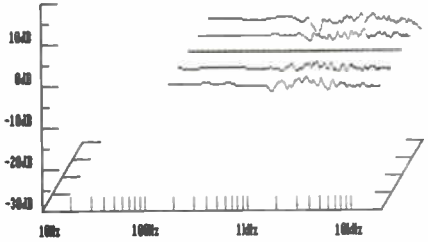


Fig.29 Icon Lumen, vertical response family at 42", normalized to response on HF axis, from back to front: anechoic response 15° above tweeter axis; anechoic response 7.5° above tweeter axis; response on reference axis; anechoic response midway between tweeter and woofer; anechoic response on woofer axis

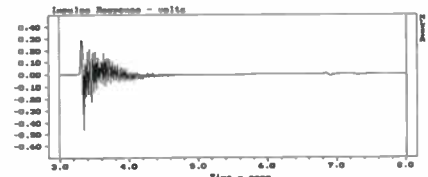


Fig.30 Icon Lumen, impulse response on tweeter axis at 42" (5ms time window, 30kHz bandwidth)

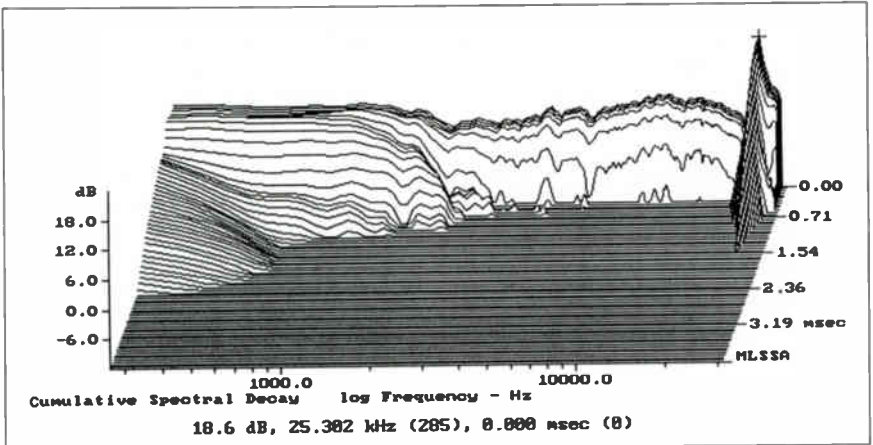


Fig.31 Icon Lumen, cumulative spectral-decay plot



formance, but this may well contribute to the panel's overall feeling about the Lumen's treble performance. Certainly, Lumen owners should arrange for their listening rooms to be too dead rather than too lively, acoustically speaking.

Fig.30 shows the Lumen's impulse response on the HF axis, with the equivalent waterfall plot shown in fig.31. This looks cleaner than usual, mainly due to the height of the tweeter's ultrasonic resonance—the ridge at 25.3kHz—but is still a good result.

### PSB 40 Mk.II: \$440/pair

The PSB 40 Mk.II is an 8" two-way design from the pen of Canada's Paul S. Barton. The woofer is a newly developed driver with a mineral-filled polypropylene cone and a vibration-absorbing rubber/PVC surround. A heavy woofer basket reportedly reduces resonance-induced midrange coloration. The  $\frac{1}{4}$ " textile-dome tweeter's mounting plate is beveled to reduce diffraction, and the voice-coil is cooled by ferrofluid. Both drivers are rebated into the baffle. The front-firing port is mounted just below the woofer.

The cabinet material is vinyl-covered high-density particleboard, and the enclosure is internally braced. The cabinet interior is lined with  $1\frac{1}{2}$ " of high-absorption felted cotton, and the enclosure edges are beveled to minimize diffraction. Crossover slopes are 18dB/octave, realized with air-core inductors and electrolytic capacitors. A single pair of five-way binding posts finishes off the rear panel, which is screwed in place.

**Listening Tests Panel Score: 5.17 (4.98 : 5.42).** As we arrive at the first of the two loudspeakers rated at the top in the numerical scores, the panel's subjective comments become more consistent, with fewer disagreements. The PSBs were not liked in all respects, but it was not hard to find positive comments about them on the panelists' scoresheets.

But not, generally, about their low-end response. The 40 Mk.IIs did, however, draw kudos for their bass extension and solid foundation. On the orchestral/choral pieces, in particular, they impressed all with their power and extension. "Good bass weight and dynamics," commented JA. "Rated up for very good bass drum," TJN added. "Good drum, good separation and low end," LA chimed in, but then



PSB 40 Mk.II loudspeaker

went on to add a rather ambiguous "great, thudding low end." In fact, though there was almost universal agreement on the extension of the bass, most of the assembled writers were not nearly as impressed with the *quality* of that bass, especially in its upper ranges. The negative comments on the symphonic works were minimal, RH's "big-sounding in the bass, but not tight" being typical. But the 40 Mk.IIs' low end was not particularly liked on much of the other program material. The generally favorable reactions to their extension was reiterated on the Bach, but elsewhere a generally slow, muddled quality was attributed to the mid- and upper bass. And though both TJN and JA were impressed with the PSBs' appropriate weight on the Chopin, JA commenting on the "excellent left-hand power of the piano," TJN elaborated that the sound was a "trace muddy" in the low end, and RH found it "veiled and heavy," with "lots of midbass coloration."

At the top end the PSBs drew some criticism for a degree of brightness, especially in the low treble. RH thought the sound on the Arnold "brash and hard," the *Nersky* "grainy," though

his negative reactions on the other selections were far milder. JA thought the mid-treble to be somewhat forward but lacking in clarity on the James Newton Howard. But most of the negatives were largely of the "slightly uptilted, slightly detached, slight tizz" variety. The PSBs were, however, much liked for their sense of air and rendition of ambience on much of the program material. "Nice sense of three-dimensionality and space, good depth and ambience," TJN commented on the early-music selection. JA continued with "good sense of ambient space," and GL added "flute is 'airy' sounding" on the same piece. All seemed to be similarly impressed with the 40 Mk.IIs' handling of ambience and space on the Bach. "Ambience big," wrote LA. "Fine 'air' and sense of space," enthused TJN, while RH noted the "good sense of space" and GL the "excellent capturing of acoustics."

A two-way system with a (relatively) large woofer can be a recipe for trouble in the midrange coloration department, but the PSB's midrange quality landed firmly on the positive side of the ledger. There was an occasional remark about traces of coloration in the lower midrange, but in general the responses were very upbeat. JA commented on at least four separate program selections on the "good midrange," "smooth mids," "low coloration in the midrange," and "smooth mids and highs." TJN thought the sound to be "lively" (meant in a positive sense). And although TJN did not perceive a highly focused image in his (off-center) location, GL thought the soundstage to be fine, RH commented at least once on the good imaging, and JA thought the soundstage definition on the Arnold to be "excellent."

But it was the more general remarks which perhaps best summed it all up. JA commented on at least three pieces of music about the PSBs' big sound, and LA added that on the orchestral selections, at least, the sound was "big, very enjoyable." JA also felt that the 40 Mk.IIs were a classical loudspeaker rather than a rock loudspeaker—largely because of that rather underdamped low end—but commented that "a version of this speaker with a better-damped bass would be a winner!" And GL, who was perhaps the most impressed of the panel, chimed in at various points with comments such as "great, involving presentation," "my favorite so far," and on at least one occasion, perhaps most succinctly, "a music

lover's loudspeaker." The latter comment—perhaps only coincidentally, perhaps not—was not made at any other time during any of the sessions.

We all wish that the PSB had had a slightly tighter, better defined low end, but if you can get past that, it certainly appears to be a loudspeaker worth looking into.

**Thomas J. Norton comments on the PSB 40 Mk.II:** First, the bad news. There was a certain lack of refinement about the sound of the PSBs, especially at the frequency extremes. The bass is reasonably extended, but somewhat underdamped and prone to an occasional chuffing noise from the port when fed strong low-frequency signals it can't easily digest. Slightly further up the scale, the midbass is on the warm side. The lower range of male voice is a bit more weighty than it should be. Double bass is full and rich but a shade *too* resonant. Both *Intermezzo* (Stereophile STPH003-1) and Paul Simon's *Hearts and Bones* (Warner Brothers 92-3942-1, German pressing) shared that excess of midbass warmth—the former in the piano's "power" region, the latter in the lower male vocal range. Despite this, there appeared to be some leanness in the upper bass, exacerbating a certain rawness in the treble, which tilts toward the crisp and analytical.

But these negatives only served to remind this listener that the PSB is, after all, a rather inexpensive loudspeaker in today's marketplace. The problems never, for me, got out of control. A sometime edginess and trace of bite to the upper overtones of voice, and a degree of tizziness to hi-hat, kept the treble out of the top class, but detailing was good without becoming etched, and sibilants weren't overripe. As for the low end, trading tightness through the bass region to get a bit more sense of low-end extension is a compromise many designers—and audiophiles—are willing to tolerate when costs make it problematic to obtain both.

But the qualities which, for me, tipped the balance to the positive side of the ledger are the PSBs' spatial qualities and overall sonic perspective. The sound they produce frequently breaks free of the enclosures to produce a soundstage with depth, width, and focus—characteristics not at all common at this price point. Add to this a relatively neutral perspective, not at all pushy or in-your-face (a definite

plus, in my judgment, particularly when reproducing CDs). Whatever box colorations I heard from the PSBs—and there are some—were lessened in impact because they were swamped by this sense of openness and three-dimensionality.

The PSBs won't be all things to all people, but I feel they definitely deserve a careful audition.

**Measurements:** Sensitive, at a measured 91.5dB/W/m, the PSB 40 demands an amplifier with good current capability, to judge from the impedance plot (fig. 32), which approaches 4 ohms in three frequency regions. The port can be seen to be tuned to a reasonable 42Hz, the lowest note of the electric and double basses, while a wrinkle at 275Hz suggests "cabinet resonance." And indeed, probing with a sinewave and the trusty stethoscope did reveal the PSB to have a very strong cabinet mode at this frequency—the panel did note some lower-midrange coloration—with minor resonances also audible at 210Hz and 340Hz. And lower-frequency sinewaves also generated a large amount of audible wind noise from the port, even at moderate playback levels.

Measured in the nearfield, the individual responses of the port and woofer (fig. 33) reinforce the idea that the PSB has good bass extension for a speaker in this price region—though the auditioning suggests that this has not been achieved without paying the price in terms of bass clarity. The quasi-anechoic response on the tweeter axis, averaged across a 30° horizon-

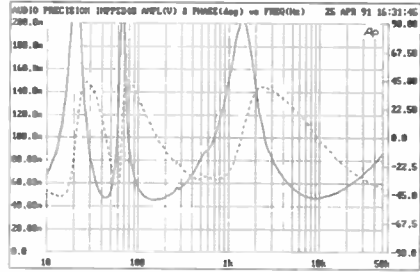


Fig.32 PSB 40 Mk.II, electrical impedance and phase (2 ohms/vertical div.)

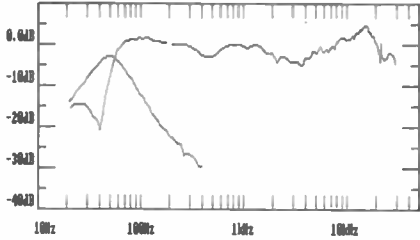


Fig.33 PSB 40 Mk.II, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

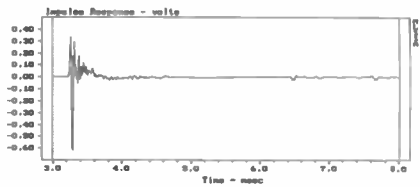


Fig.34 PSB 40 Mk.II, impulse response on tweeter axis at 42° (5ms time window, 30kHz bandwidth)

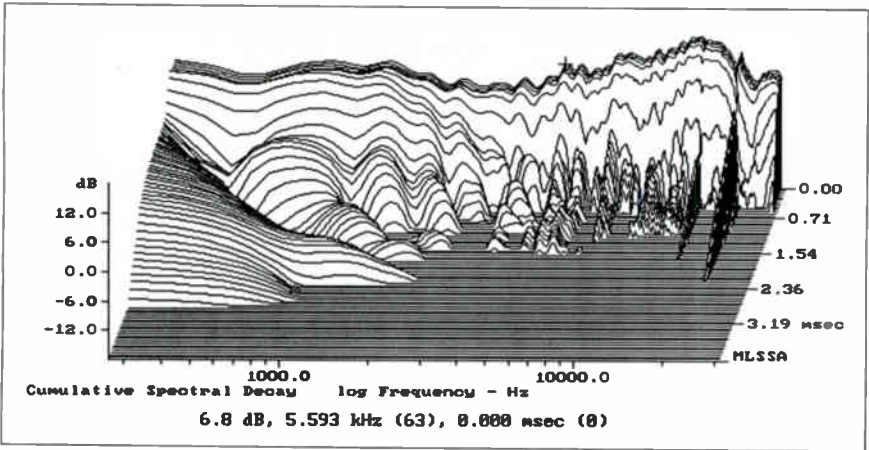


Fig.35 PSB 40 Mk.II, cumulative spectral-decay plot

tal window, is shown to the right of fig.33 and, while a little uneven, is still quite smooth for a speaker in this price region. But above 5kHz there's that rising high end the panelists noted, which contributes to a feeling of tizziness. Like the MB 490, the PSB will be demanding when it comes to choosing suitable front-end and amplification components.

Horizontally, the PSBs offered reasonable dispersion, the 15° off-axis response having an even but rolled-off top octave. Vertically, on the tweeter axis or just below seemed to be optimal. As with so many small two-way speakers, if you sit so you can see the top of the PSB 40, you're sitting too high and a significant lack of low-treble energy will be your reward.

The impulse response on the tweeter axis (fig.34) shows a modicum of HF ringing, but also a couple of reflections of the impulse within 1ms or so. This can be seen as the "rolling" nature of the waterfall plot (fig.35) below 2kHz, but apart from a small degree of treble hash this graph is quite clean.

### Epos ES11: \$850/pair

Joining its established big brother the ES14, the new British-built ES11 incorporates many of the same design techniques found in the more expensive loudspeaker. The 6½" woofer's chassis is molded as an integral part of the front baffle, a process that reportedly improves transient response. The tweeter is a 1" fluid-cooled aluminum-alloy dome. Both drivers were designed specifically for the ES11.

In keeping with Epos's minimalist tradition, the crossover is a single capacitor in series with the tweeter. The woofer is driven directly, with its natural acoustic low-pass rolloff replacing a crossover. The enclosure is made of 1"-thick MDF, and steel rods tension the front and rear baffles to reduce resonances. The molded rear panel holds two pairs of solid brass terminals for bi-wiring, as well as a rear-firing reflex port. The cabinet is finished in either black ash or walnut wood veneer.

The ES11 is designed to be listened to without a grille; consequently, none is provided. However, a plastic dustcover can be mounted on the baffle for protection when the loudspeaker isn't being used. Two pairs of flush-mounted banana jacks are provided for bi-wiring.

**Listening Tests Panel Score: 5.66.** As was



Epos ES11 loudspeaker

the case with the B&Ws and Icons, the Epos ES11 was faced with the challenge of making its mark on the panel in a single audition. It made the most of the opportunity. Its main weaknesses were those you might expect in what is, after all, the second smallest of the systems under test here.

There was very little wrong with the Epos's top end. In fact, based on the panel comments, one would be hard-pressed to find *anything* wrong with it. TJN commented on the "good space, air, and transparency" on the Bach, apparently agreeing with JA, who noted the "excellent, coherent sense of recorded space." RH noted the "good separation of individual lines" on the Arnold. He also noted on the *Nevsky* that the sound was "not hard or edgy," which sounds like faint praise but, in the context of his feelings about most of the loudspeakers' handling of peak levels in that selection, is actually a genuine compliment. GL observed a "big, spacious sound" on *Oxnard*. TJN pretty well summed it up when, in commenting on the Epos with the early-music selection, referred to their "nice combination of detail without hardness or zip."

Nor did the panel find much to object to in the ES11's midrange. There were some minor objections of a "slight lower-midrange coloration" from TJN on three of the selections,



including a trace of “boxiness” on *River Road*, and others noted some midrange colorations on the pink noise/speaking voice test—the most difficult test to pass unscathed. But favorable comments were far more frequent. “Palpable voice image!” enthused JA on “Amanda,” a sentiment he reiterated on *River Road*, despite noting a “slight hoot” on the latter and a smidgin of warmth in the lower mids. “Good soundstage,” wrote RH on the same piece, “voice silky, most involving so far (fourth session, second day).” He also noted, on *Oxnard*, the “very detailed” sound and the “natural timbre,” and remarked again favorably on the natural, realistic timbres on the Arnold. JA also remarked, with the early music, on the “excellent soundstage, direct sounds of instruments well integrated with the reverberation—good depth also.” But perhaps most telling, on the full-scale orchestral/choral works, both RH and TJN commented on the clarity of the sound and the lack of confusion and congestion. JA, who had used the latter term frequently to describe many of the other loudspeakers, avoided it completely in his ES11 notes.

It was only in the low end that the Epos stumbled a bit. To begin with, there was an obvious dynamic limitation—the woofer would bottom out (though not alarmingly) when attempting to reproduce the bass-drum impacts on the Arnold and *Nevisky* at the same levels as the other loudspeakers, and some distortion was also heard on peak levels of the Bach. Even the little Wharfedale Diamond IV had shown a bit less stress. But remember, we were pushing what is essentially a small loudspeaker quite hard in these tests. The overall low-end balance was, however, generally liked. TJN observed, on *River Road*, that the “voice has body without boom,” though he noted a “slight mud in the midbass” on the Chopin. Like most of the panel, he liked the balance of the double bass on the Eccles, but thought the lower range rather “woofy and boxy.” (By “woofy” he means simply that the midbass is trying too hard to fill in for the missing bottom octave—it lacks an effortless quality). (GL disagreed, finding it too light weight.) Yet, despite the limited bass dynamics on the symphonic works, all were impressed by the caliber of the bass short of the overload point.

The Epos drew generally strong reactions from the panel, two of them rating it at the top of their lists on the final day of testing. JA noted

that it was the “only speaker in this group to throw a palpable soundstage” (though he was later to be similarly impressed by the soundstage of the Diamond IVs), “with very natural mids and highs, if a little warm-balanced overall.” And TJN, though he only rated it fourth on the same day, stated that “If the low-to-upper bass region were deeper and cleaner, this would be my clear favorite. Low-frequency power handling is a problem, but the sound is alive. If the bass *were* better, it would rate at least a point higher overall in my scoring.”

It was ironic that JA chose the Epos in our random drawing as one of his individual audition loudspeakers. Following its panel session, he remarked that he hoped the woofer bottoming hadn’t damaged anything, as he’d “like to take that pair home.” He did. And so might you.

**JA comments on the Epos ES11:** For an inexpensive loudspeaker to count as a “high-end” product, it must be capable of conveying the musical values inherent in recordings with the minimum editorial interference. My experience during the blind listening tests was somewhat depressing in that I felt only two of the speakers got near this goal. (The second pair turned out, to my surprise, to be the Diamond IVs!) When I set the Epos ES11s up on 24” stands in my listening room, hooking them up to either Mark Levinson No.23.5 or YBA 2 power amplifiers with a bi-wired set of AudioQuest Sterling/Midnight cable, my first thought, within five seconds after the Troika stylus hit the groove, was “This was the speaker I liked best in the blind sessions.” (TJN wisely wouldn’t tell us what speakers we’d listened to blind until *after* our individual auditioning.) For the music through the Eposes just floated between and beyond the speaker positions, seemingly unfettered by hi-fi artifacts. Over and over again, I stopped my critical listening, allowing myself to get carried away by the particular piece to which I was listening. Putting the new (and excellent) Gary Shocker flute sonatas CD from Chesky (CD46) on to the Meridian 602 turntable to check out the reproduced soundstage, I ended up listening to the entire disc—his solo Bach A-minor Partita is particularly fine!

Back into hi-fi reviewer mode: the ES11 has a smooth, detailed treble refreshingly free of grain or fizz. The midrange, too, has a natural tonal quality with superb retrieval of recorded detail, though at the lower edge of this region



a degree of thickening can be heard. Mainly audible as additional warmth to the sound of orchestral strings, this did interfere with the Epos's superb musicality at high playback levels by adding a "hooty" lower-midrange congestion. (Bi-wiring helps significantly here.) The low frequencies were a little generous in the port-tuning region, though ultimate extension was limited—this *is* a small box. Ultimate playback levels were also limited: This is not a speaker to thunder out rock drums or impress the neighbors with your new Dorian Jean Guillou discs. Trying to reach high playback levels with music possessing much low-frequency information results in a furred-up sound due to bass distortion from the small woofer and wind noise from the port.

But what the Epos *does* do is to both communicate the music from your recordings without thrusting any aspect forward at you, and to create a superbly defined, deep, wide soundstage that makes the speakers seem to disappear. After my disappointment at the flat, unstable imaging thrown by the similarly priced MB Quart 490s, it was a joy to hear the Chesky imaging test tracks on the Eposes. Lateral definition was precise and unambiguous with frequency, the LEDR image-height tracks coming over almost as well as they had done with the KEF R107/2s—these expensive speakers offering the best performance I have heard on these tracks—while the ES11s' image depth was excellent, there being a realistic sense of coherence to the way direct sounds were associated with their recorded reverberation. (Sam Tellig tells me that the combination of the ES11s with a good tube amplifier is stunning in terms of palpable presence.)

To sum up, within its dynamic limitations I feel the Epos ES11 offers true high-end, musical sound at a price within reach of even the most impecunious audiophile. A winner!

**Measurements:** The Epos's low specified sensitivity was confirmed by the measurements, the 2.83V 1kHz warble tone giving an spl of just 87.3dB at 1m on the tweeter axis. The impedance (fig. 36), however, was relatively benign, only dropping to 7 ohms in the upper bass and above 20kHz. The impedance minimum at 52Hz reveals the port tuning, while there is a strange kink at 600Hz, which, given the simple nature of the ES11's crossover, might be due to a cabinet resonance of some kind. Sweep-

ing a sinewave while listening to the enclosure walls with a stethoscope, however, indicated that the main resonances, while of high Q, were somewhat lower in frequency, between 360 and 450Hz. These probably contribute to the midrange congestion and "warm" colorations noted during auditioning.

