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AUGUST 1991 VOL. 14 NO. 8
Stereophile, August 1991
As I gave a laundry list of components currently under review in last month’s “Coming Attractions,” it would be appropriate this month to list music features “in production,” as they say in Hollywood: interviews with Nicholas McGegan, Lorin Maazel, Richard Thompson, and Minoru Nohjima; “Building A Library” surveys of Elgar’s Symphony I and Wagner’s Die Meistersinger von Nürnberg; and—brace yourself—RL’s report on fifteen new CDs of previously unreleased Frank Zappa recordings. In September, Mort Frank will survey recordings of Brahms’s First Symphony, and Denis Stevens will talk with Yehudi Menuhin.

Also scheduled for September are reviews of the Meridian D6000 active loudspeaker, the Nestorovic Type 5as loudspeaker, Goldmund Mimesis 8 and Mark Levinson No.23.5 power amplifiers, the Gradient SW-63 subwoofer for the Quad ESL-63 from Finland, and an inexpensive subwoofer from Phase Technology, the PC-90, while Martin Colloms has been comparing Philips’s DCC with CD, Robert Harley will be talking to Meridian’s Bob Stuart on matters digital, Richard Lehnert reviews two new books by Jim Morrison and The Doors, and I review two new books on loudspeaker design. And there’s one coming attraction that finally came on June 24: Henry Joseph Atkinson. Laura and I are going to call him Harry.

John Atkinson

Stereophile, August 1991
Blame the Puritans! say I. The high end has always had an ostinato accompaniment of grumbles from those who appear to feel that it is immoral to want to listen to music with as high a quality as possible. In a recent letter, for example, *Fanfare* and *Stereo Review* contributor Howard Fersler states that "the audio world has more products of bogus quality and shills promoting them than any other industry, bar none," and trots out the old saw that audiophiles "end up spending an excessive amount of money on equipment or tweaking techniques of surprisingly dubious quality."

Mr. Fersler goes on to say that the *Stereophile* of old was quaint, even enjoyable, and immediately recognizable as a religious, anti-scientific curiosity, though it did, and still does, pander to the desires of its readers, who are poorly educated in the sciences,1 to have a little mystery in their lives. He also implies that the current incarnation is less honest/more dangerous because it appears to be "scientific" and therefore possess greater apparent legitimacy. *Stereophile* and its writers, he says, "stand in relation to 'scientific' audio as creation scientists and their assorted publications do to legitimate studies of geology and anthropology... scientific half truths and misinterpretations are immediately recognizable as a religious, anti-scientific curiosity, though it did, and still does, pander to the desires of its readers, who are poorly educated in the sciences,1 to have a little mystery in their lives. He also implies that the current incarnation is less honest/more dangerous because it appears to be "scientific" and therefore possess greater apparent legitimacy. *Stereophile* and its writers, he says, "stand in relation to 'scientific' audio as creation scientists and their assorted publications do to legitimate studies of geology and anthropology... scientific half truths and misinterpretations are

1 Our 1988 survey revealed nearly 81% of Stereophile's readership to be college graduates, with 37% possessing postgraduate qualifications.
Application of high purity copper (99.9999% or purer) to audio and video products in the U.S.A. is a patent of Nippon Mining Co., Ltd (U.S. Patent No 4,792,369)

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skillfully used to substantiate...religious views of the subject...contrary to scientific method, desired conclusions lead the search instead of a reasonably unbiased search leading to whatever conclusions might be revealed."

All very puritanical, yet I am disturbed by Mr. Ferstler's use of the qualifier "reasonably unbiased." This would seem to mean that he feels some degree of bias among those conducting an experiment is reasonable, perhaps even desirable. Scientific method is an unbiased attempt to describe things as they are, not how they ought to be. I fear that too often these days, practitioners of scientific method do indeed practice "reasonable bias," tailoring their work to produce desirable results. An editorial in the October 1988 Scientific American, for example, examined the fact that the findings of a committee on the nature of drug addiction in the US were rejected by the Reagan Administration as being too soft; ie, the scientists failed to prove that marijuana was as addictive as it was politically required to be. (Carcinogenic, yes; addictive, not very.) Similarly, scientifically trained John Sununu has been accused of editing official studies on global warming to render them more politically palatable.