Nevertheless, the quasi-anechoic response on the tweeter axis, averaged across a 30° horizontal window, which can be seen to the right of fig. 37, reveals some kind of peak in the speaker's output between 500 and 900Hz which might well be associated with the wrinkle in the impedance in this same region. Note, however, that in general, the ES11 offers a superbly flat midrange and treble response, a very slight rising trend leading to the ultrasonic tweeter resonance at 27kHz. It's no surprise that the panel found this speaker to be very neutrally balanced; given that the speaker has almost *no* crossover, this is an impressive tribute to designer Robin Marshall's ability to get the woofer to behave correctly at the top of its passband.

Horizontally, the ES11 offered a wide, even dispersion, but things were not so simple in the vertical plane. It appears essential to audition this speaker on the tweeter axis if the listener is to benefit from this flatness of response. Move even a little bit upward, so that you can see the top of the cabinet, and a deep suckout appears in the mid-treble. Sit even a couple of inches lower and the mid-treble becomes quite peaky. The left side of fig. 37 shows that the port is responsible for the speaker's midbass output, which might tie in with TJN's feeling that the speaker lacked a little definition in this region. "Woofy," he said. Yeah, woofy.

Moving on to the time domain, fig. 38 shows the Epos's impulse response on the tweeter axis. It shows a phase-coherent behavior overlaid with ultrasonic ringing. While it has been postulated that this kind of time behavior is associated with excellence of soundstage performance, this has not been proved to be the case. Nevertheless, the ES11 joins that small group of speakers, including the Thiels and Vandersteens, that do combine imaging excellence with a time-coherent impulse response.

The ES11's waterfall plot (fig. 39) is generally clean and well-behaved, with a suspicion of misbehavior in the lower midrange. Unfortunately, this graph's frequency resolution is too limited to do anything other than hint at

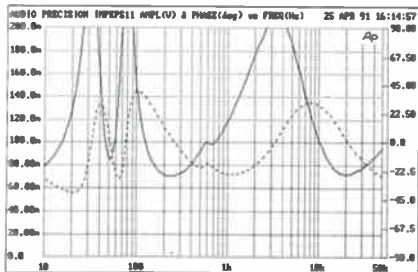


Fig.36 Epos ES11, electrical impedance and phase (2 ohms/vertical div.)

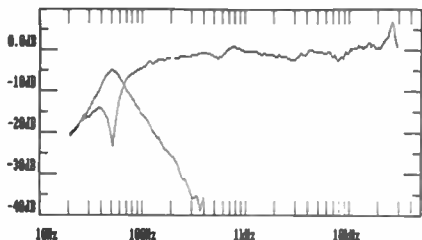


Fig.37 Epos ES11, anechoic response on tweeter axis averaged across 30° lateral window, with woofer and port nearfield responses plotted below 200 and 400Hz, respectively

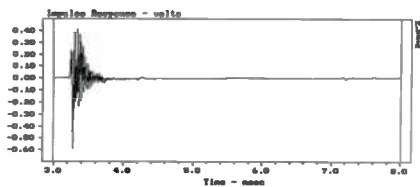


Fig.38 Epos ES11, impulse response on tweeter axis at 42" (5ms time window, 30kHz bandwidth)

JA	GL	RH	TJN
1. Epos ES11	PSB 40 Mk.II	Epos ES11	Mordaunt-Short MS 3.30
2. Wharfedale Diamond IV	JBL XPL-90	PSB 40 Mk.II	PSB 40 Mk.II
3. MB Quart 490 MCS	Icon Lumen	JBL XPL-90	Icon Lumen
4. Snell Type K/II	MB Quart 490 MCS	Mordaunt-Short MS 3.30	Epos ES11
10.* JBL/Icon (tie)	AR Spirit 152	AR Spirit 152	JBL XPL-90

\*Includes the Snell Type K/II's.

problems in this region.

## Individual preferences

*Thomas J. Norton, displaying a perverse streak, looks at the fine print of the listening-test data.*

Okay, JA, you didn't exactly request this, but it occurred to me that, since the data were available, it would be interesting to list the top (and bottom) choices on each reviewer's scoresheets (Table 3). Keep in mind that these lists relate *only* to the subjective numbers entered on those sheets. They do not take into account any actual subjective comments or the results of any individual auditions—there is no way to quantify either of these inputs. And, unlike the other data in the survey, they are based *only* on the results of the *second* day's listening sessions, since all of the loudspeakers were included on the second day.

Some interesting observations are to be made from these individual results, and they were weighed into the above conclusions for each

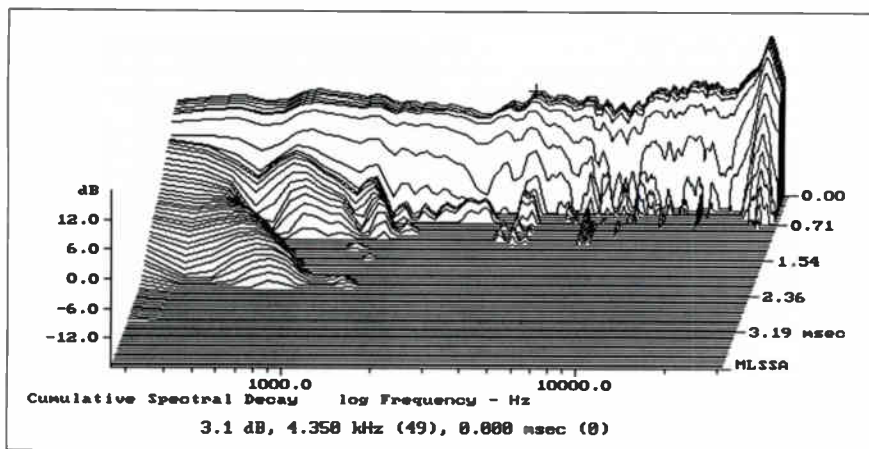


Fig.39 Epos ES11, cumulative spectral-decay plot

loudspeaker. Interestingly, two reviewers picked the JBLs as their last choice, while the other two put them in their top four. In addition, JA put the Icons last (tied with the JBLs), while GL and TJN put them in their top four. Both have rather forward balances, which may at least partly explain JA's negative reaction—he was sitting in front, where such a balance might be expected to be more oppressive. I haven't seen any other of the panelists' individual assessments of the various loudspeakers as I write this, so have no idea how they relate to the test scores or the subjective comments made during the panel auditions. I can only comment on my own reactions, where my individual assessment of the Icon was less positive than my rating of it on the panel tests, particularly on the second day, and hope that *that* difference of opinion with myself does not send hordes of marauding audiophiles to my Santa Fe address, battering rams in hand. A raspberry or two, or perhaps the odd poison-pen letter, might be tolerable.

But there *were* some notable agreements among the panelists. Three reviewers rated the Epos ES11 in the top four, two put it in first place. As I have already noted, with a better low end it would have jumped up several places in my ratings—perhaps to the top. And the PSB was either first or second in three of the four lists. The Mordaunt-Short, JBL (but see again the above), and MB Quart also made it into the final four on two of the lists, as did the Snell Type K/II (already reviewed).

## Conclusions

*Thomas J. Norton, up to his armpits in alligators, proceeds to drain the swamp.*

At the beginning of the second and last day's listening sessions, JA requested that, when it was all over, we set up the Apogee Stages to get a feel for the program material over a solid Class B recommended loudspeaker. At the end of the sessions, though fatigue was rapidly setting in, we conducted this audition, and decided to score it. Of course, even though the Stages were also behind the screen, everyone now knew

what they were listening to. The reactions were, well, ah, er, palpable. Just like the sound of the Stages themselves. GL asked if he could take *them* home. They scored an overall average of 8.24 points. Of course, it certainly helped that the program material had been originally selected over these same Apogees, in this same room.

I have no doubt that the Stages would be challenged strongly in the point total if they were put up against other good high-end loudspeakers, Apogee's own more expensive models included. My point here is that compromises are required at any price point; the loudspeakers auditioned here are certainly no exceptions. The panel was hard on them as a group, but definitely found some that are worth your investigating. The little Epos, despite some low-frequency limitations, made a strong impression. It is well-built, innovative in construction, and has a lively, detailed sound. The PSB is not nearly so classy in the fit-and-finish department, and must be auditioned carefully to insure that its low-end fullness and slightly Technicolored top mesh well with your sensibilities, but it had a clear, if slightly laid-back, midrange and was notably spacious and open, with a particularly good rendering of depth. Beyond these, other considerations just might tip the balance for you: the high sound-quality-to-size ratio of the Wharfedales or the high build quality and wide availability of the Icons (an audition is as close as your nearest telephone from this mail-order-only company), to name just three.

JA has commented that panel listening tests usually indicate more of what's wrong with a loudspeaker than what's right about it. Just like the evening news, the panel tends to note the bad more than the good. But a careful study of this review's panel results, point totals, individual auditions, measurement results—not just any one, and certainly not just the conclusions—will certainly turn up one or models to add to *your* list of potential candidates. A personal audition remains, as always, the final screening—as important in this price range (perhaps more so) than in any other. **S**

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## CANNED MUSIC 2

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Bill Sommerwerck reviews cordless headphones from Beyerdynamic

Circumaural/closed-back headphones with infra-red signal drive. Headband: double, adjustable.

Frequency range: 20–20kHz. THD at 100dB: <1.5%. Operating period: around 4 hours. Charging period: < 14 hours. Special features: mono/stereo switch. Accessories (supplied): LG 690 P/S, 3.5mm adapter. Transmitter specifications: Sensitivity: 1V. S/N ratio: 85dB. Channel separation: >40dB. Channel imbalance: < 1.5dB. Warranty: 1 year, limited. Suggested list price: \$400 (often discounted). Approximate number of dealers: 140. US distributor: Beyerdynamic, 5-05 Burns Avenue, Hicksville, NY 11801. Tel: (516) 935-8000.

In March, I reviewed headphones from AKG, Beyerdynamic, Denon, and Stax. As the introduction to that review contained all the details of the test setup and records used to audition the headphones, readers should refer to it for the background before embarking on this second part of my odyssey into the wonderful world of personal pinna pleasure. In the concluding part, I will be auditioning conventional headphones from JVC, Koss, Nakamichi, Pickering, Signet, Stanton, and Sony.

When it comes to cordless headphones, I'm happy if, like Dr. Johnson's dog, they just walk on their hind legs, so to speak. The IRS 690 was a pleasant surprise. Not only did the IRS 690 walk on its hind legs, it performed somersaults and even sang a bit. It's one of the most enjoyable and just plain listenable headphones I've yet auditioned, of any type.

Perhaps I ought to briefly explain the principles of cordlessness. Any form of wireless transmission requires a steady, continuous signal (the carrier) which is varied (modulated) with the information to be sent. The appropriate sensing device at the receiving end (antenna, IR diode, ultrasonic mike) picks up the transmission. The sensor's signal is amplified, then demodulated to extract the original information (or a close approximation).

Cordless telephones almost universally use radio as the transmission medium (though there have been several infrared systems, and Bell Labs even experimented with ultrasound). Cordless headphones have largely reversed this pattern, most systems using infrared. An ultrasonic frequency in the 100kHz range is the carrier, and amplitude-modulates the IR-emitting LED in the transmitter. The audio signal, in turn, frequency-modulates that carrier. Two adequately spaced carrier frequencies are needed for stereo transmission.

Please note that this is *not* a laser system. The infrared light (whose frequency is in the range of 300GHz!) is not frequency-modulated directly. Rather, the carrier simply modulates the intensity of the light, and the audio frequency modulates the carrier. Crude, but effective.

Infrared has a lot of advantages over radio.



Beyerdynamic IRS-690 headphones

There's no eye-gouging antenna, and since IR doesn't pass through walls, the disgusting rock music playing on *your* cordless headphones can't interfere with the lovely chamber music on *mine*. Of course, the tradeoff for that advantage is that you can't use the headphones outside the room with the transmitter. However, near-infrared light is reflected by almost anything (even objects that appear black to us), so you don't have to be sitting in line with the transmitter to get good reception. I was able to move all around my living room, even to points where the receiver could not look at the transmitter's direct output, or the transmitter was altogether invisible, with no loss of sound quality.

The IRS 690 system consists of three components: the DT690 cordless headset, the IRS 690 infrared transmitter, and the LG 690 power supply.

The DT690 headset looks a lot like Beyerdynamic's DT990—it uses the same drivers—but with deeper enclosures to accommodate the infrared receiver, amplifier, and rechargeable battery.

The switch on the left driver turns power on and off; a red LED lights when power is on, and

blinks when the battery is near the end of its charge. A second switch, on the right driver, selects among stereo and left or right mono. The two latter positions channel either the left or right signal through both drivers, for broadcasts or recordings with a different program on each track. There is a volume control at the bottom of the right driver. (There is no balance adjustment.)

An infrared sensor perches atop the headband, sealed in cobalt-blue plastic. The sensor is nearly omnidirectional; the plastic dome widens the pickup pattern, especially in the vertical direction, by refracting light toward the sensor.

Setup is easy. The IRS 690 infrared transmitter has an audio cable terminated in a standard  $\frac{1}{4}$ " stereo phone plug. (A 3.5mm adapter is supplied for use with personal stereos.) Simply insert the plug into any line-level source, then adjust the source's level until an LED on the front panel of the IRS 690 (which is normally lit dimly) flashes brightly during the loudest passages. A bank of infrared LEDs across the front of the IRS 690 broadcasts the signal.

The LG 690 power supply powers both the IRS 690 transmitter and recharges the DT690 headphones. It has two plugs so you can do both at the same time.

Beyerdynamic sells the DT690 headset separately for \$270, a good thing as the four-hour battery life might be too brief for users (such as recording engineers) who use them all day. The second headset could remain charged and ready to use. This also allows you to fully discharge the batteries before recharging them, which is obligatory if you want to get the maximum life out of nicads.

There is a fourth component, a black foam *Kunstkopf* that looks a lot like an Easter Island statue. The headphones perch in the usual position, while the transmitter slips into a slot at the bottom. Beyerdynamic recommends using the *Kunstkopf*, and it certainly does keep everything conveniently in one place.<sup>1</sup>

The DT690 fits your head (or at least, my head) like any other pair of headphones. It seems quite light, despite the built-in battery and added electronics. The double headband

distributes the weight smoothly, and you simply aren't aware you're wearing a cordless headset.

The infrared receiver does not include a "squench" circuit. When the transmitter is turned off, or you're out of its range, the receiver's background noise rises to audibility. This isn't necessarily a bad thing; the noise reminds you that the headphones are on (and draining the battery) but the transmitter is off (or invisible).

It was during those times the transmitter was off that I first noticed interference. I thought it might be due to IR from room lights, but in fact fluorescent lamps emit little infrared. (Incandescent lights emit gobs of infrared, which is audible at close range as receiver noise when the transmitter is off. In fact, even your body emits audible infrared. Walk into a dark room and then tightly wrap your hand over the sensor.)

The interference turned out to be simple EMI. The cable running from the IR sensor to the electronics isn't shielded. TVs, fluorescent lights, and similar noise emitters close to the DT690 induced buzzing or clicking sounds. I experimented by walking into the cramped kitchen area (of my cramped apartment) with the Reference Recordings *Histoire du Soldat* playing. The lights induced an obvious buzz in the left channel. If you hear a buzz, simply move away from the interfering device, or turn it off.

Beyerdynamic says the IRS 690 system is designed to behave as much like a conventional headphone as possible. This is the reason for the  $\frac{1}{4}$ " stereo headphone plug (rather than a pair of RCA plugs); Beyerdynamic assumes you'll connect the IRS 690 transmitter to a regular headphone jack, and use the volume control on the program source to adjust the modulation.

This may not have been the best design decision. Audiophiles—indeed, anyone who listens to more than just television—will probably hook the IRS 690 to their amplifier's tape-out jacks. Unfortunately, even the volt or so from my CD player wasn't sufficient to drive the IRS 690 to full modulation, despite the fact that the spec sheet says 1V is enough. Noise was audible during the quieter passages of wide-range material. I had to connect the IRS 690 to the CD player's headphone jack to get enough signal. Be aware, therefore, that you may need to experiment to find the best electrical position in your

<sup>1</sup> Not to mention becoming a weird conversation piece: "I didn't *know* you've been visiting all those dear little Pacific islands. Now, *where* did you get that charming figurine? Is it a goddess?"

"Yeah. The fertility goddess of Styrofoam. Ever wonder why those little plastic peanuts proliferate so rapidly? She's the one."



system to connect the IRS 690.

Modulation level was not critical. Unlike AM or PCM transmission, FM readily tolerates overmodulation.<sup>2</sup> I just cranked up the input until the loudest passages broke up, then backed off a bit. It's important to set the level as high as possible, especially when listening to wide-range material. These high levels caused the modulation LED to flicker most of the time, but without any apparent sonic detriment.

I did, however, note that loud passages with a lot of treble energy (as in the EMI Muti orchestral recording of *Pictures at an Exhibition*) caused some audible, albeit rather soft-sounding, roughness. Reducing the input reduced this distortion, but did not eliminate it altogether. The distortion is probably in the transmitter (the 990s don't have this problem). Since eliminating the transmitter would also remove the cordlessness (which is the whole point of the IRS 690), and such loud treble passages are not common in classical music, I didn't weigh this defect heavily against the IRS 690.

Which brings us 'round to sound quality. Beyerdynamic says the DT690 uses the same drivers as the DT990. In basic sound quality, there is no doubt. The DT690 delivers the same clean, low-coloration sound as the DT990. The midbass and bass are mud-free, a real surprise when you consider that the DT990 is an open-backed design, and the DT690 is fully sealed. Detail and transparency are good, though not, of course, up to that of any of the electrostatic headphones reviewed here.

What *is* different is that the DT690 is more rounded and not so crisply incisive as the DT990. The DT690 has that stereotypical "tube sound": not extremely detailed, but sweet and clean. The result is some of the most fatiguer-free and just plain enjoyable sound I've ever heard from headphones. *Everything* I played "sounded good." The DT690 suppresses most of the nasties without losing much detail. Though transients are somewhat rounded-off, the sound is anything but dark or dull. If the DT690 were a conventional headphone, it would fall at the top of Class D or the bottom of Class C in *Stereophile's* "Recommended Components" listing. I'm inclined to give it the benefit of the doubt, and place it at the bottom

of Class C, because it *lacks* the "neutral-but-bland" character that consigns a headphone to Class D.

I wondered if this slight softening and rounding was a conscious design decision by Beyerdynamic, in order to make the headphones appeal to the widest group of listeners and with the widest range of program material. Bob Lowig at Beyerdynamic acknowledges that the DT690 sounds the way I described, but says that it was not intentional. The change in sound is an unintended byproduct of the electronics used for cordless operation.

How useful is a cordless headset for the average home listener? Beyerdynamic's ad for the IRS 690 cleverly shows an enormous living room with an audio-visual system. In such a room, a cord would not only be a hindrance, but possibly even a hazard! Most of us listen in smaller rooms, where we can sit close to the equipment in comfort. And if all you want to do is watch "Late Night with David Letterman" without disturbing the spouse, a \$10 cable from Radio Shack will do the job.

Of course, if you want to move around while listening, the cord only gets in the way. It can even be a problem when sitting at your desk; how can you comfortably type or move papers with a cable dangling and banging against your arm? Cordless headphones are also ideal for recording engineers; why should they be tied to a recording console with a cord? Ditto for live recordings; ever schlepped a headphone cord while you tried to adjust the mikes?

Considered as a \$400 headphone, the IRS 690 system is not a good value; there are dynamic and electrostatic headphones for half the price that are more literally accurate. But as a cordless headphone, it works extremely well, with wide coverage and satisfactory battery life. It's physically comfortable and sonically non-fatiguing, which, along with its cordlessness, makes it an excellent choice for the amateur or professional recording engineer. And if you find electrostatic headphones too analytical, or dynamic headphones not clean enough, you may find the IRS 690's sonics are just your cup of tea—cordless or not.

The IRS 690 is so entertainingly euphonic that it's hard not to like it. If the IRS 690 is what you want or need, I highly recommend it.

Eyeglass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance. **S**

<sup>2</sup> Assuming there is no restriction on the transmitter's "swing," the useful peak modulation is largely determined by the receiver's bandwidth. If the receiver does not have a sharp-cutoff bandpass, overmodulation causes only soft clipping.

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## RICHARD STRAUSS:

### *Also Sprach Zarathustra*

Robert E. Benson

In 1896, when Richard Strauss composed *Also sprach Zarathustra*, he was only 32, but already recognized as a major composer, with the tone poems *Don Juan*, *Death and Transfiguration*, and *Till Eulenspiegel* already to his credit. Yet to come were other masterpieces, including the tone poems *Don Quixote* and *Ein Heldenleben*, and the operas *Salome*, *Elektra*, and *Der Rosenkavalier*.

*Zarathustra* (in English, *Zoroaster*) is a masterpiece of orchestration, scored for more than 100 players, including quadruple woodwinds, 6 horns, 4 trumpets, 2 bass tubas, the Wagnerian complement of 64 strings (16-16-12-12-8), 4 percussionists, 2 harps, and organ. Strauss undertook to portray in his music no less than "the development of the human race from its origins through the various phases of evolution, religious as well as scientific, to Friedrich Nietzsche's concept of the 'Superman,'" which Hitler subsequently perverted into the Nazi "Übermensch" ("over-man"). The different sections of Strauss's score are as follows: an opening "Sunrise" followed by "Of the Dwellers in the World Behind Us," "Of Great Yearnings," "Of Joys and Sorrows," "Song of the Grave," "Of Science," "The Convalescent," "Dance Song," and "The Song of the Night Wanderer." Quite a canvas, indeed, though most listeners doubtless concentrate more on Strauss's rich orchestral textures than on Nietzschean reference points.

The famous "Sunrise" opening is simplicity itself: a quiet C-major organ pedal (accompanied by contrabassoon, string bass tremolos, and bass-drum roll) sets the stage for a three-note trumpet fanfare, C-G-C, then two slashing chords by full orchestra, followed by a measure of C-G-C triplets on timpani. This episode is repeated twice, each time louder, until the

culminating C-major chord with organ underpinning, marked *ff* < > *ff*. The score carefully specifies dynamics: trumpet parts are marked *p*, then *mf*, then *f*, for each repetition. Yet only one of the recordings currently available on CD, Georges Prêtre's on Victrola, sufficiently differentiates them. The 80-year-old Strauss did not do so in a 1944 concert with the Vienna Philharmonic, preserved on acetate transcription discs. The Peters edition of the score suggests a performance time of 33–34 minutes; Strauss's Vienna performance took 34:25. Current recordings range from 29:58 (Steinberg/BSO) to 38:00 (Sinopoli/NYPO).

In the mid-'50s, when RCA released Fritz Reiner's CSO recording on halftrack stereo tape, it created a sonic sensation, and rightfully so. The current popularity of *Zarathustra* is reflected by no less than 28 CDs as of this writing, not counting a number not-yet-reissued black-disc recordings going back to 1935.

Herbert von Karajan recorded *Zarathustra* three times; all are now in print on CD. John Culshaw produced his first date, from 1959 with the VPO. This one boasts rich sound, vividly capturing the Vienna's sumptuous textures. At times there is almost too much sound; *ie*, the tubular bell at the climax of "The Night Wanderer's Song" is almost lost in orchestral opulence. Culshaw, in his witty *Putting the Record Straight*, detailed some of the problems in making this recording, but the end result, even with dubbed-in organ, remains magnificent. Beginning with the impact of those opening chords, Karajan's performance is dynamic and tremendously exciting, far superior to his two later Deutsche Grammophon versions with the BPO.

The first of these was an analog recording made in 1974 which, even with a bizarre-sound-



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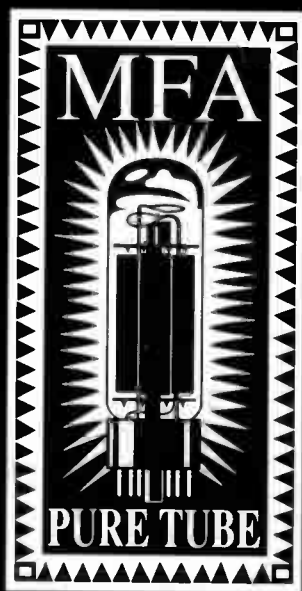
ing dubbed-in organ, is still preferable to the 1984 digital version, which found him in a placid mood, not helped by harsh digital sonics. London's CD obviously is the preferred of the three as, in addition to being a superior performance, it is more generous in fillers, has near-maximum playing time, and is issued at mid-price.

Bernard Haitink's Philips version with the Amsterdam Concertgebouw is a glorious success. This 1973 analog recording is sonically one of the finest Philips has ever produced in the Concertgebouw, capturing the richness and depth of the orchestra and Haitink's introspective but solid performance. This is one of only two recordings in which you can hear

Conductor/Orchestra	<i>Zarathustra</i> playing time	Sunrise Opening	COUPLING (all Strauss unless indicated)	Total CD playing time	Analog/ Digital	Label (all full-price unless otherwise indicated)	Fully Banded
Vladimir Ashkenazy Cleveland Orchestra	31:34	1:35	<i>Death and Transfiguration</i>	56:42	D	London 425 942	Yes
Herbert Blomstedt Dresden State Orchestra	33:56	1:47	<i>Don Juan</i>	51:07	D	Denon 2259	Yes
Karl Böhm Berlin Philharmonic	34:56	1:46	available only in 3-CD set of Strauss orchestral works	—	A	Deutsche Grammophon 423 488 (3 CDs) mid-price	Yes
Semyon Bychkov Philharmonia Orchestra	37:00	2:00	<i>Don Juan</i>	55:14	D	Philips 422 357	Yes
Antal Dorati Detroit Symphony	33:50	1:53	<i>Macbeth</i>	53:24	D	London 410 146	No
Bernard Haitink Royal Concertgebouw Orch.	34:07	1:56	<i>Don Juan</i>	50:55	A	Philips Silver Line 420 521 mid-price	Yes
Herbert von Karajan Vienna Philharmonic (1959)	33:23	1:40	<i>Death and Transfiguration</i> <i>Don Juan</i>	74:40	A	London Jubilee 417 720 mid-price	Yes
Herbert von Karajan Berlin Philharmonic (1974)	35:03	1:50	<i>Till Eulenspiegel</i> , "Dance of Seven Veils" from <i>Salome</i>	60:48	A	Deutsche Grammophon Galleria 415 853 mid-price	Yes
Herbert von Karajan Berlin Philharmonic (1984)	35:44	1:36	<i>Don Juan</i>	54:06	D	Deutsche Grammophon 410 959	Yes
Rudolf Kempe Dresden State Orchestra	33:03	1:46	<i>Death and Transfiguration</i> <i>Till Eulenspiegel</i>	71:05	A	EMI-Angel 47862	No
Neeme Järvi Scottish National Orch.	32:28	2:18	<i>Don Juan</i> , <i>Two Songs</i>	55:01	D	Chandos 8538	Yes
Dimitri Kitaenko Moscow Symphony	34:28	1:42	Rachmaninoff Symphony 3	74:12	D	Olympia MCO 209	No
Clemens Krauss Vienna Philharmonic	32:44	1:28	<i>Don Quixote</i>	74:49	A	London Historic 425 974 (mono) mid-price	Yes
Lorin Maazel Vienna Philharmonic	33:56	1:57	<i>Macbeth</i>	52:27	D	Deutsche Grammophon 30 Classics 427 821-2	Yes
Zubin Mehta New York Philharmonic	31:15	1:30	<i>Four Last Songs</i> (Martón/Toronto Symphony/A. Davis)	50:11	D	CBS MOK 44910 mid-price	No
Zubin Mehta Los Angeles Philharmonic	33:15	2:02	<i>Don Quixote</i>	74:14	A	London 430 143 mid-price	Yes
Eugene Ormandy Philadelphia Orchestra (1963)	32:51	1:37	None	32:51	A	CBS Great Performances MYK 37254 mid-price	No
Eugene Ormandy Philadelphia Orchestra (1979)	33:14	1:40	Barber: <i>Adagio for Strings</i> Sibelius: <i>Lemminkäinen</i> excerpts	54:58	A	EMI/Angel 47636	No
Seiji Ozawa Boston Symphony	33:43	1:40	None	33:43	D	Philips 400 072	No
Georges Prêtre Philharmonia Orch.	36:52	1:35	None	36:52	D	RCA Victorla 7733 budget	Yes
Andre Previn Vienna Philharmonic	34:51	1:52	<i>Death and Transfiguration</i>	61:35	D	Telarc 80167	No
Fritz Reiner Chicago Symphony (1954)	31:55	1:28	<i>Le Bourgeois Gentilhomme</i> Suite Waltzes from <i>Der Rosenkavalier</i>	70:57	A	RCA RCD 5721	No
Fritz Reiner Chicago Symphony (1962)	33:55	1:45	<i>Four Last Songs</i> , ans. (L. Price/ Leinsdorf)	67:33	A	RCA Papillon 6722 mid-price	Yes
Gerard Schwarz Seattle Symphony	35:58	2:01	Four Interludes from <i>Intermezzo</i> "Dance of Seven Veils" from <i>Salome</i>	70:58	D	Oelios D/CD 3052	Yes
Giuseppe Sinopoli New York Philharmonic	37:00	1:57	<i>Death and Transfiguration</i>	65:34	D	Deutsche Grammophon 423 576	Yes
Georg Solti Chicago Symphony	30:33	1:47	<i>Don Juan</i> , <i>Till Eulenspiegel</i>	63:22	A	London 414 043	Yes
William Steinberg Boston Symphony	29:58	1:56	<i>Don Juan</i> , <i>Till Eulenspiegel</i> (Berlin Philharmonic/Bohm)	62:56	A	Deutsche Grammophon Musikfest 427 218 budget	Yes
Klaus Tennstedt London Philharmonic	35:01	1:40	<i>Don Juan</i>	53:59	D	EMI/Angel 49951	No



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the organ pedal switch from C to F at the end of the third trumpet fanfare, an ominous sound inaudible in all other recordings. Haitink's filler is *Don Juan*, making this a very attractive buy in Philips's mid-price Silver Line series.

Fritz Reiner's historic 1954 Chicago Symphony recording sounds as good on CD as it did on the original stereo tape/LP (often not the case with CD transfers). It's a fast performance (31:55), superior in every way to Reiner's second recording, from 1962, which has also been issued on CD. Couplings on both are generous—*Le bourgeois gentilhomme* suite and waltzes from *Der Rosenkavalier*, 1954; Leontyne Price's *Four Last Songs*, conducted by Leinsdorf, 1962—although the soprano's performance is prosaic at best. Of the two Reiner *Zarathustras*, 1954 is the one to have.

Although Rudolph Kempe was a master interpreter of Strauss, his analog *Zarathustra* on EMI/Angel is surprisingly laid-back, sonically recessed, and dull. Couplings (*Death and Transfiguration*, *Till Eulenspiegel*) fare better interpretively as well as sonically.

Sir Georg Solti and the Chicago Symphony recorded *Zarathustra* in 1975, an orchestral performance of great brilliance and virtuosity, a dynamic, propulsive reading. With generous couplings (*Don Juan*, *Till Eulenspiegel*), and finely balanced analog sound, this must be counted among the top versions currently available.

Neeme Järvi's Scottish National Orchestra recording is one of the finest performances in his Strauss series on Chandos, and has the distinction of the longest "Sunrise" of all (2:18), though a good part of this is an extension of the organ chord in measure 21. The orchestra is in peak form, without quite matching the splendors of really world-class orchestras in this music. Chandos's sound is highly reverberant, in its own way very impressive, and couplings are fairly generous (*Don Juan*, two songs).

Georges Prêtre conducts the Philharmonia Orchestra on a budget-priced Victrola CD. This is, in many ways, a direct but sensitive performance; as mentioned earlier, it is the only recording in which the opening trumpet fanfares are played exactly as written, and to telling effect. RCA's analytical recording lets us hear creaking chairs and extraneous sounds in many quieter passages. There's no filler, unfortunately, but the price is low.

Antal Dorati's London recording with the

Detroit Symphony has fine sonics, but a big Strauss sound is not to be heard here; the filler, *Macbeth*, particularly in this uninspired performance, is of little attraction.

Lorin Maazel's *Zarathustra*, recorded in Vienna's Sofiensaal in February 1983, has no special interpretive virtues, and the rather pallid engineering does not do justice to the VPO; the bell in "The Night Wanderer's Song" is virtually inaudible. The coupled *Macbeth* presents a stronger case for this score than does Dorati on his London recording, but even at midprice, these Maazel recordings have limited interest.

Zubin Mehta's CBS recording with the NYPO is as fast as Reiner's 1954 version, but lacks comparable tension and drama; sonically it is decidedly unimpressive. Originally issued uncoupled on a full-priced CD (CBS MK 35888), it has been reissued in CBS's mid-price "Digital Masters" series with soprano Eva Martón's poorly sung performance of the *Four Last Songs* (with Andrew Davis and the Toronto Symphony). Mehta's earlier *Zarathustra*, with the Los Angeles Philharmonic, has been issued on a London budget "Weekend Classics" CD, generously coupled with *Don Quixote*. Unfortunately the sound does not represent London's best from Royce Hall in Los Angeles, being both dull and lacking in impact. Even at budget price, this is not competitive.

Seiji Ozawa's digital BSO recording on Philips boasts fine sonics. Without question, this also is one of the conductor's more dynamic readings, well removed from the general blandness of his recordings. But three elements make this CD a poor buy: no coupling, no banding, premium price.

Gerard Schwarz conducts the Seattle Symphony on Delos, an expansive performance expertly played, though lacking the ease and orchestral virtuosity heard from the best of the competition. This is the one other CD on which you can hear the organ change notes in the third trumpet fanfare, though not as clearly as in Haitink's Philips version. Fillers are the "Dance of the Seven Veils" from *Salome* and the four seldom-heard orchestral Interludes from the opera *Intermezzo*, producing a CD of near-maximum playing time. Delos's sound is an example of digital technology at its most impressive.

Eugene Ormandy recorded *Zarathustra* three times with the Philadelphia Orchestra. His finest performance was the first, from 1963,



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now on a mid-priced "Great Performances" CBS CD. Strings are glassy, but the performance is remarkable, with a direct approach that avoids being perfunctory. Perversely, CBS has provided only two bands, the second where the original LP divided the work! (I can't help but wonder if anyone is watching the shop at some of the large recording companies.) Yet this mid-price CD is still very much worth owning, and preferable to Ormandy's 1979 EMI/Angel recording which, though brilliantly played, is interpretively more superficial, is not banded or indexed, and has rather incongruous fillers (Barber/Sibelius). Ormandy's RCA *Zarathustra* has yet to be reissued.

André Previn's VPO recording on Telarc is disappointing. Although Previn made many fine recordings in the past, particularly in the '60s, this one is prosaic. Nor has Telarc recorded him successfully in the Grosser Musikvereinssaal; the great Vienna Philharmonic does not sound as richly textured as it did on Karajan's London recording more than three decades ago. The clarity, dynamic range, and sheer impact that distinguished many of Telarc's older, Stateside recordings are not, unfortunately, evident here, either in *Zarathustra* or in its companion-piece, a turgid reading of *Death and Transfiguration*. Telarc's choice of indexing the different sections of the score instead of banding them is puzzling; surely they know that many CD players lack cueing access for indices.

Giuseppe Sinopoli's DG recording with the NYPO is, by a few seconds, the most expansive of all, broadly introspective, with many moments of caressing string playing. Impressive though this is in a reflective way, I wish Sinopoli had moved things along a bit. The same could be said for his reading of the coupled *Death and Transfiguration* which, to my knowledge, is the longest ever recorded (28:00). Happily, DG recorded these performances in Manhattan Center instead of Avery Fisher Hall; engineering is analytically clear, yet warm and spacious.

Denon's *Zarathustra* with Herbert Blomstedt and the Dresden State Orchestra is straightforward in approach, bland compared with the best of the competition, yet admirable in a sedate way. Reproduction is exceptionally clear, more luxuriant than many of the company's recent recordings, but the essential Straussian orchestral opulence is not to be heard either

in *Zarathustra* or in its companion, *Don Juan*.

Dimitri Kitaenko's Olympia recording (from Melodiya) has the generous coupling of Rachmaninoff's Symphony 3, but sounds as if the "Moscow Symphony" was not at full strength (can this actually be the Moscow Philharmonic, of which Kitaenko is Music Director?). Strings are thin, orchestral weight is undernourished, the overall concept of the piece perfunctory. This 1984 digital recording sounds strident, and *Zarathustra* has only two bands.

When William Steinberg and the BSO recorded *Zarathustra* in 1971, Deutsche Grammophon's engineers did not know how to cope with the hall's reverberation; hence, an excess of resonance in which timpani rattle excessively. Although well played, Steinberg's reading is hasty and pedestrian, with little magic. The best that can be said is that it is issued at budget price and has attractive fillers (Böhm's BPO *Don Juan* and *Till Eulenspiegel*).

London has had success recording the Cleveland Orchestra, and their issue of *Zarathustra* with Vladimir Ashkenazy conducting has a bright, clear aural image. The performance overall is less than satisfying: opening tympani passages are wrongly accented, and there's little grandeur to climaxes. Ashkenazy's coupling, *Death and Transfiguration*, plods to an ineffective climax.

Klaus Tennstedt's London Philharmonic version, recorded in Watford Town Hall in 1989, is splendid, surely among the better versions, with an imposing opening, solid climaxes, and impressive sonics. The coupled *Don Juan* is a leisurely but brilliant performance, equally well recorded. Perversely, the producers have inexplicably provided only four bands for *Zarathustra* instead of the usual nine.

London's "Historic" series includes a 1950 performance with the VPO conducted by Clemens Krauss. He was a close friend and associate of Strauss, who introduced several works dedicated to him. This *Zarathustra* has an uncommonly fast "Sunrise," but a distinctive pulse, and the "Tanzlied" is almost a caricature of the Viennese waltz. This is indeed of historic interest, and the sound, while sometimes thin, reveals much detail. A superb *Don Quixote* adds to the attractiveness of this CD.

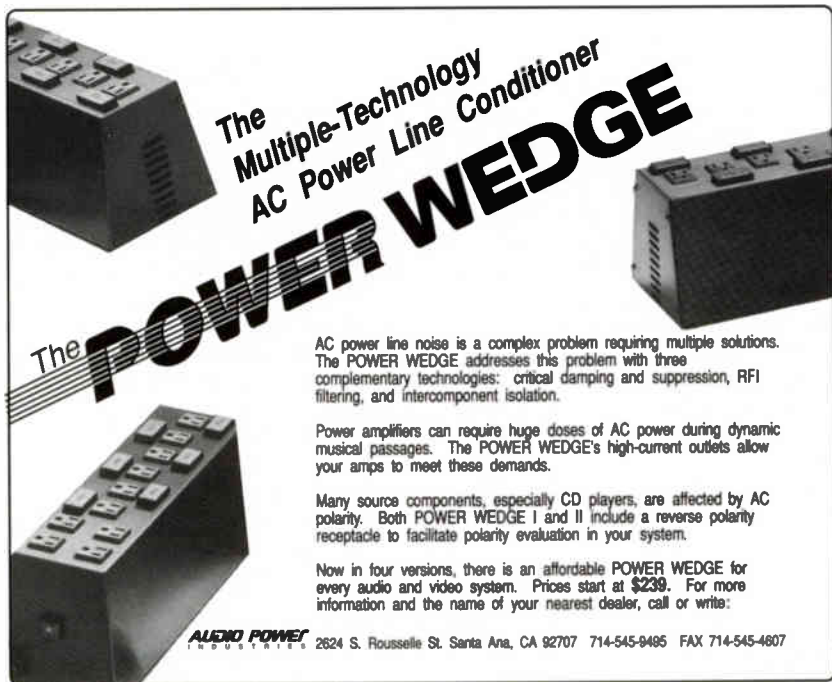
Karl Böhm's 1958 BPO recording is available only on a three-disc DG set of his Strauss orchestral recordings. Once past a surprisingly hurried "Sunrise," the reading is strong and



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very well recorded. When, by the way, MGM issued their soundtrack recording of Stanley Kubrick's 1968 film, *2001: A Space Odyssey*, Böhm's "Sunrise" was included, although the film actually used Karajan's Decca/London version, which could not be used for contractual reasons. Böhm's Strauss set is well worth owning, but if *Zarathustra* is your chief interest, his reading is disqualified by the opening.

As of this writing, the most recent addition to the *Zarathustra* CD catalog is a Philips release with Semyon Bychkov conducting the Philharmonia. Bychkov recorded the same music with the Royal Concertgebouw Orchestra in December 1987, but because of "technical problems" that version was scrapped. He rerecorded it in September 1989 with the Philharmonia, that performance now issued with a Concertgebouw *Don Juan* recorded in 1988. The opening of *Zarathustra* is impressive in its tension, but the organ climax is disappointing, lacking bass. Philips's sonic picture is rather distant, lacking presence and orchestral weight; Bychkov's leisurely approach to the score is quite similar to Sinopoli's on DG.

Some collectors will remember Serge Koussevitzky's 1935 Victor recording of *Zarathus-*

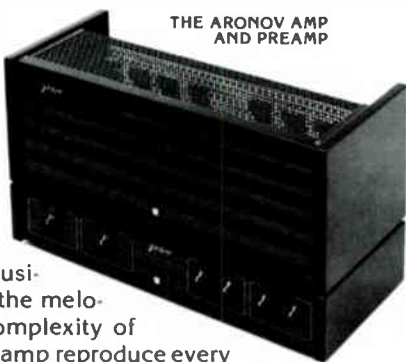
*tra* with the BSO, the first recording ever of the work. His "Sunrise," despite dated sonics, conveys more mystery and suspense than is found in any modern version. This historic recording remains one of the truly great recorded performances of Strauss. Koussevitzky's reading will doubtless eventually find its way to silver disc. Let's hope whoever supervises the transfer does the job right.

The magic of Strauss's music will continue to challenge recording engineers and enthrall listeners. Which recording of *Zarathustra* is "best"? It depends on what you're looking for. In order that the prospective CD purchaser will be able to consider the pluses and minuses of currently available versions, the accompanying chart lists basic information: timings, couplings, analog/digital identification, banding information, etc.