The BBC's Hilary Lawson summed it up in 1985: "Science is there to be used, not to dictate what is true." The basis of scientific method is to look at how things are, then to design experiments to try to find the reasons why they are that way. In audio, many insist that such experiments are only valid when performed double-blind; ie, when neither experimenter nor subject is aware of the component under test. The problems with double-blind listening-test techniques are twofold: First, the subject does not judge the object under test directly—as in wine tasting, or in the testing of drugs—but only indirectly through its effect on an information-bearing, emotionally loaded stimulus—music. Second, the result of any scientific experiment can only be regarded as valid if all potentially misleading variables have been eliminated. This, of course, includes those introduced by the testing technique itself. As Robert Harley convincingly argued in his July 1990 "As We See It," the nature of listening under double-blind conditions is sufficiently different from the natural state of listening to music that results gained under those conditions are at worst meaningless, at best of limited transportability.2

The proponents of double-blind testing in audio reveal their "reasonable bias" by performing a faulty experiment, noting that the outcome does not equate with their hitherto perceived reality, and therefore changing their perception of reality to match the experimental outcome. Such people use science as a drunkard uses a lamppost: for support rather than illumination.3

By contrast, far from rejecting or perverting scientific method, Stereophile practices it in its true form: when experiments give results which contraindicate reality, the experiment is rejected, not the reality. Thus it is with amplifiers, for example: the results of many (but not all) blind tests notwithstanding, our continuing experience and that of our readers is that they sound different. Sometimes to a large degree, sometimes not so large, sometimes to an important degree, sometimes not so important: but different they do sound.

Why should their supposed sonic similarity be such an article of faith among "objectivists"? Amplifiers differ significantly in the way they measure, even on the small cocktail of measurements that Stereophile routinely performs, as exemplified by the VTL review in this issue. They differ in their ability to source current and therefore drive low-impedance loads. Their frequency responses can change at differing power levels, and in different ways. Their output impedances differ, producing differing response-modifying interactions with the loudspeakers to which they are hooked up, modifications that E. Brad Meyer admits in the June 1991 issue of Stereo Review are difficult to emulate with an equalizer.4 The manners in which their transfer functions change with both output voltage

---

2 Robert Harley will present a paper at the next Audio Engineering Society Convention—the convention's theme is "Audio Fact and Fantasy: Reckoning with the Realities"—to be held at the New York Hilton October 4–8. RH's paper takes a critical look at the objectivists' dependence on double-blind testing as the basis for their attacks on this and other magazines.

It is significant that the two candidates for the 1992 Presidency of the AES are David Clark, who attacks Bob Harley in this issue's "Letters" column, and Floyd Toole of the Canadian NRC. Both favor blind testing techniques, yet to judge from their published work, the first exemplifies the convergent, closed-minded attitude to scientific research featuring a "reasonable" degree of bias, the second the divergent, unbiased, truly investigative, truly scientific attitude. I await with interest to see who the AES membership will pick in next month's election.

3 "The patterns scientists observe in nature are intimately connected with the patterns of their minds; with their concepts, thoughts and values. Thus the scientific results they obtain and the technological applications they investigate will be conditioned by their frame of mind." Physicist Fritz J. Capra in his 1982 book The Turning Point (Simon & Schuster).

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and output current, hence the spectra of distortion products they produce, can be very different. The intrinsic distortion spectra themselves can be very different, tube amplifiers offering musically natural low harmonics, some solid-state amplifiers featuring musically objectionable higher harmonics. Some amps can deliver their specified power until the end of time; others have a power delivery that is correlated with the history of the music signal. Some introduce noise spikes when quiescent but not when delivering power into a load; some are only marginally stable and generate ultrasonic ringing on fast-risetime signals such as squarewaves; some will only demonstrate such instability with a particular combination of musical information and loudspeaker impedance; and so on and so forth.

Many prominent engineers—Stanley Lipshitz, for example—have stated that if two amplifiers are found to be audibly different, then simple linear errors, such as a frequency-response difference or an inversion of absolute polarity, will be the cause. Stereo Review’s Executive Editor, Michael Riggs, went even further in the January 1989 issue of High Fidelity, stating that with the exception of loudspeakers, where it is still necessary to listen, “laboratory testing (properly done) can tell us pretty much everything we need to know about the performance of a typical piece of electronics … We know what the important characteristics are, how to measure them, and how to interpret the results.”

With all due respect to Mr. Riggs, however, it is hard to see why “objectivity” should be the right tool to assess worth in an area which uses technology in the service of art. You can’t measure the difference between a good and an inadequate performance of a piece of music, for example. As I write, I am listening to a recording of the Medici Quartet with John Bingham performing Elgar’s Piano Quintet (Meridian CDE 84082). The music is immediately recognizable as Elgar, as late Elgar even, but what measurements could reveal that fact? Even if one used a computer to examine every word of the digital data describing both stereo channels of this work and how it related to every other word out of the total of 200 million, how could this determine that this was a turn-of-the-century piece of music? That it was by Elgar and not by Brahms or Dvorák? How, indeed, would the computer determine that this was a great piece of music and not just a similar-sounding potboiler? And that this was a very good performance, if not necessarily a great one?