I find it impossible to select just one recording of *Zarathustra*, but at the top of my analog list are Haitink, Karajan on London, and Reiner 1954, followed at a distance by Solti, Ormandy on CBS, and Prêtre. If forced to pick a digital recording, my choice would be either Järvi or Schwarz, though the orchestras involved are not among the world's greatest. **S**

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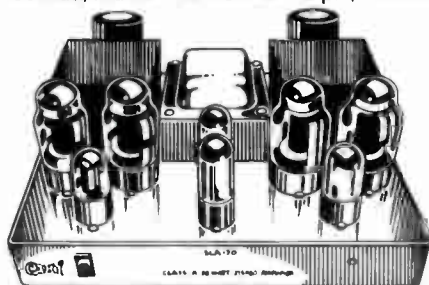
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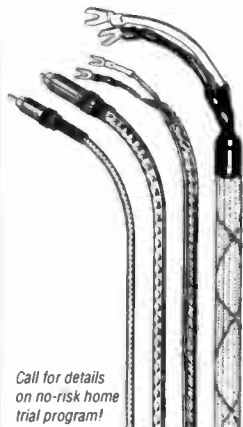
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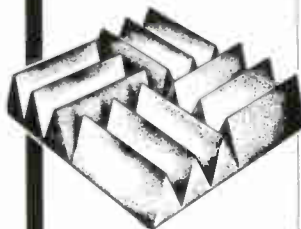
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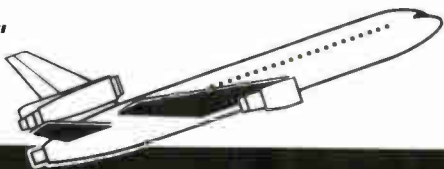


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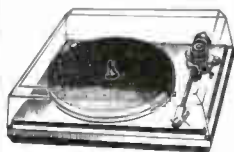
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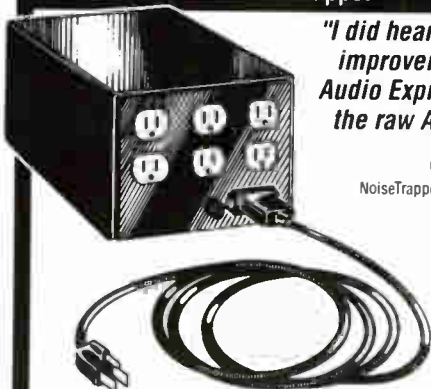
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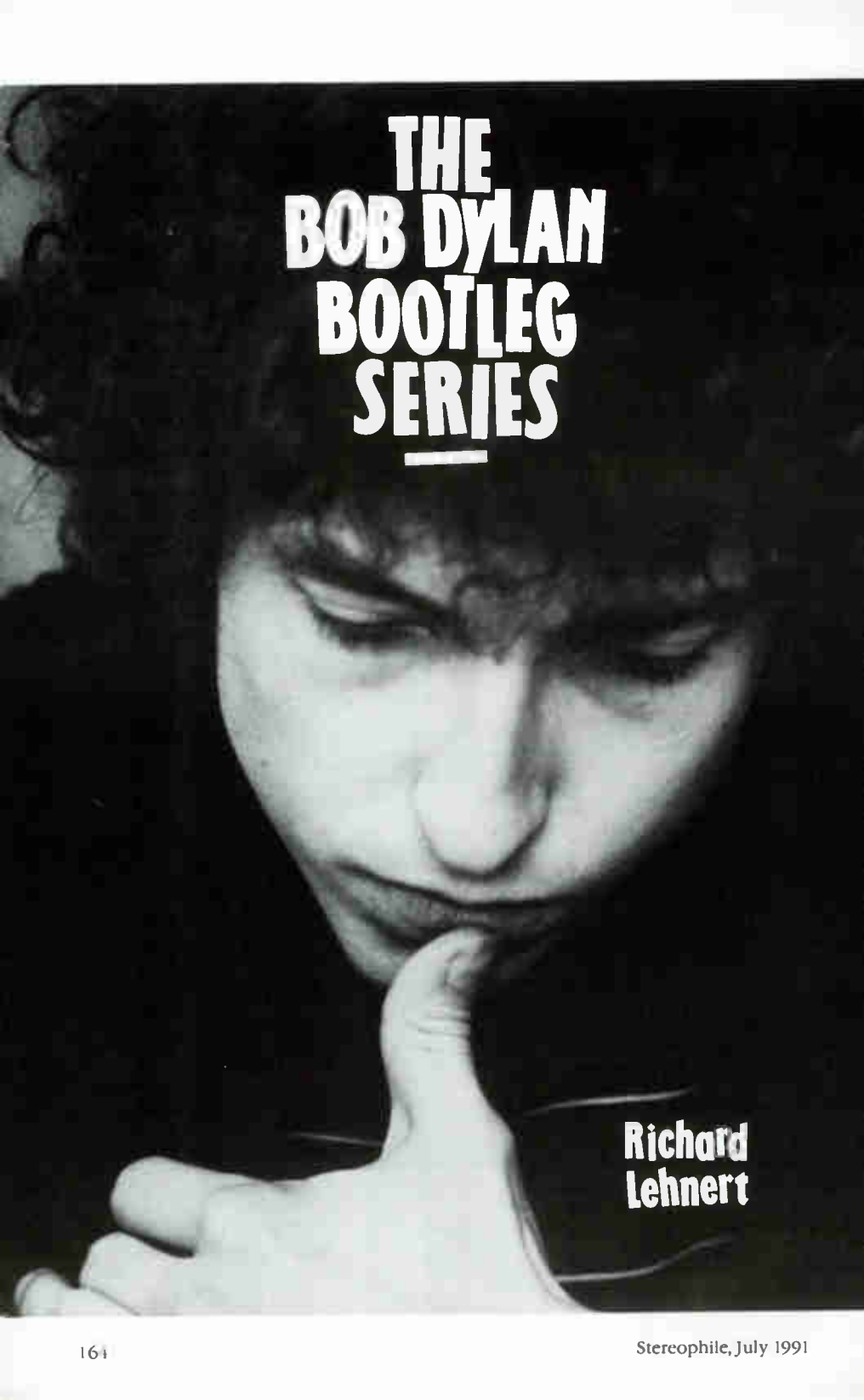


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A high-contrast, black and white close-up photograph of Bob Dylan. He has his characteristic wild, curly hair and is looking downwards with a thoughtful expression. His right hand is raised to his chin, with his index finger pointing upwards. The lighting is dramatic, highlighting the contours of his face and hand against a dark background.

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You keep hoping. You buy his albums, even if you feel more like a sucker after each one. You read the occasional interview and marvel at his hermetic self-involvement, clench your fists at his maddening determination to never give a straight answer—one of the very things you once loved most about him. Every once in a few years you see him on TV, and in his eyes is nothing but pain that's gnawed him hollow, scraped him down to the rind, the songs forced out of this jerky wire puppet with the dead face. You see him on the Grammy Awards in early '91, and he's so crippled by pain you put your fingers against the screen and bow your head and cry. And you hope that the decades of betrayal—betrayal of you, of his time, his generation, but most of all himself—will end, if only long enough for him to spend a few days in the studio getting down ten or a dozen songs real enough, sharp enough, vulnerable enough, visionary enough to take you to that place he took you album after album, saying things you couldn't paraphrase but that you *knew* were absolutely perfect statements of truths no one had ever known before, let alone spoken. When only *his* voice, only *his* unpredictably perfect phrasing, only *his* Everyman harmonica could set off those astonishing words, verse after sinuous, twisting verse of them, bitter words grown from the pain of a life-passion so intense it hid behind veils of surreal irony and sarcasm sharp enough to hack entire new realities out of the old, until this kid, this wise guy,

**BOB DYLAN: *The Bootleg Series, Volumes 1-3 (Rare & Unreleased, 1961-1991)***

Columbia C3K 47382 (3 CDs only). Jeff Rosen, prod.; Mark Wilder, Tim Geelan, Josh Abbey, Jim Ball, engs. AAD. TT: 3:50-52

this fragile boy, this punk androgyne could sing, in his ultimate image of freedom, of yearning "to dance beneath the diamond sky with one hand waving free, silhouetted by the sea"—an image that, from the Beach Boys to Hollywood to Pepsi and cigarette commercials to the vague intentions of an entire generation (yes, that of the '60s) was what we all wanted anyway: infinite freedom, union with nature, with the cosmos, with the entire dance of life. What do we want? Everything. When do we want it? Now. Ridiculously immature demands? Assuredly. But the very speaking of such total demands in the entirely new context of a secular fundamentalism seemed to make so many other things possible, and Bob Dylan, more than anyone else, gave us permission to ask, to demand.

Because it all goes back to Dylan. Any time you hear a song that sounds as if written by a thoughtful person with a visionary streak, you can thank Bob Dylan. He *invented* the singer/songwriter; every singer/songwriter since can tell you the day and hour he first heard Bob Dylan sing.


So you keep hoping that sometime, in his compulsive survival dance, and with the grace of divine accident, he'll stumble into that place again and let you know. Because after the motorpsycho nightmare of 1966, and despite the record companies' endless hypes of various "New Dylans," he was never replaced. As you enter the fourth decade of the public Bob Dylan, it's clear that no one even came close. To this day, that fact remains so painful that you've hidden it beneath world-weariness, cynicism, bitterness. And when yet another exercise in emptiness like *Under the Red Sky* is released, you write a review so mean-spirited you wince when you see it in print. But the betrayal *burts*: how can he release records so hollow after so many packed so full that they still pour out their inexhaustible riches every time you drop the needle? Dylan goes from folkie to protest singer? Fine. Protest singer to introspective singer-songwriter? Great! Dylan goes electric? Rock 'n' roll! Dylan goes country? Fine by you. Dylan gets born again? No problem—his belief is passionate, he's still out on that line; you can keep even *that* with yours. But. . . *Under the Red Sky? Dylan & the Dead?* Or—a truly terrifying record, product of a vast spiritual void—*Live at Budokan*? No. Too much of nothing there.

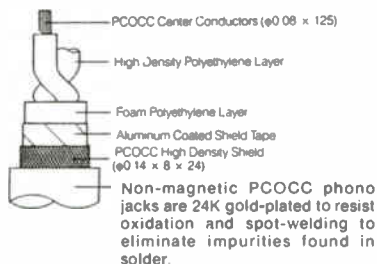
So you keep hoping: Why couldn't he just release all the wonderful material you *know* is in the vaults? You know it's there because you've got the bootlegs to prove it—nearly 20 of them, with very little overlap. And you know that has to be just the beginning. You've even had dreams about all that unreleased stuff, dreams of deluxe six-LP sets, great lost Dylan songs—whole *albums*—whose lyrics you can never quite remember when you wake. And you were far from alone in all this groping after hidden meaning. Is it any surprise that Dylan's first album to go gold was the hardest one of all to find: the *Great White Wonder* bootleg?

You keep hoping, but finally you decide that, really, it *is* too much to hope for. They'll never release those lost songs, those lost moments on studio and stage, those fleeting moments that are some of the few left that can still make you feel proud to be an American. You've still got his great records—and all the other ones. They still inspire, but increasingly they sound like just one more part of history rather than the end of it, rather than the great summing up,



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the conflation of time and space, the readying of every soul who ever lived for that last, greatest show of all in the back alley called Desolation Row—the song the world ends to.

Inside the museums, the jury has finally returned its verdict, infinity has been found guilty, and you begin to suspect yourself of reducing what was the most dangerously exciting, inspired time of your life to mere nostalgia. Sometimes it's just too painful to listen to the music anymore; besides, no one else seems to care. "Oh, yeah, I was all idealistic and everything back in the '60s. I liked Dylan's early stuff. . . hey, is he still a Jesus freak?" But you *knew* these people back then. You remember how *important* Dylan was to them. You remember 20 people sitting in total silence on someone's grimy, candle-wax-encrusted rug, listening for the first time to *John Wesley Harding*, that great outpouring of timeless biblical grief and sorrow. It mattered. It was worth it. And no one's word has been worth as much since.

Then you read the letter from Columbia Records outlining the contents of *Bob Dylan: The Bootleg Series, Vols. 1-3*. You simply do not believe it. You read it again; this time your heart thumps so hard the pen in your breast-pocket bounces. My God. They're doing it. They're actually doing it. At last—for his 50th birthday, CBS is releasing 58 prime, vintage Bob Dylan songs from his entire career, 1961-91, *all previously unreleased*. Some long-buried, long-ossified emotional muscle relaxes for the first time in almost 20 years—for the first time since you'd first heard *Blood on the Tracks* and wept with the release of a tension you never knew you'd had.

You have to give up hope to realize your dreams. I did, and the dream has come true. Listening to *The Bootleg Series* is like playing five or six brand-new Bob Dylan albums—three of them from the '60s—that, somehow, impossibly, unthinkably, you overlooked when they were first released. The songs included here are "outtakes" in name only; in many cases, their outtake status is wholly inexplicable: had *Infidels*, for example, included four of the five songs ultimately dropped from its lineup, it could easily have been one of Dylan's best ten albums. Given the fact that you can only make a breakthrough like the *Bringing It All Back Home/Highway 61 Revisited/Blonde On Blonde* triple-KO once in a century, this is, simply, Bob Dylan's most important album.

After listening to all three well-packed CDs the first time through, and after giving myself plenty of time to wake from the blissful dream I was *sure* I was in the middle of, I began to spread the word. People soon fell into two dis-

tingent camps: those who'd heard *The Bootleg Series* and those who hadn't. No one who hadn't seemed very excited at news of its release. Those who *had* were virtually in shock.

I took my car in for a tuneup and a brake job. Jim, who runs the garage, had just bought the *Bootleg Series*. By this time I'd already learned to cool my Dylanophilia. "Well? What'd you think?" Jim shook his head, staring at the garage's oily floor. Finally, he looked me in the eye. "It's incredible, man. Unbelievable. Like being back in the '60s again."

I now had a problem less spiritual than professional: how to write about this amazing set without the cynical reader assuming I've been slipped a bulging envelope by some guy in a suit from Sony Music Entertainment Inc., aka CBS, aka Columbia Records?

I read Anthony DeCurtis's account in *Rolling Stone*. Well-written, informed, patrician, remote, restrained. My, how times have changed. But I couldn't do it myself; no, my complete lack of critical distance must somehow become a virtue. And, for the record, at least one of Dylan's feet is made of clay, even in my eyes: I have problems with his serious blind spots about women; the fact that I almost never believe his singing, emotionally; and his defensiveness, so strong that half the time I scream at the turntable, "C'mon! Level with me!!" After all, Dylan has released only three records of honest vocal emotion: *Another Side of Bob Dylan*, most of *Blood on the Tracks*, and, believe it or not, *Nashville Skyline*.

And now, at least a third of *The Bootleg Series*. As important and unique as I ever might have thought Dylan to be, even at his height in my esteem, this set tells me I've greatly underestimated him. *Biograph* was only the beginning.

Nor are these slightly differing alternate takes of Dylan's Best, of interest only to bootleggers and die-hard collectors of pop trivia who really should get a life one of these days. Dylan performances of 44 of the 58 songs laid out here in chronological order have never been officially released, let alone been easily available. The remaining alternate takes *all* sufficiently differ from their already-released versions to make fascinating listening for even the casual Dylan fan. Subsequent volumes of the *Bootleg Series* will include live material, including the legendary Royal Albert Hall Concert with the Band. And a quick look through the 1985 edition of Dylan's *Lyrics 1962-1985* reveals *scores* of songs for which recordings have never been released, including "Love is Just a Four-Letter Word," "I'd Hate To Be You On That Dreadful Day," and "Hero Blues." And who knows what else?—plenty of the *Bootleg* tunes

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were not printed in *Lyrics*.

But could all these “new” and/or “lost” songs be worth listening to? After all, everyone has their off days.

Well, Dylan seems to have saved most of *his* for the '70s and '80s—throughout the '60s, he was inevitably *on*. *The Bootleg Series* bears this out: 36 of the 58 tracks cover a mere six years, 1961–67; Vol.1 covers only 1961–63. It's indicative of Dylan's incredible creativity during this time that, during his three-year publishing contract with Witmark (1962–65), he logged 237 compositions. Nor were these endless revisions of the same three basic folk songs. What *The Bootleg Series* overwhelmingly showcases is Dylan's incredible variety—of vocal styles, song structure, lyric style, melodies, arrangements. The set documents, once and for all, many crucial things about Dylan's art: his astonishing creativity as a composer—something about which he's received much bad press—and not merely as an inspired poet setting his verse to recycled journeyman tunes; that the man is a world-class singer, so singular in talent and style—more a vocal actor—that the usual criteria simply don't apply; that all the hype, the mythology, the legends, were, incredibly, justified; and that, at least as late as 1983 and “Blind Willie McTell,” the man's feet—of clay or flesh—still filled those seven-league boots.

In short, for anyone who ever took Dylan seriously as poet, songwriter, avatar, hero, inspiration, singer, visionary, folkie, rocker, Jew, Christian, or the ultimate pre-punk progenitor of hipster cool, this set is absolutely essential listening. You simply must hear it.

The large numbers of outtakes from Dylan's first two albums—two from *Bob Dylan*, no less than *eight* from *Freewheelin'*—bear witness to his richly varied repertoire of the time. From the weary, understated elegy of “He Was A Friend of Mine” to the chilling, masterful performance and rewrite—and great guitar picking, from a time when Dylan still cared about such things—of the Child Ballad “House Carpenter,” Dylan, who was only 20 or 21 when these recordings were made, displays a sensitivity, confidence, and maturity too convincing to have been faked. Where could he have learned to sing like this? His performance of “House Carpenter” is the best I've heard of this favorite folkie chestnut.

“Let Me Die In My Footsteps,” a strong protest song about the Civil Defense bomb-shelter craze of the late '50s and early '60s, was included on early promotional pressings of *Freewheelin'* but was dropped, among others included here, to make room for “Hard Rain” and “Bob Dylan's Dream.” Also recorded for

*Freewheelin'* but unreleased until now are two talking blues, “Bear Mountain Picnic Massacre” and “Hava Negeillah.” Dylan's comic timing is well-nigh perfect on the former, heavy-handed on the latter; they were replaced by the more politically pointed “Talkin' World War III” on *Freewheelin'*. “Kingsport Town” is a gentle gem based on “Who's Gonna Shoe Your Pretty Little Feet?” (but who's playing that second guitar. . .?).

Also from this time is a tape of “No More Auction Block,” an old spiritual recorded live at Greenwich Village's Gaslight. Odetta's influence on Dylan's guitar *and* vocal styles is obvious here; Dylan has admitted that “Blowin' in the Wind” was based on this sad, weary song sung by a slave who's won his freedom.

Outtakes from *The Times They Are A'Changin'* reveal someone's decision to make that album consist entirely of Dylan originals. “Moonshiner” and “Seven Curses” are more or less traditional tunes tightened and pointed by Dylan in ways that remain wholly his own: no other member of the folk movement ever seemed able to so totally surround, ingest, and rebirth a song as Dylan almost always did (and still does: listen to his acoustic “Pretty Boy Floyd” on *A Vision Shared*). The piano version of “Paths of Victory” sounds even more Woody Guthrie-esque than the guitar version on *Biograph*, while “Only a Hobo” has added meaning in this era of increasing homelessness. “Eternal Circle” is a clever, little-known Dylan composition about a singer's eye being caught by a pretty girl in the front row whose interest is more in the song than the singer. And there are alternate, slower takes of “When the Ship Comes In” and “The Times They Are A'Changin'”—on piano.

Interspersed among these are selections from *Bob Dylan Live at Carnegie Hall*, an album recorded but scrapped. The concert has been widely bootlegged, and excerpts found their way onto *Greatest Hits Vol. II* and *Biograph*. This third installment includes “Talkin' John Birch Paranoid Blues,” a funny, pointed satire of the Red Scare; “Who Killed Davey Moore?,” a classic Dylan indictment of professional boxing, whose shout-along chorus of “WHO KILLED DAY-VEY MOORE? WHY and WHAT'S the REA-son FOR?” simply *demand*s audience participation; and what is probably the centerpiece of the entire collection, “Last Thoughts on Woody Guthrie.”

“Last Thoughts” is a long poem by Dylan, and the only known instance of his reading his own poetry—or prose—in public. It's a rant read without anger, an expansive outpouring in the generous traditions of Ginsberg and Whitman, rushed through as though Dylan

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simply couldn't get it out fast enough. A mix of doggerel and pure inspiration, forced rhymes and startling associations, this self-portrait mentions Woody Guthrie only in the last few lines, when the "you" of the poem (Dylan himself) is faced with seeking God in the church of his choice or Woody Guthrie in Brooklyn State Hospital, and ends up finding both at sundown in the Grand Canyon. "Last Thoughts," more than any other track on this entire set, reveals why *The Bootleg Series* eventually had to be released: Dylan's incredible, irrepressible creativity that could not be contained by the release schedules of the past. In this poem, he explains just why he had to do all that followed, and where it all came from. Back in April 1963, Bobby Dylan still sounded like a midwestern boy/man with roots deep in the center of America's heart, back when the country had such a thing; in "Last Thoughts," he stood poised to shoot up and out in all directions at once, secure in the knowledge that he knew where he'd been and where he'd come from, spiritually, geographically, musically. And that's just what he did, as Discs Two and Three make more than clear.

Disc Two includes the most-bootlegged tracks, gleanings from the great electric albums of the mid-'60s: *Bringing It All Back Home*, *Highway 61 Revisited*, and *Blonde on Blonde*. "Mama, You Been On My Mind," a prime Dylan backhanded love song, was often covered in the '60s; Joan Baez named an album after "Farewell, Angelina," one of Dylan's early surrealistic songs, and one whose timeless, apocalyptic verses should have been included on the acoustic side 2 of *Bringing*. . . : the song sounds as if chanted by the sole mourner left behind after the world has emptied of souls. It was here that those remarkable phrases began to appear: "What cannot be imitated, perfect must die." "Call me any name you like, I'll never deny it."

There's an acoustic "Subterranean Homesick Blues," not nearly as electrifying as the full-band version that made it to the album; a single verse of a waltz-time "Like a Rolling Stone"—believe me, Dylan made the right choice for the final take—and a tough, choppy, up-tempo blues-shuffle version of "It Takes a Lot to Laugh, It Takes a Train to Cry" that many prefer to the slower version released on *Highway 61*, though I think the latter's more majestic by far. "If You Gotta Go, Go Now," made marginally famous by the Flying Burrito Brothers, is a distinct change of pace for the Dylan of this era: relaxed, knowing, almost goofy good humor. "Sitting On a Barbed Wire Fence" is a pounding, big-beat blues rant with music and lyrics that eventually wound up in "From a Buick 6" and "Just Like Tom Thumb's Blues." It still

astounds me how, once he decided to trade his acoustic for a Fender, Dylan went *immediately* to the heart of rock, bypassing all niceties. Great Mike Bloomfield guitar on most of these tracks.

There are only two outtakes from *Blonde on Blonde* itself: "I'll Keep It With Mine" is not the solo-piano version from *Biograph*, but a full-band arrangement with The Band. After a noodling, barely-together beginning, the song develops into one of the great slow, mellow, melancholy '60s Dylan backing grooves—the blues drenched in late-afternoon California sun—with Garth Hudson's organ singing out. From a scratch rehearsal, it grows into a classic performance of an achingly sad song. Rock doesn't get any more spontaneous than this, and when it *is* more profound, it's still Dylan.