I suggest that it is as much fantasy to expect that measurements can predict sound quality as it would be to think that they could predict the quality of music. All that the reductionism inherent in scientific method can do is to look after the fact for possible explanations for what is heard. And if amplifiers can sound different, it isn’t necessary to invoke black magic, mysticism, or as-yet-unknown performance parameters as explanations. Architect Mies van der Rohe once said of his craft: “God is in the details.” When it comes to amplifier sound quality, the subjective differences are in the measured details. And the way in which to perceive how all those details interact and thus affect the sound of the music is simply to listen. Listening enables the whole of a component’s performance to be examined simultaneously.

This does not mean examining every little aspect—How much bass? How liquid the midrange? How grain-free the highs?—but simply to sit, listen, and examine your whole reaction: Am I enjoying this? I believe this to be the basis of Ivor Tiefenbrun’s famous “following the tune” criterion. Only by simplifying your mental activity as much as possible can you allow yourself to be truly receptive to what your senses tell you (something that students of Zen spend much time and effort trying to learn!).

“Quality” can only be inferred via a holistic approach, which is of necessity subjective. In fact, there is experimental evidence that the more a person tries to consciously analyze the available data before making a decision, the more likely he or she is to be plain wrong. If you want to know what a component sounds like, just listen. If the system doesn’t detract from the music’s emotional content, if it allows the music to “raise goosebumps,” as Stereophile’s founder J. Gordon Holt has phrased it on many an occasion, you’re on to something good. As Corey Greenberg would put it, "The monkey bone doesn’t lie!"

5 From which I conclude that Mr. van der Rohe doesn’t believe in God.

6 The outrage engendered by Mr. Tiefenbrun’s often hyperbolic but always perceptive statements gives me to think that the precepts they contest are not so much objective reality but rather articles of faith, culturally derived and therefore not open to question.

7 “Thinking Too Much,” Washington Post. Our thanks to Convergent Audio Technology’s Ken Stever for bringing this article to our attention.

Stereophile, August 1991
The Mark Levinson №28 Preamplifier 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.

Mark Levinson products have offered the advantages of balanced interconnection for many years. The №28 introduces a new execution of balanced circuitry called a DIDO (Differential In: Differential Out) that provides fully balanced operation throughout (not converting to single-ended for internal processing) while still rejecting common-mode noise from source inputs or arising within the unit itself. All versions of the №28 have 2 balanced (XLR) inputs as well as balanced output connections. Even single-ended signals benefit from the DIDO, since it rejects common-mode ground noise as it converts single-ended signals to differential at the input.

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More important, you can hear for yourself how this preamplifier tips the balance in your favor.
**A reasoned, logical approach**

Editor:
I find the agonizing debate over the relative validity of subjective and objective evaluation need not always be the “unscientific” pitted against the “scientific”—eg, RH’s “As We See It,” Vol.14 No.4. Naturally, at least procedurally in your journal, both methods to a certain degree continue to be conducted in the context of a reasoned, logical approach and the rationalism of a studied mindset; this is the whole basis of the “scientific attitude.”

If both methods are conducted *rationally*, subjective and objective evaluations need not be mutually exclusive and/or opposing methods. Probably, there is already a high degree of internal consistency between both methods in the maturing science of psychoacoustics, though there may be unequal reliance on the machine and human factors in certain camps of psychoacoustics, too. I think that doing a piece on the practical and basic findings in psychoacoustics may be of interest to all concerned.

By the way, JGH’s piece on audio basics (March 1991) was concise, succinct, and highly informative.

**Tom T. Wong**
San Gabriel, CA

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**Plagiarism rules, OK?**

Editor:
I just got back from a heavenly trip to the old country and am now catching up with my reading.

Reference is made to p.105 of the February 1991 issue of *Stereophile*. I can see you are at it again: infringement of *my* rights! I am outraged! After settling meekly with the lawyers of Damn Yankee Audio Corporation, you now boldly fly up in my face by using a new name for Peter Mitchell’s column, “The Ground Floor.” I have used that name for decades! I am the President of the Himmelfahrt Ascension Devices Company, and right there, you dunderhead, on the control panels of our carriages, is a great big “G” that stands for “The Ground Floor.” *Ach, du lieber,* I almost can’t go on...

I have taken immediate steps to register the other names to which I lay claim: *Mezzanine; Lounge; Out of Service* (even though, already, several sleazy high-end hi-fi dealers yanked (get it?) that one away from me); and I’m gonna try for *Penthouse* (some horny little shit already got a magazine out of *that* name, but he legitimately beat me to *Jugs*, another name I have thought a lot about—I am also the Senior Vice President for Marketing of the Deutschland Holsemfromflogen Brassiere Company). You can bet *This Car Up* is on your greedy little mind to steal from me. Well, you can have it because I have just invented the *Side-L-Fahrt* which goes not up, not down, but—Never mind, I will not tempt you with more to rip off me.

On behalf of my existing Himmelfahrt Ascension Devices, I warn you now, with this letter: Lay off using the *The Ground Floor* for that Mitchell column or I’ll put you in the bottom of the shaft and remove the sign in my carriage that says *This Car Does Not Stop Here*—I mean it. Besides that, I want a half-page act-of-contribution (I learned that one from Monsignor Gambino on a recent trip to Buffalo). And you better desist (and cease besides) from all this monkey-business.

**Gottmein Putz und Ballsoff**
President, Himmelfahrt Ascension (and dissention) Devices
San Francisco, CA

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**Pure genius?**

Editor:
To say “YOUR PUBLICATION IS BRILLIANT” is an UNDERSTATEMENT! I’ve never learned so much about equipment in so short a time in my life. All your writers are great. However, I especially enjoy Robert Harley’s equipment reports, and even more, his May ’91 article on Digital Audio Data Compression. Pure genius at its best!

*Stereophile* is done in good bond: great writing, tasteful advertising, and better editing.

**Robin James**
Woodland Hills, CA
Unique solutions are likely to emerge from those with a unique perspective on the nature of the problem to be solved.

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Bless you, Bob!
Editor:
For personal reasons, I am allowing all of my subscriptions to lapse when they come due, including Stereophile. After reading the April 1991 issue, where it seemed that the entire magazine supported the concept of DCC with hardly a second thought, I was happy to think I'd never receive another issue.

But, one more issue (May 1991) has arrived. And within this issue was a most unexpectedly honest "As We See It."

Though I have never written Stereophile a letter before, I feel the urge to tell you, "thanks." RH mentioned many points that, were it not for the literal "madness" of this evil system we seem forced to live in, should immediately defeat any attempts to foist such a concept upon us. At least be still has a mind left. At least be is still trying to bring sense and truth to others. I suspect it may be hard for him to see others running about, foolishly joyous about this grand new technological "advance." I hope he remains strong enough to absorb the pain.

The article was so clearly written, complete yet concise, logical, and straight-to-the-point, that it must get people thinking. But, the DCC system will be implemented. It shall take over the market (demand created by marketing hype will be called "the driving force"). Analog tape will be looked upon as archaic and worthless (like AM radio and 78rpm records). Within ten years it will be almost impossible to find even a decent, much less superlative, analog cassette deck. (Where can you find a decent AM radio anymore?)

And yet, in people's minds, there will be a memory of RH's article. A modern-day Cassandra speaking about Procrustes. Many a person's outlook will remain more closely attuned to true reality thanks to his words.

Bless you, Bob! Thaddeus K. Chmielak
Burnsville, MN

Upset by Bob
Editor:
I was very upset by Robert Harley's May '91 article on Digital Audio Data Compression, which was filled with assumptions and prejudices. Perhaps we should start calling him Robert Hirsch. Here's why.

The main reason writers of magazines like Stereophile criticize writers of magazines like Stereo Review seems to be because those writers base their reviews primarily on measurements. Listening to the product is almost an afterthought. And that's a valid criticism. After all, audio products are made to be heard, so evaluate them on how they sound. Nowhere in Mr. Harley's article does he say he ever listened to (or tested) any of the DCC decks whose technology he so vociferously damnis. His opinions are based on an assumption: that the technology can't sound as good as CD (the sound quality of which we will not discuss here) because he doesn't see how this is possible. After all, significant differences in data can be measured between a CD and its DCC counterpart; therefore, an audible difference must exist. Julian Hirsch can't measure significant differences between amps, therefore there must not be any. Jeez, guys, let's get real here!

What if the technology actually works? What if the guys at Philips are on to something? What if you really can't hear the difference between a CD and its DCC counterpart, even though you know there is one? For one thing, it would totally invalidate Mr. Harley's article. For another, I'd say, hot damn, let me have one!

If a product has received raves (as reported earlier in Stereophile), shouldn't Mr. Harley at least give it the benefit of the doubt rather than condemn it out of hand? To condemn without listening is as unfair as to so praise.