But "She's Your Lover Now" is *the* great *Blonde* outtake, nearly perfect until Dylan flubs the lyrics and stops dead early in the final verse. The Band backs again for this song about a man talking to his ex-lover's new boyfriend; it's at least as good as anything that made it onto the final album lineup. The song has a social realism Dylan never quite matched elsewhere: "You, you just sit around and ask for ashtrays, can't you reach?" "Now you stand there expecting *me* to remember something *you* forgot to say." Reading the words in *Lyrics* gives you absolutely no idea what this song is about emotionally until you hear its long, looping structure and Dylan's astonishing singing. Why he didn't do another take and insert "She's Your Lover Now" at the beginning of *Blonde's* side four, just before "Sad-Eyed Lady of the Lowlands," is beyond me.

There follows a grab-bag of tunes from the dark days of 1967–74, including—finally—the definitive Dylan performance, long familiar to owners of *Great White Wonder*, of "I Shall Be Released" from the Basement Tape sessions with The Band (1967). Richard Manuel's ghostly falsetto harmony vocals send chills up my spine; notwithstanding his later Jesus-rock period, this remains Dylan's most spiritual song. Also from Big Pink's basement is "Santa Fe," the most lightweight tune on all three CDs, with indecipherable lyrics. There's a slow, rough first recording of "If Not For You," with George Harrison; and the country waltz of "Wallflower" from the New York sessions with Leon Russell that also resulted in "Watching the River Flow" and "When I Paint My Masterpiece." Dylan aimlessly recorded "Wallflower" on Doug Sahm's 1972 *Doug Sahm & Band* album, but this more Nashville-ized arrangement from the year before is far superior, Dylan throaty and intimate. "Nobody 'Cept You," again with The Band (1973), is a good song, not

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a great one, dropped at the last minute from *Planet Waves* when Dylan showed up one day at the studio with "Wedding Song"; another Dylan love song to a woman he hopes wants nothing from him. The Band sounds game but tentative.

Then there are the *Blood on the Tracks* outtakes, all from the original New York sessions taped before Dylan, dissatisfied, re-cut half the album in Minneapolis. No, nothing here quite as stupendous as "Up to Me," which surfaced on *Biograph*, but there's plenty of fascination nonetheless. "Tangled Up in Blue" and "If You See Her, Say Hello" are somewhat slower, more vulnerable versions than those that finally wound up on the LP, with key lyric changes and deliberately confusing pronounery. But "Idiot Wind" sounds like a different song by a different man. I've always hated this one; it summed up for me all that I like least in Dylan: his snarling, sneering, defensive, vengeful side, his misogyny, his eagerness to lash out blindly rather than consider his own contribution to whatever emotional mess he happens to be working out in song. The NY "Wind" presents a very different mood: quiet, reflective, compassionate, less savage than sorrowful, more weary than wild; the many changes in lyrics reflect this. The new *Tracks* track is "Call Letter Blues," musically identical to "Meet Me in the Morning" but lyrically so far superior it makes you wonder why "Meet Me" was ever released. This song is about the bleak, blank suffering of a family breakup—I can *smell* this cheap walk-up apartment two floors over a bar in the decaying center of some small midwestern town, the walls painted in Landlord Dysentery Green and barely warmed by leaky gas space-heaters—it's *not* romantic.

*Desire* outtakes include "Golden Loom," a lazy country two-step of impenetrable mystical symbols with Emmylou Harris on backing vocals—the sort of alchemical mishmash Dylan was tossing off in his sleep in the mid-'70s. "Catfish" is Dylan's deadpan-droll lazy blues homage to Yankees pitcher Catfish Hunter. It's a slow, too-hot-to-move, southern summer bottom-feeder glide, and a lot of fun. The high-energy "Seven Days," live from the 1976 Rolling Thunder tour, bridges the gap between *Desire* and *Street Legal*, sounding like "Señor" with a *Desire* arrangement. I *think* it's about freedom-fighters in South America or the Spanish Civil War—you tell me.

We're now well into Disc Three, with the biggest surprises still to come: outtakes from *Slow Train Coming*, *Shot of Love*, and most of all, *Infidels*. We start out slowly with "Ye Shall Be Changed," which is at least as strong as anything on *Slow Train*, an album more remark-

able for Mark Knopfler's guitar and production values than for Bob Dylan's songwriting. Then things step up a notch with the original publishing demo of *Shot of Love*'s "Every Grain of Sand," complete with Jennifer Warnes's harmony vocals and someone's dog barking in the background. This was the best song on that grossly underrated album, and one of Dylan's best of the last decade; this entirely unpretentious acoustic take sounds as if it was made because someone's soul *needed* it to be made; it's humbly haunting. "You Changed My Life" is a love song to God—you've heard it before, except maybe for embarrassingly top-heavy conceits like "You came in like the wind, like Errol Flynn."

"Need A Woman" is gritty, nasty rock-blues, a companion-piece to another great *Shot* outtake, "The Groom's Still Waiting at the Altar" (*Biograph*), and far better than Ry Cooder's streamlined, *macho buffo* rewrite on his own *The Slide Area*. Though most erstwhile Dylan fans, offended by His Born-Againness, don't know it to this day, Dylan was making great, kick-ass rock 'n' roll on *Saved* and *Shot of Love*. Best of all edits from the latter album, however, is "Angelina," a long, strong song that sounds as if written to the same Angelina Dylan bade Farewell to 20 years before. Singing to her in the same surreal lingo of dwarfs, pirates, parrots, and 52 gypsies, she's a woman he's tried hard to love, but, since this is Bob Dylan, she's also his mortal enemy, his honorable opponent, his sacred partner in the ritual warfare of the heart. No one ever called Bob Dylan a feminist. "In the valley of the giants / where the stars and stripes explode / the peaches they were sweet / and the milk and honey flowed. / I was only following instructions / when the judge sent me down the road / with your subpoena." These are the raw materials of the American subconscious, scrambled archetypes, the automatic writing of American originals that you find only in the music of The Band and Bob Dylan. As Dylan himself said a quarter of a century ago, he prefers to recount his dreams "with no attempts to shovel the glimpse into the ditch of what each one means." You could also say that he's still mining the same rich ore even if he's banked his refining fires.

It gets better, as five outtakes from the *Infidels* sessions file by, each better than the one before. *Infidels* was a strangely diffident album, Dylan pulling his punches, sounding careful and polite after three straight LPs of aggressively pushing Jesus. Had *these* five songs replaced some of what ended up on that 1983 album, there's no question *Infidels* would still be kicking *Ob Mercy* out of the Dylan's-Best-



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Album-Since-Blood-on-the-Tracks slot. "Someone's Got A Hold Of My Heart" is a far superior early version of "Tight Connection To My Heart," which ended up on *Empire Burlesque*. It lacks the pumped-up, trumped-up feel of the latter album—a good thing ("Never could learn to drink that blood and call it wine, Never could learn to look at your face and call it mine"). "Tell Me" is a lovely song about everything you *don't* know about that new love; it's the other side of Joni Mitchell's "Mr. Mystery." "Lord Protect My Child" is a straightforward gospel song which, with a not too different arrangement, could have appeared on *John Wesley Harding*; and "Foot of Pride" swirls in apocalyptic rage that gains more and more momentum as it uncoils. This fascinating song is unlike anything Dylan's done elsewhere—virtually impenetrable to the intellect, startling to the soul: Beautiful people with "mystery" written on their foreheads who "kill babies in their cradles and say 'Only the good die young.'" "In these times of compassion / When conformity's in fashion / Say one more stupid thing to me before the final nail's driven in." Dylan sings like his very soul is on the line, as I believe it was: When the foot of pride come down, ain't no goin' back. Dylan eats this song alive.

But I've saved this paragraph for "Blind Willie McTell," which is *not* about Blind Willie McTell. The old black blues singer appears only in the recurring refrain "Nobody sings the blues like Blind Willie McTell"; he's used as a bleak, minor-key talisman, a touchstone, a dark unifier, a central, never-revealed mystery much like the role played by the Jack of Hearts in Dylan's "Lily, Rosemary, and the Jack of Hearts." The song, musically similar to "St. James Infirmary Blues," is an elegy for a tired, weary, worn-out world that has moved on, leaving only this dry husk of itself behind for the ghosts that now inhabit it. It starts out with: "Seen the arrow on the doorpost [golf course? dark horse?] / Saying this land is condemned / All the way from New Orleans / to Jerusalem // I traveled through East Texas / Where many martyrs fell / And I know no one can sing the blues / like Blind Willie McTell." Then things start to go downhill fast. The tent raised for the final circus in "Desolation Row" is being struck here, and it's a harrowing evocation—all is decay, corruption eats away at the fabric of reality, no one can sing the blues like Blind Willie McTell, and he's dead. The song ends with: "Well, I'm gazing out the window / of the St. James Hotel / And I know no one can sing the blues / like Blind Willie McTell." I like to think this is the same St. James Hotel that still stands, a hundred miles up the road from here in Cimarron, New Mexico, where the dining-

room ceiling is still full of bullet-holes from every gunslinger you ever heard of, from the Earp brothers to Doc Holiday. And if you gaze out the window, you can still see buffalo herds and the endless plains of eastern New Mexico stretching on to the Texas Panhandle. But regardless of the refrain's lionizing of McTell the way some lionize Dylan, in his grief-torn conjuring of this bleak spiritual landscape Dylan sings these blues far, far more than merely well enough. The song itself is brilliant, and the bare-bones accompaniment—Dylan on piano, Mark Knopfler on acoustic guitar—is perfect. I listen to this "Just Like New Desolation Row Approximately Revisited" again and again; it haunts me through the day.

*The Bootleg Series* fades out with two quite recent recordings: the original version of *Empire Burlesque's* "When the Night Comes Falling from the Sky," again superior to the power-pop anthem of the same name on that album. It's in a major key here; *Burlesque's* minor-key transposition sounds merely melodramatic, while this one builds and builds. And finally, from the *Ob Mercy* sessions, "Series of Dreams," in which "nothing comes to the top." And no, it doesn't.

That about does it. Sound? Sorry. Anyone who cares how a Bob Dylan album *sounds* probably wonders how he could've gotten so famous with such an awful voice. Not relevant.<sup>1</sup>

What *is* relevant is the accompanying deluxe 72-page book. John Bauldie's literate, informed liner notes are always intelligent and accessible, and there are plenty of previously unpublished Dylan photos.

But downright miraculous is the fact that you can just go down to the record store and *buy* this thing at rather a reasonable price. I still can't get over it. I keep waiting to wake up and find out it was all a dream, that this set doesn't really exist, that I've got to go back to my vague, scratchy, dub-of-a-dub-of-a-dub-of-a-dub-of-a-dub-of-a-dub bootlegs. That I've got to keep hugging.

I don't. In these dark dream-days of looming environmental apocalypse, a blessing has been bestowed on us via the labyrinthine machinations of multinational greed. Do yourself a very great favor: buy this box before Dylan or Sony change their minds. For anyone in whose life Dylan ever played an important role, even for a moment, *The Bootleg Series* not only contains something for everyone—there's more here than you could possibly imagine. **S**

<sup>1</sup> OK, OK. Considering the varied and marginal sources of this 30-year look back in a direction you didn't know you'd come, it sounds damn good. And yes, of course, there's plenty of hiss on some of the home recordings; most of the studio outtakes sound at least as good as the albums they were dropped from.



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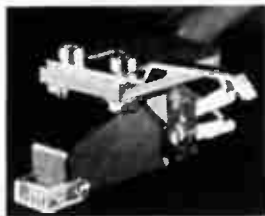


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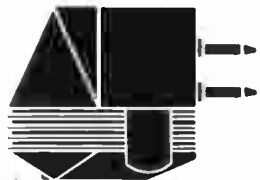
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## Classical

### BEETHOVEN: Piano Sonatas

No.21 Op.53 ("Waldstein"), No.27 Op.98, No.32 Op.111  
Bruno-Leonardo Gelber, piano  
Denon 81757 4653 2 (CD only). Peter Willemoës, eng.:  
Takashi Baha, prod. DDD. TT: 63:53

The fourth volume in this ongoing series of the integral Beethoven sonatas played by Gelber, a powerhouse pianist originally from Argentina but now residing in France, is especially impressive as a demonstration of his technical abilities, including an unusually wide range of dynamics. There is much dramatic excitement to be heard in these three sonatas, but also far more extraversion than introspection, a state that succeeds in presenting only a partial side of Beethoven. There are times when I wish Gelber would just slightly restrain himself: if his opening movement to Op.90, for instance, were only as beautifully realized as his lyrical finale. Might the pianist feel impatience with his materials and, rather than probing, feel he must overstate? Nonetheless, there is some

highly effective playing to be heard here, and the reproduction, except for some overemphasized loud notes (more likely Gelber's doing), is excellent.

—Igor Kipnis

### CHOPIN: Four Ballades, Four Scherzi

Earl Wild, piano  
Chesky CD44 (CD only). Ed Thompson, eng.: Michael  
Rolland Davis, prod. DDD. TT: 69:19

I've enjoyed listening a number of times to Earl Wild's latest new disc, admiring the grandness of his stylistically older approach, one that recalls the days of Hofmann or Rachmaninoff and a time of digital excitement mixed with poetry. Never does one hear an ugly sound or a passage that does not reveal some shape. Perhaps one cannot always describe his playing as especially restrained or particularly inward (the central section of the Fourth Scherzo is a remarkable exception, a superb rendition in every way). The interpretations do have the advantage of great forward momentum and, of

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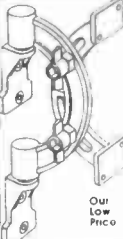
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course, an individuality that can seldom be heard today. Wild's Ballades were breathtaking at his 75th birthday recital last fall at Carnegie Hall, a concert that I found thrilling; they are just as impressive on this disc, and the Scherzi are an ideal programming complement. The piano, quite brilliant in a slightly dry room ambience, emerges with full range if, on occasion, slightly opaque at climaxes. Altogether this is an excellent alternative to the highly favored Rubinstein recording, and can be recommended with enthusiasm.—**Igor Kipnis**

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**DVORÁK: Symphony 3, Scherzo capriccioso, Carnival Overture**

Libor Pesek, Royal Liverpool Philharmonic Orchestra  
Virgin VC7 90797-2 (CD only). Mike Hatch, eng.; John West, prod. DDD. TT: 60:05

**DVORÁK: Symphony 5, Czech Suite**

Libor Pesek, Royal Liverpool Philharmonic Orchestra  
Virgin VC7 90769-2 (CD only). Vaclav Rouhal, eng.; Dr. Milan Slavicky, prod. DDD. TT: 65:22

**DVORÁK: Symphony 5, Scherzo capriccioso, Othello Overture**

Mariss Jansons, Oslo Philharmonic Orchestra  
EMI 7 49995 2 (CD only). Vaclav Clements, eng.; John Fraser, prod. DDD. TT: 64:24

Dvorák's Symphony 3 is not the most interesting of works (it was his first to be heard publicly), and bears few of those characteristics of sound and theme that have made so many of Dvorák's later pieces the favorites that they are. Nevertheless, it is a work which shows great promise—judged by Brahms, Hanslick, and the conductor Herbeck, it won Dvorák the Austrian State grant which gave him the financial backing he needed while developing his compositional skills.

Pesek handles the work with the care and subtlety it needs to show it in the best light, and a natural rhythmic lift lends much-needed momentum, even in the rather pallid, 16-minute-long *Adagio*. The *Carnival Overture* is vigorous and bright, ending the disc with some elation after the disappointment of Pesek's tired *Scherzo capriccioso*. The latter work, in Jansons's hands, and recorded for EMI in bold colors, is a much more exciting affair.

Symphony 5 is often referred to as Dvorák's "Pastoral," and understandably so. The bucolic utterance of clarinets and flute set the scene within minutes, just as Jansons's neat but gentle encouragement immediately sets the tone for their hugely differing performances. Jansons's seems to me altogether too dominant and demanding; yearning lyricism becomes a recipe for languid blandness; the opening of the Finale is over-dramatic and inflated for the almost Schubertian delicacy of texture that this work has at its heart. The fiery passions of the *Othello Overture* are much more suited to gestures of the weight and magnitude that Jan-

sons displays.

Pesek seems to create a Dvorákian sound world so easily with the Czech Phil. in harness: one can almost see the rustic dance in the swirling momentum that drives more than just the scherzo, and enjoy the woodland birds of his woodwind choruses. If thin string sound and a generally lackluster recording leave much to be desired, this Virgin issue must still take preference over EMI's, for all the latter's wholesomeness and clarity. Furthermore, Pesek couples a delightful performance of the neglected *Czech Suite*, a work as charming as the *Serenades* and strongly spiced with nationalistic flavors.

—**Barbara Jahn**

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**ELGAR: Piano Quintet**

**BRIDGE: Piano Quintet**

Allan Schiller, piano; Coull String Quartet  
ASV CD DCA 678 (CD only). Martin Haskell, eng.; Roy Emerson, prod. DDD. TT: 70:05

Frank Bridge—Britten's mentor and teacher—shaped much of his best work in chamber-music form; this, I'm sure, had something to do with the fact that he was, for a time, violinist or violist in the Joachim, Grimson, and English String Quartets. He composed his Piano Quintet as a young man, in 1905, and it became one of a series of pre-war chamber music pieces that won him considerable reputation. He did revise it, however, in 1912, by which time he was already showing a mature, characteristic sense of just proportion; by integrating the original scherzo into the slow movement, he redressed the structural balance of this fine piece.

By contrast, Elgar came late to chamber music: his Piano Quintet, premiered in 1919 when he was 62, was one of the last major pieces he wrote. It opens in a mood of haunted introspection that is only banished by the confident if plangent humor of the Finale. Yet Elgar's disquieting mood returns to stalk the closing bars, molding the work into a satisfying structure of characteristically changeable emotions.

Both works are treated to warm, sensitive performances, the pianist, Alan Schiller, allowing Elgar's Quintet to blossom in quite subtle balance thanks to his adoption of a less predominant approach than usual. Engineer Martin Haskell has made the most of this, the acoustic of the Adrian Boult Hall in Birmingham proving a fine venue for chamber-music recording.

—**Barbara Jahn**

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**HALÉVY: La Juive**

José Carreras, Eléazar; Julia Varady, Rachel; Dalmacio Gonzalez, Léopold; June Anderson, Eudoxie; Ferruccio Furlanetto, Cardinal de Brogni; others; Ambrosian Opera Chorus, Philharmonia Orchestra, Antonio de

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Almeida  
Philips 420 190-2 (3 CDs only). Erik Smith, prod.; Roger de Schot, Erdo Groot, engs. DDD. TT: 3:02:36

Jacques Fromental Halévy (né Lévy) was born in Paris in 1799 and died in Nice in 1862. With the exception of *La Juive*, which is only occasionally revived (I believe the last time it was staged in the US was for the tenor Richard Tucker in 1973), his output of more than 40 operas has been practically forgotten. He was the quintessential French grand opera composer: his works are enormous, stageworthy, and contain handsome roles for singers. They are also, judging from *Juive*, somewhat unwieldy; it's not altogether surprising that we don't hear them often. Almost 20 years ago a recording of highlights appeared on RCA, also with de Almeida, but it was ineffective. This new recording, while cut by about a half hour (the complete score is nearly impossible to lift, let alone play), gives us a splendid idea of the opera's appeal.

There are many potent, impressive movements. The Passover Scene, the second-act duet for Rachel and Léopold, the spectacular finale to Act III, the duet for sopranos, and the tenor's scene and aria from Act IV (a favorite of tenors from Caruso onward), are all worth hearing. The voice breakdown is odd for its time—The Jew, Elézar, is a tenor; so is the young Christian, Léopold, who loves his daughter; and both Rachel, the “Jewess” of the title, and Eudoxie, Léopold's wife, are sopranos. The writing and tessituras, however, are so different that there's never a sense of sameness, and this recording is cast to avoid similarities and confusion.

Julia Varady walks away with the highest honors. Her rich voice is expressive and handsome, and Rachel comes to life through her. June Anderson handles Eudoxie's high-flying vocal line with ease and sparkling tone, even if the downside is complete incomprehensibility of the text. The two women bring out the best in each other when they sing together, by the way. Dalmacio Gonzalez's light tenor voice is not afraid of heights; he sings with ardor and involvement, and Ferruccio Furlanetto's villainous Cardinal de Brogni is strong, if slightly woolly-sounding.

The Eléazar of José Carreras is, of course, of great interest. He recorded about 20% of the role (including the big aria) before his bout with leukemia, and dubbed his voice over the remaining part of the already recorded opera two and half years later. Producer Erik Smith has done a grand job of making certain that no seams show—not even in the ensembles—and only the tenor's most obsessive fans will be able to spot differences. The voice is remark-

ably intact from one period to the other, with some strain in high, loud passages, but also some wonderful, burnished tone. His obvious involvement is another plus, and one comes away amazed at his strengths rather than upset by his weaknesses.

But responsibility for the performance's success must lie with Antonio de Almeida, who imbues the score with real urgency and drive, as only one of its champions might. Both orchestra and chorus perform with passion. The sound is spacious and clear, with ideal balance not only between voices and orchestra, but within instrumental groups and mammoth ensembles. After one gets used to the sheer bulk of this work (and learns to skip a chorus or two and the brief ballet music), there's a great deal to enjoy here.

—Robert Levine

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**PUCCINI: *Tosca***

Eva Martón, *Tosca*; José Carreras, Cavaradossi; Juan Pons, Scarpia; Italo Tajo, Sacristan; others; Hungarian State Radio & Television Chorus, Hungarian State Orchestra; Michael Tilson Thomas  
Sony S2K 45847 (2 CDs only). David Motley, Jenő Simon, prods.; Michael Gray, eng. DDD. TT: 2:06:20

This is a rather euphonious reading of this nasty little potboiler, and I find myself liking it. Michael Tilson Thomas has never led the work in an opera house, and his approach sounds as if he never heard another performance of it. His vision is thus pure: He reads the notes, and he asks the orchestra to intone them.

*Viz:* The Sacristan enters to a jolly, jaunty tune, and it makes us feel good—no strings attached. Tilson Thomas sees the little flute melody near the start of Act II and it looks pretty, so he makes sure it sounds pretty. The dawn music at the start of III is suitably atmospheric and picturesque. The opposite of such “purity” or (Blakean) “innocence” is normally experience, or corruption, with which this opera, and particularly Act II, is full; not really enough of it is punched at us. For the most part we get clarity, translucence, and beauty instead of filthy drama. Whether or not the trade-off is worth it will be up to your individual taste. I certainly wouldn't want this to be my only *Tosca*, but the fact that the Callas/de Sabata version, full of hell, damnation, and beauty (of its own type) exists, makes room for it.

José Carreras, whose third recording of the role this is, brings great insight to Cavaradossi's music. This Mario is more painter than revolutionary, he really loves *Tosca*, he's a dreamer, he has integrity. Carreras's voice is pretty much unblemished by his terrible illness, which is to say it has all the minuses and pluses it had before. The tone is burnished and gorgeous at

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the bottom and middle of his range, but a noticeable, unwelcome beat enters at *forte* above the staff. But he pays close attention to the text, and his soft singing is glorious—though some may call it crooning. His sensitivity goes hand-in-hand with Tilson Thomas's approach.

Eva Martón has an amazing voice. Her top notes are Valkyrie-like in Act II, and she brings real tonal warmth to the third act. Problems remain, however: She doesn't lighten sufficiently in the Act I duet, and her characterization, for all the sound and fury, remains generic. When she's upset or angry or happy, it's never personal. I further can't believe that she still pronounces "quella" as if it were "qvella," but she does, and it doesn't make me like her any better.

Juan Pons's Scarpia is everything but vocally correct; his voice is simply the wrong color and weight. His soft-grain does not suit Scarpia's snarling rage, although, to be honest, in the cajoling moments, it hits the right nerve. But too often he stretches unsuccessfully. Tajo's Sacristan is living proof that *Sprechgesang* can be found in Puccini as well as in Berg, and the rest of the cast is good.

The orchestra is excellent, and the acoustic, except for a few moments at the start of Act II, where Scarpia sounds as if he's in a big, empty hall, is altogether natural and clear, with a slight balance edge going to the singers. Is this worth a trip to the store? I'd say so—Tilson Thomas is an ear-opener, and Carreras gives great pleasure. But make sure EMI's Callas/de Sabata recording is safely at home when you get back.

—Robert Levine

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**SCHUBERT: Symphony 9**

Leonard Bernstein, Concertgebouw Orchestra of Amsterdam

DG 427 646-2 (CD only). Peter Schweigmann, eng.; Hans Weber, prod. DDD. TT: 50:20

**SCHUBERT: Symphony 9**

Leonard Slatkin, St. Louis Symphony

RCA 60174-2-RC (CD only). William Hoekstra, eng.; Jay David Saks, David Frost, prods. DDD. TT: 55:42

**SCHUBERT: Symphony 9**

Roger Norrington, London Classical Players

EMI 7 49949 2 (CD only). Mike Clements, eng.; David R. Murray, prod. DDD. TT: 58:20

**SCHUBERT: Symphony 9**

Roy Goodman, Hanover Band

Nimbus NI 5222 (CD only). DDD. TT: 61:16

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Anyone still naïve enough to believe that little divergence can exist between performances of a familiar warhorse will have a quick change of view after hearing these. None is quite like the other, and the contrasts among them are extreme to the point of yielding what often appears to be four different works.

In the main, Bernstein's performance is the pride of this batch. It is distinguished by many

virtues, most notably the wonderfully polished execution of the Concertgebouw Orchestra and the judicious balances Bernstein secures. Especially noteworthy in this regard are the well-defined winds and brass and the aptly lean sonority of the orchestra. Yet for all this welcome definition, the trombones are not permitted (as sometimes happens in this score) to dominate. Helping things is the relatively distant perspective for this in-concert recording, which heightens the illusion of having an excellent front-row balcony seat in a first-class hall.

All of this would be of minor importance, of course, were Bernstein's direction less inspired. But he sees the work whole, conveying its monumental power, motivic unity, and long line with an urgency that never spills over into a hasty scramble. At a few points some may be disturbed by little Bernsteinisms—a *Luftpause* or unspecified *ritardando* being prime examples—but they are infrequent and managed with generally good taste. The second movement, to be sure, lacks the militant thrust of the great readings of Karajan (both his EMI and DG versions with the BPO) and Toscanini, but Bernstein's pacing is sufficiently *con moto* to avoid stagnation. In the third movement everything is buoyantly *gemütlich*, and the finale is a joyous triumph made all the more compelling by a tempo slow enough to permit clean articulation of its reiterated triplets. Bernstein (wisely) omits all repeats save for two in the third movement. All in all, we have here a preferred reading of this "Great" score, one that can take its place beside the aforementioned Toscanini and Karajan editions as well as the similarly taut ones of Szell and Dohnányi and the more personal, rhapsodic accounts of Furtwängler, Mengelberg, Wand, and Walter.

Slatkin's new version can't approach Bernstein's. It is not nearly so well recorded, being too closely miked and lacking (perhaps owing to this perspective) sufficient dynamic range. After a rather broad introduction, the Allegro unfolds spankily, its second subject beginning aptly in tempo. Thereafter, momentum begins to lag so that when the exposition is repeated or when the recapitulation begins, the tempo suddenly lurches forward in order to regain its original pace. The effect of this is to make the music sound disjointed and clumsy, an effect heightened in the coda where Slatkin's *ritardando* neutralizes the movement's climactic force. The remaining movements are surely not bad, but they lack the long line, tension, and dramatic punch of the best accounts, and the brass of the St. Louis Symphony is no match for its rich-toned counterpart in the Concertgebouw Orchestra. Slatkin observes every repeat save for one in the finale, a practice that

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contributes to the cumulative blandness of his reading.

As the performances of Norrington and Goodman use period instruments, they are not really competitive with most other versions. But despite this and an occasional duplication of personnel between each conductor's ensemble, they are in no way alike. Norrington's reading may not be for all tastes, but it is certainly superior to some of his efforts with Beethoven. For one thing, it *sounds* better: strings in particular, although still vibrato-free, lack the honking nasal harshness they have had in earlier Norrington efforts. Then, too, the brass, while well forward, are neither dominant nor ugly, providing instead a rich, colorful sonority. And with the recording having a wide dynamic range, its plateaus of volume contribute to expressivity.

But most of all, Norrington's Schubert seems less eccentric than his Beethoven, especially with respect to tempos. Granted, the introduction may seem very fast, but the pace permits a plunge into the ensuing Allegro without requiring an awkward acceleration. The remainder of the movement has a heroic breadth made all the more compelling by a second subject played strictly in tempo. Only in the coda, where the pace speeds up, thereby weakening the grand peroration, does Norrington really misjudge a tempo. The second movement unfolds rather quickly, a bit more jauntily than militantly, perhaps; the third is lively but unhurried, and the finale has sufficient expansiveness to lend it stature.

All of these features contribute to this reading's many strengths. Still, it has traits that may seem objectionable. For one, Norrington observes every repeat and adds gratuitous ones in the reprise of the third movement. As another critic so aptly once put it, such a practice makes the length of this symphony not so much "heavenly" as unGodly. Equally annoying are "expressive" diminuendos that impose a sighing preciousness to motifs and phrases. Nevertheless, for those seeking a very fresh look at this miraculous score, Norrington's account is surely worth an audition.

Goodman's is most certainly not. Poorly played (listen to the insecure horn at the very opening), badly recorded in a hall (All Saints, Tooting) whose flood of resonance drowns detail, rhythmically flabby, ugly in timbre (with harsh, nasal strings and bulbous brass), and lacking tension and cumulative power, it has nothing to recommend it. Goodman's inclusion of every repeat only heightens the tedium. For those seeking a period-instrument account, either Norrington's or Mackerras's (where timbres sound virtually modern) is the one to

have.

—Mortimer H. Frank

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STRAVINSKY: *Petrouchka, Le Sacre du printemps* Oscar Danon, RPO (*Petrouchka*); Rene Leibowitz, London Festival Orchestra (*Petrouchka*) Chesky CD-42 (CD only). Kenneth Wilkinson, eng.; Charles Gerhardt, prod. ADD. TT: 71:44

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Chesky Records continues its mining of the *Reader's Digest* classical recordings library, but comes up this time with two so-so recordings.

The 1962 *Petrouchka* is very good, even if multi-miked, but the performance is a bit weak. There's just not much excitement generated. Tempi are a little pushed, and there's little to suggest either the smart-assed insouciance of *Petrouchka* or the anguish of his unrequited love. Of all the recordings of this work I know (many, but not all), the Seattle Symphony/Gerard Schwarz on Delos is the best marriage of performance and recording. As long as that exists, the Chesky is pretty much extraneous.

*Le Sacre du printemps* (*The Rite of Spring*), Stravinsky's third Ballet Russe commission, was first performed in 1913, again with Nijinsky and Monteux, and its premiere has gone down in history as the wildest ever accorded any piece of music. Comprising a series of pagan dances in which, ultimately, a chosen young maiden dances herself to death, its pounding, driving rhythms and grating dissonances so outraged and mesmerized the effete Paris audience that they literally rioted. As loud as the music was in places, it was drowned out by boos and cat-calls, while patrons threw hats, canes, programs, and opera glasses at the performers. One attendee reported afterwards that the man seated behind him was so caught up in the music that he was beating time to the rhythm with his fists—on the head of the patron in front of him. Worse, it had apparently been going on for some time before he realized it was happening. *Le Sacre* is not a work that calls for restraint in performance!

This recording, by the same engineer and producer as *Petrouchka*, predates it by 2 years, and except for some plainly audible analog-tape overload during the awesomely heavy bass-drum strokes, it sounds remarkably similar. As an interpretation, it's one of the better ones on CD, but the execution leaves something to be desired. There are occasional intonational errors, ensemble gaffes, and several places where the conductor is clearly heard humming along with the music, *completely off key*. In other words, there are better alternatives for this *Le Sacre*, too.

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recording is typical of the best EMI has to offer, which is to say it's very good. To my taste, this is the only version worth owning, but if you prefer your *Sacre* a little less frenzied, there's a stunning one by the Moscow Radio Symphony with Vladimir Fedoseev on Moss Music MCD-10029. Unfortunately, the recording is almost *too* good; the bass drum attacks have immense power, almost guaranteeing amplifier shutdown or system damage if listened to at high volume levels through speakers of average efficiency. A bit less high-powered but still outstanding is Dorati's Detroit Symphony (London 410 109), although I'm not crazy about London's rather flat, somewhat steely sound.

This is the first Chesky release that has disappointed me. —J. Gordon Holt

## Classical Collections

### HOLST: *The Planets*

VAUGHAN WILLIAMS: *Symphony 4*  
Gustav Holst, LSO (Holst, June–Oct. 1926); Ralph Vaughan Williams, BBC Symphony (Vaughan Williams, Oct. 1937)

Koch Legacy 3-7018-2 HI (mono CD only). Mark Obert-Thorn, disc-to-tape transfers. ADD? TT: 69:59

### LEGENDARY CONDUCTORS

Haydn: *Symphony 88*; Mozart: *Symphony 39*; Gluck: *Alceste Overture*; Beethoven: *Leonore Overture 3*  
Clemens Krauss, VPO (Haydn, 1929); Erich Kleiber, Berlin State Opera Orchestra (Mozart, 1927); Willem Mengelberg, Concertgebouw Orchestra (Gluck, 1935); Bruno Walter, VPO (Beethoven, 1936)

Koch Legacy 3-7011-2 HI (mono CD only). Mark Obert-Thorn, disc-to-tape transfers. ADD? TT: 67:19

Neither of these important historical pieces, part of Koch's valuable Legacy series, is going to hold much appeal for high-end enthusiasts, but by overlooking such material they will have deprived themselves of some extraordinary performances. Take the Holst: as splendid-sounding as they are, the most sonically and interpretively impressive versions of *The Planets* by conductors such as Solti, Dutoit, Colin Davis, Karajan, Ozawa, and a good many more still don't quite achieve the atmospheric content and urgency of the composer's own electrical version of 1926 (or, for that matter, the dimmer acoustic recording made between 1922–24 and now available on Pearl GEMM CD 9417). The studio used in those days invariably tended to be dry as a bone, the two reverberant Vienna Philharmonic performances on the second Legacy CD being an exception in the other direction. In spite of that deadness, the presence of some orchestral imprecisions, thin string sound, a lack of instrumental clarity in massed ensemble, and the general flavor of viewing an old newsreel, the overriding impression remains of the composer's vital, in-

tense direction. That, at least for me, is what makes this performance so mesmerizing. Ralph Vaughan Williams's violent *Symphony 4*, equally authoritative, makes an excellent disc-mate, although it is regrettable that the original odd side of the Holst 78 album, the composer directing his own *Marching Song*, could not have also been included. Another failing is the accidental omission of 2½ paragraphs in the English version of the program booklet annotations.

Every one of the Legendary Conductors in what appears to be a sampler devoted to historical orchestral performances lives up to that appellation, even though the interpretations of these late classical and early romantic pieces are today a bit old-fashioned stylistically. Thus, Clemens Krauss directs a genial, well-inflected Haydn that retains some heaviness in spite of its lively tempos. Kleiber's classic account of Mozart's 39th features an expansiveness, especially in its beautifully shaped slow movement, that one seldom hears today; Walter's *Leonore No. 3* is splendidly organic if sonically too strident in the upper strings in this transfer, and Mengelberg's Gluck, in spite of its totally inappropriate romantic approach, is intensely dramatic and gripping, perhaps the greatest performance of the anthology. All these performances, which, as one would expect, feature variable surface noise, are perfectly listenable, but what makes them especially to be treasured is their personality. A minor caveat on the *Legends* release is the minuscule size of the annotations and the lack of catalog and matrix numbers of the original 78s. —Igor Kipnis

## Show Music

### THE PHANTOM OF THE OPERA: Original Canadian Cast

Jeffrey Huard, cond.; Andrew Lloyd Webber, music; Charles Hart, lyrics; Richard Stilgoe, additional lyrics  
PolyGram 847 689-1 (LP), -2 (CD\*). Martin Levan, David Caddick, prods.; Martin Levan, eng. DDA/DDD. TTs: 57:03, 69:45\*

The crashing chandelier, the candelabras rising from the lake, the aggressive media blitz and hawking of souvenirs—it's easy to develop disdain for *The Phantom of the Opera*. Yet, if one can get past the technology and the hype, *Phantom* is not without its musical rewards, and, as a theatrical experience, it *does* work. Perhaps nowhere is this more evident than in the production at Toronto's beautifully restored Pantages Theater, where the number of performances has recently passed the 500 mark, and they're still packing them in at a top price of \$75. This production is the basis of the pres-

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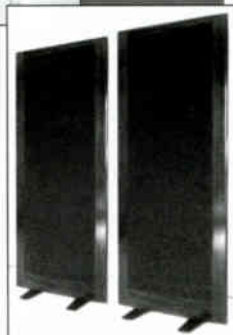
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ent recording, the first Canadian cast album of a major Broadway/West End hit. (*Phantom* did not have a Broadway cast recording, reportedly because Andrew Lloyd Webber was piqued by Actors' Equity's attempt to block the appearance of Sarah Brightman, his now-estranged wife.) Far from being strictly for local consumption, the Canadian cast recording of *Phantom* betters the London cast in many ways, and listening to it may even change some *Phantom*-phobes into *Phantom*philes. Of course, it's a record of highlights, so those who want the (almost) entire score will have to turn to the London cast, but the selection is a generous one, and the overall impact is actually improved by the omission of material that merely recycles music introduced earlier in the show. Also, some of the lyrics have been revamped since 1986, resulting in a better match between words and music.

Colm Wilkinson was Lloyd Webber's original choice to play the Phantom in London (he was unable to do it because of a prior commitment to *Les Miz*); here, he gives an appropriately larger-than-life portrayal that is sure to please his many phans—sorry, fans. Some may still prefer the supreme pathos of Michael Crawford, but Wilkinson, with a very different sort of voice, is in his way just as brilliant. Only the most devout fans of Sarah Brightman will prefer her Christine to that of Rebecca Caine. Canadian-born Caine was the original Cossette in *Les Miz* and replaced Brightman in the London *Phantom*. She has a voice of great natural beauty, evenly produced from top to bottom (Brightman has a distinctive sound that I find quite attractive, but the different "gears" in the voice are too obvious), and she sings with the same kind of emotional involvement that distinguished her Cossette.<sup>1</sup> Byron Nease does well as Raoul, but I must admit I like the London cast's Steve Barton even more. There are strong performances from Gregory Cross and Paul Massell as the opera managers, and Lise Guérin provides an amusing caricature of a diva. For reasons of cost and convenience, the recording was made with an initial "laying down" of the orchestral tracks, the singers making their contributions later with the aid of a synchronized video of the conductor. This arrangement works quite well in numbers with

a strict rhythmic structure, but with music that's more free-flowing, where in a live performance the conductor would at times be following the singers, there is, inevitably, some sense of inhibited spontaneity. This is the case with "All I Ask of You," but "Wishing You Were Somehow Here Again," which must be extremely difficult to sing with "canned" accompaniment, shows hardly a trace of a problem.

Although the sound doesn't set new audiophile standards (massed strings are a bit screechy), it does avoid the excessive sibilance that marred the London version, and is generally cleaner and more open. And yes, you read it right; it's available on vinyl (which, apart from a slight bass rolloff, sounds very much like the polycarbonate).

The word from PolyGram Canada is that there are no immediate plans to release this recording in the US, so for the time being it's available only as an import. It's well worth seeking out. Better yet, come up to Toronto, see *Phantom* at the Pantages, buy the record here, and save yourself the import markup.

—Robert Deutsch

## Jazz

KEITH JARRETT: *Sun Bear Concerts*

Keith Jarrett, piano

ECM 1100 (843 028-2, 6 CDs only). Okihiko Sugano, Shinji Ohtsuka, engs.; Manfred Eicher, prod. ADD. TT: 6:37:46

When this set was first released on ten LPs in the fall of 1978, to almost universally negative reviews both published and private, a formerly hidden law of recorded music was revealed: no living jazz artist should be allowed to release a ten-disc set of new music. Of the many serious jazz listeners with whom I tried to discuss *Sun Bear* at the time—including many Jarrett fans—the most negative opinions were invariably voiced by those who had not heard the set at all. They simply *knew* it couldn't be any good; that Jarrett had gone too far this time; that *no one* could release a ten-disc set, recorded in all of two weeks, and expect anyone to actually *listen* to it, let alone *like* it; that only *rich jazz* fans could afford the thing; and so on, *ad nauseam*.

I couldn't believe it. But these folks were, by definition, saying much more about themselves than they were about the music—which, of course, they hadn't heard. They were right about the price: the set *was* expensive (\$68). Still, I made only \$3.50 an hour at the time, and somehow managed to afford it. And after listening to all 20 sides over the next few days, I was convinced I'd just taken advantage of the solo-

<sup>1</sup> In the spring of 1991, Caine, apparently trying for the "And Now For Something Completely Different" award, is going on a leave of absence from *Phantom* to sing the role of Lulu in the Canadian Opera Company's production of Alban Berg's opera. I questioned her about this after a recent performance of *Phantom*; she told me that Lulu, while presenting a great musical and dramatic challenge, is actually easier to sing than Christine, because it stays in a consistently high tessitura, whereas Christine has some very high and some very low passages.

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Because *Sun Bear Concerts* was great then, and sounds even better now. There's an astonishing wealth of music here, much of it unlike anything Jarrett has done before or since. His grace, power, insight, majesty, and sheer virtuosity were at their peaks in 1976, when this set was recorded at five concerts in five different Japanese cities. The self-indulgence of *Bremen/Lausanne* is tamed, the Romanticism that offended so many hard boppers in the stupendously popular *Köln Concert* is cut with a new astringency, and the concerts flow with an undeniably organic seamlessness.

Nowhere is all of this so evident as in the very first disc, *Kyoto*. Here are 78 minutes of music with but a single break, the whole beautifully linked. Here's the tale Jarrett tells:

A mysterious, chromatically descending motif sets a tone of awe and grief that evolves into a singing lament, then rises through melancholy to reverie, eventually surfacing on the rolling waves of gospel syncopation, which quickly doubles on itself, the rhythm growing increasingly angular until it breaks through and takes over, driving the music into key after new key, finally virtually abandoning tonality, soaring, rhythms and figures chasing each other, tumbling over and over like eagles furiously mating in flight. Then comes churning counterpoint, simultaneously ascending and descending melodies, wheels within wheels, Jarrett's notorious ostinato left hand as active as his right. Gospel chords crash in from time to time, but the stressful stasis is finally unraveled by a single blue, lyrical thread that leads to a place of dusky rest, some local spirit singing an endlessly evolving melody whose final form is never and always stated. A chorus of chorded elementals joins in at last, the key changes, and quiet, modal tribal chanting is visited by a simpatico, gone-native anthropologist (who used to be a piano player named Bill Evans) taking over the lead in cascades of crystalline notes until he plays a folk tune from home which gathers funk until it suddenly drifts apart into a silent shower of shooting stars piercing the barely-there curtains of the aurora borealis, just as a rushing mountain stream, full of snow-melt, suddenly overflows its banks and just as suddenly recedes.

#### *Intermission*

The concert's second half begins with polytonal angularities, rhythmic cubism showing all sides of the beat at once. Through crashing chords and colliding rhythms Jarrett works out a long, complex formula in the calculus of the soul, until, finally, an endlessly modulating chordality emerges: major, minor, and diminished chords revolve in a kaleidoscope of inevitable

conclusions, and I know at last what Bob Dylan meant by "the chimes of freedom flashing." Then, following a peaceful moment of children's songs and lullabies after the high moral drama of warring musical eras, a graceful double waltz dances us back into church with swaying, sweaty gospel that grunts and groans with the birth-pangs of clean-washed souls dropping the karma of centuries: music to work your heart out to. But finally the heart has learned its lessons the final time and is ready to get off the wheel of fate at last, or begin all over again. Jarrett rises through the sliding, intersecting realities between death and birth, passing the spirit of Gershwin eternally singing his white-and-black blues; Jarrett rises to the stars, their soft, hard, cold, tiny voices high and pure, driving the galaxy in slow spiral, around and around, running down and out, the great surround finally dying in a last paroxysm of tonal order—chords against chaos. But emerging from the echoes of those last dying, noble Valhallas of sound is a small, chanting voice—yes, the same mysterious, descending elegy with which this musical *bejira* began. And on the simplest, gentlest of muted major chords, as much prayer as performance, Jarrett's boat touches silent shore.

And that's just Disc 1. The four other concerts—from Osaka, Nagoya, Tokyo, and Sapporo—if slightly less concentrated, as Jarrett explores more and more closely a smaller and smaller heap of raw materials, are just as rewarding. The attention paid is even more masterfully detailed, though *Kyoto* remains the concert I've returned to most often over the years for its breathtaking power and grandeur, its genre-transcending raising of the spirit of pure music for the pure joy in itself. And it's important to remember that Jarrett's music must be approached on its own terms: he makes his points as he goes along, of course, but the largest arguments are measured in half-hours and hours.

The master tapes have not fared well over the years: there's print-through, and the sound is somewhat dry, chalky, boxy; in louder passages the piano has an almost xylophonic character. In comparisons, the LPs sound deeper (as usual), and the piano's middle register rings more clearly, cleanly bell-like.

The slipcase, though classy, is still not nearly as deluxe as the original massive LP set, a milestone in packaging at the time—possibly the first "coffee-table" record album since the demise of RCA's famous Soria series of the late '50s and early '60s. But the music's all here.

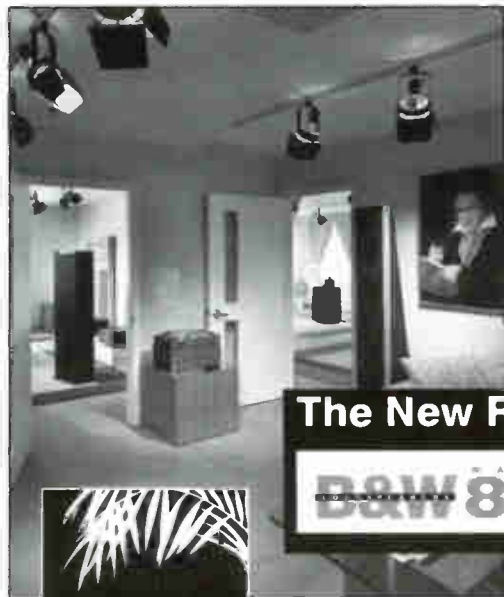
These days, now that it's digitized, the *Sun Bear Concerts* costs about \$90. But even if I still made a mere \$3.50 in now far less valuable

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bucks, I'd go without lunches for this one. As recommended as they come.—Richard Lehnert

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**WYNTON MARSALIS: *Standard Time Vol.2: Intimacy Calling***

Wynton Marsalis, trumpet; Wes Anderson, alto sax; Todd Williams, tenor sax; Marcus Roberts, piano; Reginald Veal, Robert Hurst, bass; Herlin Riley, Jeff Watts, drums Columbia CK 47346 (CD only). Tim Geelan, eng.; Steve Epstein, prod. DDD. TT: 70:09

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This disc of (mostly) quartet settings of (mostly) torch songs and ballads is a great sigh of relief for player and listener alike: Marsalis blowing the blues minus most of the gut-clenching tension—creative or just plain tight-assed—we're used to from him, and yet another incremental step down/up into relaxation, one more button undone.

No, there are no surprises here, no new territory explored; Marsalis now seems to grow more conservative with each album, as if, having explored his musical boundaries as much as he wanted to, he now prefers to relax deeper and deeper into sufferin'-with-a-smile New Orleans blues. The borrowed smile is Louis Armstrong's, of course, and Marsalis pays Pops overt tribute in the closing "Bourbon Street Parade," a chunky, fun, *loose* trumpet/bass/piano trio. Well, it *sounds* like he had fun; hard to tell with this guy.

Marsalis remains a deft, insightful arranger: there's a great chart on Monk's "Crepuscule with Nellie," "I'll Remember April" opens like *An American in Paris*, with Todd Williams's tenor all over the place, and "Lover" is full of those turn-on-a-dime rhythmic twists we've come to expect from Marsalis since his amazing arrangement of Monk's "Think of One." But this last, uptempo tune also exhibits what's wrong with the man's playing: all his flurrying scales eventually sound like aural confetti. Marsalis's one original, "Indelible and Nocturnal," is yet another saccharine-sweet example of his ballad writing, but "The End of a Love Affair" is a three-minute gem.

"Yesterdays" is the most satisfying performance by far. In his own contributions to the now-standard verbosely fawning liner notes by Stanley Crouch (who really should know better), Marsalis talks of trying to incorporate more of Miles Davis's "real long notes" into his playing. (It's nice he's finally acknowledged Miles as having "impressed" him, even if he couldn't resist adding, "when he was playing jazz.") For the only time on this disc, Marsalis sounds as if he's truly stretching himself; as if playing this song really cost him something; as if he really wasn't sure what lay around the next change. Marcus Roberts's gentle, quiet break afterward seems almost a soothing and tending of Mar-

salis's wounds after such untoward risk-taking. Quite a performance.

As is Roberts's own showcase on "East of the Sun, West of the Moon," on which Marsalis lays out and the pianist nearly steals the show, his playing being consistently that much more interesting than his boss's. In fact, *Intimacy Calling* chronicles the decline in Marsalis's band during the years (1987-90) these tracks were recorded. Roberts has since left to form his own band, and Herlin Riley and Reginald Veal replace Jeff Watts and Robert Hurst, respectively. Watts reveals exactly what this means on his only appearance here, "What Is This Thing Called Love"—his lively, juicy playing blows Riley's out of the water. And what can you say about a bass player who makes Ron Carter sound polite? But even more important, no horn-player has even come close to filling Branford Marsalis's shoes—not even Wynton himself.

There *is* deep feeling here, but little passion. Sound is CBS's usual hermetically sealed instruments playing separately together: drums left, piano right, trumpet center, bass summed. *Intimacy Calling* is entirely listenable, perfectly crafted, terminally stylish, and almost completely unnecessary. 'Scuse me while I dig out my copy of *Milestones*. —Richard Lehnert

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## Rock

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**BO DIDDLEY: *The Chess Box***  
MCA-CHD2-19502 (2 CDs only). Leonard & Phil Chess, Bo Diddley, prods. AAD. TT: 2:09:76

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### 500% MORE MAN

So there I sat, *exactly* equidistant from the two Spicas, head rigidly cocked to the phase-correct listening angle, finishing up my reviews for the April issue. I'd been sitting there for seven solid hours, trying to fully evaluate each amp and put those findings into a cohesive, informative read. I was listening *into* the sound, critically examining parameters like depth, sound-staging, and neutrality. My concentration was *absolute*. I kept my bodily sounds and movements to a bare minimum in order to better focus on the sound of the amps. The other thoughts and events in my life disappeared, leaving only the burning question at hand: just *how* much residual grain did the Paracom have compared to the B&D? And what *degree* of grain was it: fine or ultra-fine? Maybe neither; I'll call the hardware store and see if there's a grade *between* them . . .

And then a terrible jolting electroshock smacked me plum across the back of my peanut-shaped head, and I pitched forward onto the wildly chopping floor, the walls and

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ceiling now a blur of white sparks and yawling wormholes coughing thick blue smoke rings at me. I squealed like Ned Beatty and pawed at my face like a crazed wolverine; it felt like jellied rubber, turning inside out like a giant diaphragm. I looked down and saw that my jeans had turned into light grey Sansabelts, and my Run-DMC T-shirt was now a yellow short-sleeve dress shirt with an *undershirt* on underneath! Frantically scampering across the quaking floor, I looked in the mirror to my utter horror; my hair was cut short, and a black Van Dyke covered my face! Now I was hyperventilating. . . I shoved my hands down the front pockets of the Sansabelts: *Nothing!* My deepest fear was now my starkest reality: I Was A Teenage Audioner! My eyes rolled back into my head, I fell to my hands and knees, and violently heaved all over my copy of *The Kodo Drums*, which only moments before had been James Brown's *Live At The Apollo*.

I tore out of the shimmering house and high-tailed it over to Tower, where soon I stood in line, the cold sweat rolling down my back in fast, twisting rivulets, clutching the Bo Diddley box set with my newly soft, feminine hands. I got it home just in time; I felt my ass getting soft and mushy, and I started worrying about the Wife Acceptance Factor of my furnishings even though I'm single. "I've got to take that Elvis poster down; maybe put up a nice Nagel or something. . ."; I heard myself titter in utter disbelief; I struggled against my own transformation and shoved disc one into the player, just as the black plastic Casio calculator watch appeared on my limp wrist. . .

"All you pretty wimmens, stand in line, / I can make love to you baby, / in a hour's time, / I'm a man, spell M . . . A . . . N . . . I'm a MAN!"

The walls stopped breathing; the Van Dyke fell off my face; the Sansabelts turned back into my 50s; and, well, I was once again anatomically correct.

### Bo knows Kafka

Truth: the Bo Diddley Chess Box saved my life. I really did book out to buy it out of desperation after listening to "audiophile" discs over and over again<sup>2</sup> during my reviewing sessions. This stuff is priceless, vital, alive and kicking hard-ass rock and roll, and if I sound like an

<sup>2</sup> Look, there's *nothing* finer than music that's both cool and well-recorded, but as my personal tastes run more toward blues, rock, blues, jazz, and blues, I just don't listen to all that many "audiophile-approved" recordings. It's not out of rebellious elitism, either; it's just that Sam Phillips, Owen Bradley, Jay Miller, and the Chess brothers weren't exactly Kavi Alexander, Keith Johnson, Dave Wilson, and the Chesky brothers! In critically evaluating equipment for *Stereophile*, I try to use the best-sounding recordings I can, but that doesn't mean that's *all* I like to hear. Some of my favorite recordings are *horrible*-sounding when judged against Clark Terry's *Portraits*, but that doesn't dilute the impact of Slim Harpo, Ma Rainey, or Wanda Jackson one bit.

unabashed idolator than I yam what I yam; almost nothing gets me off like the wonderful, strange, and powerful music Bo Diddley recorded for Chess Records in the mid-'50s.

It's easy to dismiss Bo Diddley as a one-trick pony, a funny-looking black clown with funny-looking red guitars and the same "shave'n'a-haircut, two bits" beat in every song; indeed, his latter-day performances on "Rock 'N' Roll Revival" scam gigs have been nothing more than Bo hoisting his now-incredible gut across the stage in tent-like black pajamas while a local white pickup band simply "plays that Bo Diddley beat." And that's too bad, because to dismiss Bo Diddley is to ignore one of the most prescient musical artists of the 20th century, and one of the *funkiest* musicians to ever walk the earth.

The Bo Diddley Chess Box is one of those rare packages where *everything's* great: the song selections are inarguable, the accompanying booklet is a great read, and the sound (as expertly produced and remastered from the original master tapes by Andy McKaie and Doug Schwartz) has never been better. The booklet, in particular, deserves special mention; sections include a Bo On Bo monologue on life, blues, and getting boned by the Chess brothers, an appreciation and discussion of Bo's African influences by esteemed musicologist Robert Palmer,<sup>3</sup> and a full discography of Bo's recorded output on Chess. There're also some *killer* photos, many never published before. There's Bo with his wildly shaped Gretsch guitars; sidekick and maracas virtuoso Jerome Green; the beautiful and too-cool beehive-do'd Duchess, wearing a spaceship-shaped guitar and skintight gold-lamé pants; there's even a photo of the 20-year-old Bo Diddley's naked breasts, which I found strangely apropos to the whole package although I can't begin to understand my feelings as to why.

Musically, it's *all* here, all the way from '55's epochal "I'm A Man" (later appropriated by Muddy Waters) to the mod, hep beat of "Bo Diddley 1969," which sounds like nothing less than the coolest TV cop show theme in history. Classics like "Mona," "Who Do You Love?," "Road Runner," and "You Can't Judge A Book By Its Cover" are interspersed with fascinating alternate takes and unreleased songs, and these aren't the usual almost-duplicates-to-the-issued-take-except-for-someone-belched alternate takes so well known to jazz collectors, either. We get glimpses of Bo's creative process in his

<sup>3</sup> Palmer's *Deep Blues* (Penguin Books ISBN 0 14 00,6223 8) is my favorite blues history book, and certainly less stiff than Paul Oliver's parochial volumes. This is the most enjoyable literary introduction to the blues for anyone interested in the musicians behind the music.



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vocal phrasing experiments and instrumental arrangement; on the alternate take of "Dearest Darling," Bo tells drummer Frank Kirkland to add a "brrrrrOOM cha, doom cha doom cha doom cha, brrrrrrOOM cha" all the way through, to "make it feel more full, you know?" In contrast to nearly every other Chess artist, Bo himself was the producer of most of his recordings;<sup>4</sup> his stuff was so far out, the Chess brothers probably just started the big Ampexes rolling and stood back to watch.

There's plenty of great humor here, too. Long before rappers traded insults back and forth, Bo was "doing the dozens" with his partner Jerome all the way back on '58's "Say Man":

Jerome: "Why, you so ugly that the stork that brought you into the world oughta be *arrested!*"

Bo: "That's all right . . . my momma didn't have to put a *sheet* on my head so *sleep* could slip up on me!"

'59's "Say Man, Back Again":

Jerome: "I was out with your girlfriend the other day!"

Bo: "S'that right?"

Jerome: "Man, that chick was so skinny, she had to tie *knots* in her legs just to make some *knees!* Uh, *bee bee bee!*"

Bo: "Uh, that wasn't *my* girlfriend . . ."

Jerome: "Yeah, well, who was it?"

Bo: "Your wife!"

Jerome: "Man, them's *fightin' words!*"

And the Ultimate Dis,

"You look like you been run over by a *ugly machine!*"

The Bo Diddley box set is just about as much fun as you can possibly get from wiggling grooves and chopped-up laser beams, and if you can't understand what all the fuss is, then in the words of Jerome Green, "Yo' *process* took a *recess!*" —Corey Greenberg

**JOHN WESLEY HARDING: *The Name Above the Title***

Sire 9 26481-2 (CD only). Mark Linett, eng.; Andy Paley, prod. ADD? TT: 58:29

**JOHN WESLEY HARDING: *Collected Stories 1990-1991***

Sire Pro-CD 4698 (CD only). Mark Linett, eng.; Andy Paley, Tom Robinson, prods. AAD/DDD. TT: 60:31

<sup>4</sup> I've collected many outtakes from Chess sessions, and Leonard Chess usually ruled his sessions like the consummate Cigar Stub Guy he was. I have an aborted take of Sonny Boy Williamson's where Sonny Boy plays a great understated intro, and then just as he starts singing the first verse, Chess squawks in over the talkback speaker, "Sonny Boy, Sonny Boy! Not so much *blowing* on the intro!" To *Sonny Boy Williamson!* So they argue a bit, and finally Chess cuts Sonny Boy off and tells him to start over. Which he does, but three beats into the next take Chess screams again; *be badn't actually said "Take two"* yer. Sonny Boy gets him back, though, growling, "How we gonna start when you got your *nose* in that man's *ass!*!"

How Chess got out of some of those sessions alive, I'll never know; Chess house drummer S.P. Leary once told me a story of how the 300-plus-lb. Howlin' Wolf once ran right *through* S.P.'s drum kit trying to catch and cripple the sputtering Chess.

When we last left our hero, his first album was being called "a better debut than *My Aim is True*," and he, "just as good as Costello himself" by our very own Richard Lehnert.<sup>5</sup> That, of course, led inevitably to Harding's appearance on the covers of 13 consecutive issues of *Rolling Stone*, *People*, *U.S. News & World Report*, *Better Homes & Gardens*, and *Chain Saw Age*. Not to mention his impending marriage to Madonna and a provisional appointment as the Emir of Kuwait.

Actually, as transparently brilliant as *Here Comes the Groom* (or the *God Made Me Do It* EP (or the *It Happened One Night* live import<sup>6</sup>) was, it seems that RL was just about the only critic to sit up and notice. And all the while Milli Vanilla and Vanilli Ice were raking in money almost as fast as the Pentagon can spend it. So in this world where we don't blink at terms like "friendly fire" and "surgical bombing," logic dictates that *The Name Above the Title* will be the record that makes the world recognize the difference between John Wesley Harding the artist and John Wesley Harding the album. Why? Because, as Kant states so succinctly in his introduction to *The Critique of Pure Reason* . . .

*We interrupt this review for a special report on late-breaking JWH promo material.*

Thanks, Peter. This just in: We've just learned that Sire Records has reportedly released a cleverly packaged John Wesley Harding promotional CD/songbook. This surprising move is seen by sources here as part of an ongoing propaganda campaign to win the hearts and minds of DJs, sales clerks, and rock critics across the country.<sup>7</sup> While primarily aimed at these industry targets, there have been reports of this disc being leaked to the civilian population, including an unconfirmed report of the exposure of as many as a dozen listeners in Kearny, NJ.

This new stealth weapon, *Collected Stories 1990-1991*, is disguised as a pretentious trade paperback from Vintage Books. It includes a comprehensive dossier of Harding's lyrics complete with annotations—by the author—of some of the more cryptic passages. The experts I've spoken to regard this as a sound tactical move given Harding's penchant for rapid-fire wordplay and his obvious disregard for diction.<sup>8</sup>

The recorded material, a CD which fits

<sup>5</sup> Vol. 13 No. 5.

<sup>6</sup> Subject of another totally righteous rave by RL in Vol. 13 No. 7.

<sup>7</sup> Or so I hear. I bought mine at my favorite record store. Maybe you can too.

<sup>8</sup> Remember the *Singing Dictionary* songbook, Elvis Costello's 1980 attempt at profiting from his own poor diction?

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neatly in a flap on the inside cover, is a 13-song compilation of Harding's work to date, which does, however, omit several of his more important songs such as "Things Snowball" and "Backing Out." While we've heard the studio cuts before, Peter, this sampler does contain new information in the form of four acoustic live cuts recorded at McCabe's in Los Angeles last fall. The live material, said to be reminiscent of an earlier overseas release, reportedly includes "Here Comes the Groom," "Telling Lies," "The Person You Are," and "You're No Good." A spokesperson for Linda Ronstadt has denied any connection with the last track.

Combined with his ongoing campaign of very formidable live performances, this promo disc seems to be a key tactical maneuver in Harding's ongoing strategy for securing a position on the US pop charts. While the details are still sketchy at this time, this unexpected media blitz could establish Harding as a force to be reckoned with in the months to come. Back to you, Peter.

*We now return to our regularly scheduled album review, already in progress.*

...while avoiding the artistic differences that plagued Tommy James and the Shondells after the release of "Crystal Blue Persuasion."

And with this dialectical subtext clearly in mind, JWH begins his cheeky liner notes by announcing "Here's my next album. It's better than the last one, and not as good as the next one." I hope he's a better amateur Nostradamus than he is an amateur rock critic. If *Here Comes the Groom* gave *My Aim is True* a run for its money, then *The Name Above the Title* compares to one of Squeeze's better efforts: tuneful and clever but hardly one for the ages.

What I first found fascinating about JWH is the casual way he bounces between the intensely personal ("Red Rose and the Briar") and the offhandedly global ("Devil in Me"). Only Dylan performed this chameleon trick better. On *Name*, however, JWH takes a step, not forward or backward, but sideways.

The problem here isn't a lack ofchutzpah; it veritably drips off the disc.<sup>9</sup> Unfortunately, it's the same kind of grasp-exceeding ambition that muddied the last verse of "Devil in Me" on *Groom*. Whereas Harding devoted much of his debut to innocent, good-natured, thoroughly on-target ranting, this year's model prefers explaining to complaining. And if tracks like "The World and Its Problems" and "The People's Drug" are more sophisticated, they ain't interesting either. But it's equally obvious that anyone who can summon up enough venom to come up with a line like "Who cares about

the starving millions / We're just happy that our checks don't bounce" is no flash in the pan.

Musically, JWH leaps from the angry-young-man stylings of *My Aim is True*—vintage Elvis into the "mature artist period" of *Imperial Bedroom*, without passing GO and collecting his royalties. Some of the orchestration is overdone, and some of the musical flourishes a bit contrived, but boy, this guy still has a way with a tune. "Fifty-Fifty Split" and "Telling Lies," just to name two, may not be great songs, but they're stuck in my head for good. At least on the car stereo, where the beat counts for more than the beef, *The Name Above the Title* is as addictive an album as I've heard this year. And for the record, he sounds less like Elvis Costello this time (in both senses), though one of my unsuspecting friends still believed that this was the latest from Declan Patrick Aloysius MacManus.

The sound on this CD-only release, however, is one area of improvement. Producer Andy Paley makes a point to mention that the drums are played by actual people, and you can hear it. The frosting on the individual vocal and instrumental tracks is kept to a tasteful minimum, and the mastering by Doug Sax keeps the sound clean even when things get crowded.

Should you buy *The Name Above the Title*? Sure. For all its faults, it's still a better album than *Goodbye Cruel World* or *Planet Waves*. But buy *Here Comes the Groom* first. Or *Collected Stories*, for that matter.—Allen St. John

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**FRANK SINATRA: *The Reprise Collection***

Reprise 26340-2 (4 CDs only). Lee Herschberg, digital mastering & remixes; Mo Ostin, Joe McEwen, James Isaacs, collection prods. ADD. 4:33:00

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In the 1940s the press dubbed Frank Sinatra "The Voice," such was his impact on both pop singing and pop culture. But despite the stir the skinny kid from Hoboken was creating at the time, few could have guessed he would eventually develop into one of the century's truly great artists. Jonathan Schwartz, in his informative and heartfelt program notes that accompany this four-CD retrospective, even goes so far as to canonize Ol' Blue Eyes as "America's greatest interpretive artist." Well, maybe, though there's a fair amount of competition for that degree of veneration, both in and out of music. But it's surely true that no one else comes close to Sinatra's performance insights into what amounts to the American art song. He is also able to infuse the slightest of efforts with a degree of meaning and substance that belies their inherent triviality (does anyone debate that "Strangers in the Night" and "The Summer Wind" fall in this category?).

Indeed, the Sinatraizing of virtually any vehi-

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<sup>9</sup> Which can be conveniently cleaned off with Armor All.

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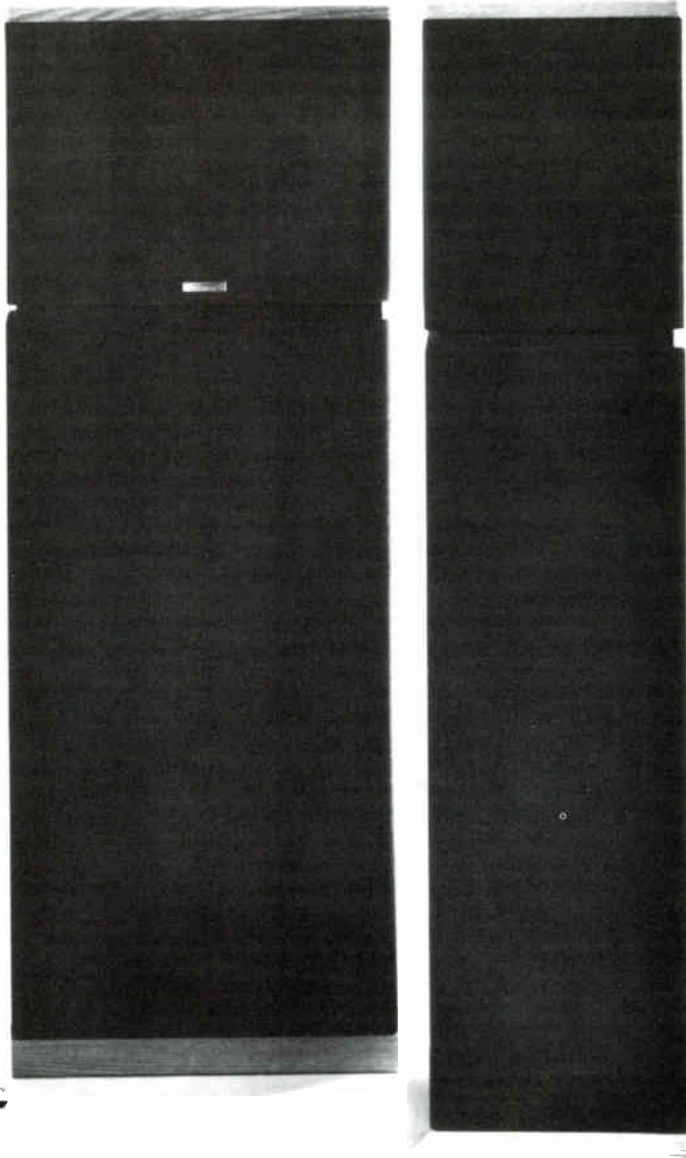
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cle becomes a rite of magic, a magic that permeates this collection as well as the earlier *Capitol Years* set culled from his work on that label. Both were conceived as tributes to Sinatra's 75th birthday last December 12th. *The Reprise Collection* includes 81 songs recorded between December 19, 1960 and October 30, 1986 (the last a vocal retake of his previously released "Mack the Knife"), illuminating at every turn what a particularly fruitful period this was in Sinatra's development. It also points up his incredible longevity as a performer. I last heard him live seven years ago when he was 68; although he was unable to vocally sustain the long line of a ballad with the seamless ease of yore, the artistic magic was more intensely focused than ever. Numerous tracks in this compilation mirror that focus and the expressive deepening of a man who remains an icon when most singers of his generation have (or should have) traded in night clubs for golf clubs.

Of the 81 cuts selected by Schwartz and producers James Isaacs and Joe McEwan, several are previously unreleased. They include a rousing "Zing Went the Strings of My Heart" and a quintessentially poignant Sinatra rendering of E. DeLange's and J.B. Brooks's neglected gem, "Just As Though You Were Here." Most of the Sinatra anthems are here as well, among them "It Was A Very Good Year," "You Make Me Feel So Young," "Fly Me To The Moon" (with Basie), "Strangers in the Night," "My Way," "The Lady Is A Tramp," "I've Got The World on a String," and "Theme from *New York, New York*."

Although there are too many high points to list separately, Sinatra's rendezvous with such timeless ballads as "All Alone" (except for the female voice that intrudes to break the mood), "September Song," "I Only Miss Her When I Think of Her," "What Are You Doing the Rest of Your Life," "I Love My Wife," "Send in the Clowns" (his second and indisputably most deeply affecting version), and the "Soliloquy" from *Carousel* stand out. So do such finger-snappers as "The Song Is You," "My Kind of Town," and what would otherwise be a minor tidbit, "The Coffee Song."

Those who follow Sinatra's career know the importance of his arranging collaborators—an all-star cast headed by the late Nelson Riddle. Twenty-one of these songs profit from Riddle's highly refined art and craft. But other arrangers including Billy Byers, Johnny Mandel, Neil Hefti, Quincy Jones, Ernie Freeman, Claus Ogerman, and especially Gordon Jenkins, Don Costa, and Billy May have also contributed immeasurably to the Sinatra sound. Each is given due credit in the included discography

and performance notes; not so fortunate are the orchestra members, some of whom provide important but unidentified solos. In "Here's to the Band," Sinatra sings, "Most of them go nameless"—a state of affairs unfortunately perpetuated in this otherwise thoughtfully annotated collection. Later in the song he adds, "I wouldn't have made it without them." No doubt he would have, but certainly not with the degree of panache that marks an ongoing series of productions without equal in its genre.

The recorded sound varies considerably; in general, however, the earlier takes are cast in exaggerated stereo with brass isolated on the right and reeds on the left. By 1964 the sonics were more realistically integrated, though a few cuts suffer from a metallic edge and excessive reverb. But whatever the album lacks in audiophile appeal is totally transcended by all those artistic values that count the most.

—Gordon Emerson

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**STING: *The Soul Cages***

A&M 75021 6405-1 (LP), -2 (CD). Hugh Padgham, Sting, prods.; Hugh Padgham & various engs. QSound: Brian Cowleson, Scott Willing; Denny Quatrochi, technical asst. DDD. TT: 48:10

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When lawyers go to court, they pretty much follow what they learned in law school: "If the evidence is on your side, pound the evidence. If the facts are on your side, pound the facts. If nothing is on your side, pound the table." Sting and A&M are making a very big deal of how *The Soul Cages* is packaged.

So OK. By now all the CD versions of *The Soul Cages* are in a hi-falutin' package called a "Digitrak." Basically a bigger "Digipak," it's a plastic tray with paperboard "covers" that open to the traditional CD "long-box" two-panel height. The sides are clipped together by plastic runners and the whole thing is shrinkwrapped. It's environmentally correct, as opposed to the environmentally incorrect plastic longbox—a lot of cardboard to throw away. Ecologically conscious record retailers applaud the move. Recycling centers will be set up to collect the plastic side strips.

In altered states like New York City, however, where Sting and the "Digitrak" were hyped to the sky on nightly news programs but curbside recycling is enforced by sanitation officers with handguns, consumer education will be critical. I didn't know what the plastic strips were, so I threw them away. FYI, it's possible to crease the "Digitrak" into a fairly awkward package to fit your jewel-box collection. All the longbox paper you'd normally recycle stays attached to the package.

Other plus points are also stressed in lieu of content: Stephen Campbell's cover art, the

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ubiquitous synclavier (the fairground calliope of the '80s, here courtesy New England Digital), the personal technical assistance related to the synclavier (Denny Quatrochi), the collection of multicultural sidepeople augmenting the aforesaid technically assisted musical synthesis and making it possible for the album's creator to do nothing but write and sing (Branford Marsalis, David Sancious, Vinx, Munyungo Jackson, Kathryn Tickell on Northumbrian pipes).

Since technically Sting never could sing very well<sup>10</sup> and here his mannered lyrics cross Samuel Beckett with John Keats even more than usual, history clearly reveals the sum of The Police was much better than its component parts. While engaging, even the sum was as much a media event arising from its era of middle-class, whitebread punk (and the super-promoter skills of Stewart Copeland's brother Miles Jr.) than anything particularly heartfelt. Johnny Rotten and Siouxsie (of the Banshees) lived the life; The Police toured The Third World pre-cleared for airplay, with fresh laundry on demand.

Looking more directly to the musical component of "The Soul Cages," we find it is recorded in the mysterious QSound. Asked what it adds to the proceedings, A&M wasn't sure and referred us to the top man at the studio. Allegedly designed to extend the soundfield for stereo hi-fi speakers, video, and theatrical purposes, here QSound enables Sting's voice to sound "big" at the expense of imaging and separation. Engineers the world over praise Rogers LS3/5a speakers for accuracy that can locate the crackle of a peanut squashed by an elephant. The net effect of QSound is to carefully deconstruct the exact capability I paid a lot of money to obtain: Sting's "fat" voice smears off to both sides of the soundfield as though he's grown a 2'-wide oval mouth, and all the instruments that get in the way of the spread are squeezed and fall off the side of the field like medieval mariners plunging off the side of the flat earth. Maybe it's good for movies.

Truth be told, all this marketing sleight-of-hand can't disguise the bottom line: *The Soul Cages* is pretty poor. It's the same old schoolmaster Sting—poetic lyrics with the left hand, musical lines with the right, a producer to put them together—but the album is the culmination of extended studio bookings in Paris and Italy, where he relocated to try to record himself out of a writing block.

Writing blocks are never fun, but unblocking this particularly slow-running drain shouldn't have made it to vinyl. Yes, we're sorry his Dad died ("Island of Souls"), we understand that freedom and responsibility and continuity and circumstances are often in opposition and frequently constrain the spirit ("The Soul Cages"), and we know we're getting old, that life is a bitch, the rainforests are burning, and that organized religion is just another form of theater ("Jeremiah Blues," "When the Angels Fall").

This is fertile ground, but Sting sows the same old evergreen observations. More Richard Brautigan than Doestoevsky, his themes are the story of his life, and that is the story of the poor-but-honest-and-smart working-class lad beating his head against the wall. He revisits, for example, the concept of constraint he looked at effectively if egotistically on *The Dream of Blue Turtles* ("If You Love Somebody, Set Them Free") into the morbidity and diminished musicality of the *The Soul Cages*' title track. As Warren Zevon might note, "It ain't that pretty at all."

Well, pretty isn't why you buy a Sting LP, although there are signs of life on "Mad about You" and "All This Time." But don't buy it expecting much from the music, or for the whispers of Northumbrian pipes, oboes, and spare instrumentation which evoke the timeless ache of the English—these hints and tantalizings are all left undeveloped, unrealized, and unsatisfying. In the cover press release, Sting notes that while composing, he heard no shortage of "harmonies, melodies, middle eights, codas, and contrapuntal calypsos," although no words came. Unfortunately *The Soul Cages* is as much a playpen for fragments of musical form and technique as it is for artistic voices: If Paul Simon were in Africa dealing with life and death, for example, he'd write "All This Time."

In the end, *The Soul Cages* is a disappointment. Recording style is standard studio issue. If the dislocation induced by QSound weren't the most obvious source of aural discomfort, one would just find the production pretty boring. Stripped of QSound, taken out of the studio and into one of those delightful crypts or resonant chapels Paris is so full of, the attractive acoustic guitar duet, "St. Agnes and the Burning Train," could have been a simple little knockout. Instead, it's redolent of some gnome buried deep in a studio feeding through control room monitors—or maybe a constipated synclavier.

So Sting's depressed. If the City of Light couldn't shake him out of it, the ghost in his machine is anomie. Do you want to pay over \$15 retail to share it?

—Beth Jacques

<sup>10</sup> On Beth, much as I want my speaking voice to be that of Patrick Stewart, I'd sell my mother's jewelry to be able to stand in a stadium, fasten my 50Is tight, and sing like Sting: "ROKSANNE!" Yeah.

—JA

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**Roy Hall**  
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## Epos ES11

Editor:

Yet another favorable review for the Epos ES11 loudspeakers. I'm really pleased that in a blind listening test the ES11 came out so well. I do have some comments.

1) As to the "woofy" sound mentioned: I'm sure this was caused by putting the ES11 on a Celestion stand. Laudable as it is, it's wrong for the Epos. There is a dedicated stand (\$200/pair) made by Epos and this improves the bottom end enormously.

2) When discussing the construction of the Epos ES11 you seem to gloss over the most unique feature of this speaker. It is the fact that the woofer is molded as an *integral* part of the baffle. This ensures constant coupling between the bass driver and the baffle. (Most other drivers start to detach themselves as the vibrations loosen the fasteners.) The front and rear baffles are tensioned by steel rods, with the 1"-thick MDF cabinet wrap sandwiched between them. This makes for an incredibly rigid structure.

**Roy Hall**  
Music Hall

## AR Spirit 152

Editor:

I have read the AR152 review with interest. As designer of the AR152 I was surprised to read that you auditioned and measured them away from the rear wall. This is most unfortunate. They were designed *specifically* to allow for the effect of close wall proximity and should *not* be used away from the rear wall. Doing so gives exactly the effect described—a lack of bass warmth, which exposes the mid and treble to create a thin balance, with seemingly prominent treble (although, as your tests confirm, the treble is not prominent at all).

Your frequency response shows clearly how the low and upper bass are deliberately contoured at a lower level compared to the mid-band; it is easy to see how the balance would improve with the bass reinforcement due to the rear wall. When used correctly, the bass fills out the sound which becomes both well-extended and controlled.

Guy Lemcoe mentions LF rumblings heard from the B&Ws. AR152s were designed to reproduce music, *not* rumbles. Extension and definition are not the same thing; in fact, they can

be mutually exclusive. Extending bass with reflex loading can give deeper bass, but often at the expense of definition. Bass definition and focus of the AR152s were frequently praised in your evaluations.

Sealed acoustic-suspension loudspeakers have less phase shift and more consistent damping under dynamic conditions than reflex designs, in general. The slower rolloff and superior transient response make a good sealed box inherently fleet of foot when it comes to following bass rhythms. These are the good things the panel heard. Ignoring the "weak bass" comments as test error aberrations, there were far more positive comments in favor of the 152s, the negative comments being down to poor placement. The AR152s were designed to follow rhythms and involve listeners emotionally with the music. This is what you did on the first day—before you started to analyze and intellectualize about your findings.

**Dave Berriman**  
Acoustic Research

## PSB 40 Mk.II

Editor:

My hat is off to the editorial staff of *Stereophile* for their first try at blind screen listening. I hope you continue to include and refine this technique as part of your reviewing procedure.

PSB, like Snell, makes use of the facilities of the National Research Council in Ottawa, Canada. For the record, PSB was the first loudspeaker manufacturer to request the use of this facility to design and evaluate loudspeakers. This relationship between NRC and PSB dates back to 1973, and PSB continues to be the most active manufacturer with regard to use of the NRC facilities for product development. At the NRC, blind screen testing has been a tool used by PSB, other speaker companies, and by speaker reviewers for years with great success.

The 40 Mk.II is no exception to the tradition of blind screen development as a part of the recipe for value-oriented speaker design. One can gather from the panel's overall judgment of the modestly priced 40 Mk.II that our goal for good value has been accomplished. It is always good to use a known quantity in the tests, in this case the Snell K/II—a solid Class D, as you describe—so that you review in perspective. The 40 Mk.II showed itself well in comparison to the overall score of the Snell, and I would hope that you would also consider the PSB to be a solid Class D recommendation.

**Paul Barton**  
VP, Research & Design, PSB



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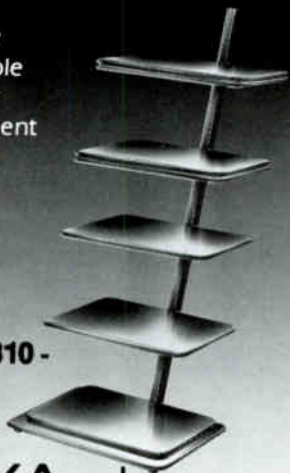
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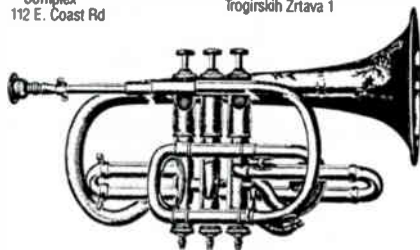
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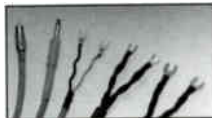
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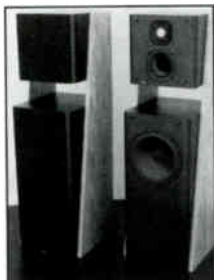
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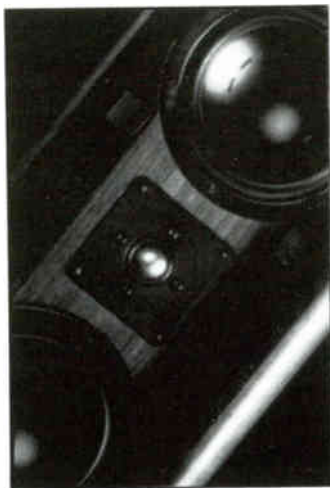
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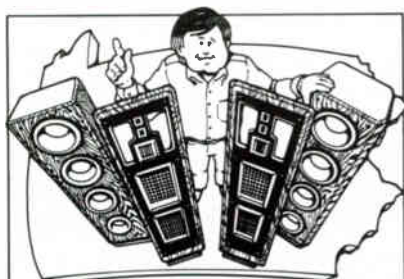
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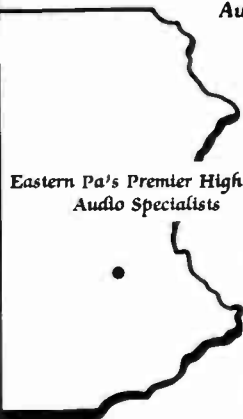
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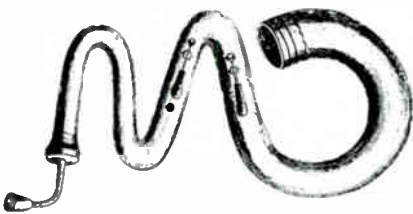
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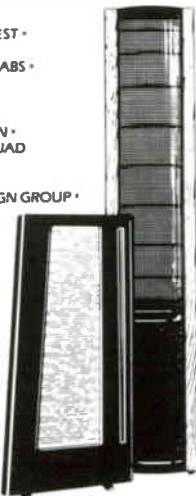
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# FINAL WORD

**plang<sup>er</sup>gent** / 'plan-jənt / *adj* / 1 having a loud reverberating sound 2 having an expressive and esp. plaintive quality

—*Webster's Ninth New Collegiate Dictionary*

There I was having dinner at the sumptuous Nikko hotel in Chicago with representatives of Madrigal (and some of their key dealers), when one of the Madrigal mucky-mucks said (to someone else), "Ah, what a plangent wit you have!" But what did he mean? No one at the table could, or would, define "plangent."

"Plangent" circulated the table for more than an hour as we sampled reserve Chardonnays and French Bordeaux (no mean meal, I mean to say), but the notion of leaving the restaurant unsatisfied as to plangency drove me to distraction. A man of action (however watered down), I took matters into my own hands and found an English-English dictionary at the Nikko (English-Japanese versions were more readily available), at which point I discovered the definition listed above. I could not but remark at how appropriate was each definition, there, in Chicago, at the Summer CES.

The night before I'd blown all chances of actually enjoying any CES exhibit by spending an evening at Orchestra Hall: Daniel Barenboim conducting the CSO in Bruckner's Symphony 4 and soloing in a Mozart Piano Concerto. Until then I'd been lamentably ignorant of Bruckner 4, but not now. What a sound they made! As JGH commented to me as we left a performance of the New Mexico Symphony Orchestra (whose name, try as they may, should hardly be uttered in the same paragraph as the Chicago), "I still say it's the most wonderful sound in the world." What space. What drums. What brass. What power. What ease. What overwhelmingly gorgeous and dissonant sonorities. What a "loud and reverberating sound"—how extraordinarily plangent! I could only reflect on what impostors we in hi-fi are, to pretend that this is to what we aspire.

Yet we do, and we do phenomenally better and better—as many of the products I was about to see would remind me—while still failing to come close. You'll read all about CES's exciting high-end developments next month, including Apogee's Grand, a speaker which

comes dramatically closer to the sound of a live symphony than I've heard before. Nevertheless, I had to confess, on Friday, May 31, that the live musical experience is unlike the recorded one, and may well remain ever so, though it ever remains the ideal to which we aspire.

Of course, dealers and distributors are the real *raison d'être* of CES, and it is to them that the second plangency refers: "having an expressive and esp. plaintive quality." 1991 so far sees retail businesses in the US in the toilet. High-end manufacturers I spoke to weren't altogether optimistic about business, though most were enjoying years which were at least somewhat up (or just a little down), buoyed up as they are by continuing growth in international markets, particularly the Far East.

For US dealers, however, the business news is not great. There *were* a surprising number of the really good dealers in Chicago, but times have definitely been tough. Some larger dealers (like Keith Yates Audio in Sacramento) have already gone under, and one upper mid-fi chain (Sound Advice of Florida) has bought another (Minneapolis's Audio King). I heard of drops in business as deep as 40%, which, considering that some dealers are financially precarious enough that a 15% drop is really bad news, is most ominous.

There is good news, however. Most high-end dealers have been preconditioned to leanness over the last three years, and seem tough enough to hang on. In addition, the signs have gone from all down to mixed, and there's a general perception that, by September, the market will have begun to turn around. There's also a general consensus that a failure of general US retail to turn around by the traditional fall buying season will mean "a blood bath" in high-end retail.

Perhaps even more important, the quality and price value of high-end equipment continues to accelerate. This is a great time to buy high-end equipment, particularly if you shop carefully and choose your dealer well. (A great price on the wrong piece of equipment for your system or tastes is the worst bargain of all.) And don't miss next issue's plangent (definition 1) rundown of the new products at CES.

—Larry Archibald

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