Mr. Harley also criticizes corporate greed, saying that the DCC decks are only a clever way to get our money. Surprise, surprise! Does it really have to be explained to him that the desire to make a buck motivates technological invention? That's how capitalist societies work, and it explains why Russia is underdeveloped in so many technological areas. Just because the lure of profits fuels the development of a product doesn't prove that the product is inferior.

Now, maybe DCC decks are not as good as Philips claims. God knows this would not be an unfamiliar scenario. But just because a situation has a precedent doesn't prove that the same thing will occur. (Though it would be foolish to be left unprepared for such an outcome.)

As soon as I can get my hands on a DCC deck I will give it a thorough going over, listening with as unbiased an ear as I can. I will then decide what I think of this interesting new technology. Shouldn't Mr. Harley be doing the same?

Cameron Hughes
Short Hills, NJ

Stereophile, August 1991

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Compliments to Bob
Editor:
My compliments to Mr. Robert Harley on his “Digital Audio Data Compression: Music's Procrustean Bed” in the May issue. Progress doesn't necessarily mean improvement, especially if it is for progress's sake. On p.7 he is concerned with broadcasting of the new system. He forgot several things. The audio industry forced quadraphonics (four speakers) on us audiophiles—that faded out. Many innovations were imposed on us audiophiles. We accept some, others we ignore. This new system will be ignored. One word Mr. Harley forgot: “compatibility.” When Zenith and CBS introduced their systems, Zenith's was chosen by the FCC because there were a lot of monaural FM receivers. Under the Zenith system, a stereo broadcast could be received by a monaural receiver—compatibility. When color TV came out, those with monochrome (B&W) were able to receive the same program because of compatibility. And so, under this mad scheme, the same thing would happen. It took a while before the public purchased stereo receivers and color sets. The reason for this is no longer keeping up with the Joneses. It's economics, bread on the table, or this new compact system. I am satisfied with my present system. I am interested in quality, not quantity.  

George D. Steinberg  
Deming, NM

DCC and Compact Discs could be heard. Blind testing made sure that differences in sound were real, and the scientific method was employed from start to finish. If the “point” missed anyone, it seems to have most successfully eluded Mr. Harley.  

Tom Nousaine  
Cary, IL

Bob was inaccurate?
Editor:  
I wish to point out inaccuracies in Robert Harley's April 1991 “As We See It” column reporting on a Philips briefing session on Digital Compact Cassette (DCC). His statement that the project managers “threw out the scientific evidence and went with the listeners' judgments” could hardly be more opposite from what I heard. Harley concluded from a comment I made afterward, praising Philips's science, that I am anti-audiophile and that I missed the point. Wrong. Being an audiophile, I listened very carefully. It is Harley who missed the point.

What I heard at the session was a report of a three-way coordinated development effort of engineers, listeners, and academics qualified in experimental design. The listeners used rapid switching comparisons on a wide variety of music to uncover sonic flaws in the encode/decode process. The academicians then excerpted the critical (5–10s) passages of processed and unprocessed material for transfer to a CD for double-blind testing by the same listeners. Sometimes the audibility of the difference was confirmed, sometimes it was not. Sometimes the timing on the custom CD had to be optimized to hear the difference double-blind. The listeners learned to value this check as it helped them sharpen their skills. Incidentally, Philips proudly displayed the double-blind comparison system at the briefing.

After months of this refinement process (and squabbles with budget watchers), no further differences could be detected in the double-blind tests, thus the requests for improvement to engineering were impossible. Listening continued, but the listeners ceased to be able to hear any differences. This blend of engineering, open listening, and double-blind testing is exactly what I have been advocating for many years, and I expect no less from a company the size of Philips.

Clearly, either Harley or I (or both of us) had heard what we wanted to hear, not what was said. Fortunately, in this instance, the facts were
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easy to check. I called Gerry Witz, the Philips spokesman at the briefing. He confirmed that the scientific evidence was not "thrown out" by the project managers, but rather used to confirm and qualify the listener evidence.

David Clark
DLC Design, Farmington Hills, MI

First, to address Mr. Hughes's criticism about Bob's negativity, this was not addressed at DCC as a specific product. Instead, he was expressing a philosophical concern that the end result of a digital data elimination technique cannot be as good in absolute terms as the original linear 16-bit audio code when each is finally used to reconstruct the analog original. Audio data compression as used by DCC and Sony's MD is not the same as the various computer file-archiving algorithms, which will reconstruct the original information absolutely correctly. Instead, it relies on a number of assumptions concerning the listening experience and playback circumstances—assumptions that may or may not be true at all times and under all conditions—to destroy original information. It can hardly, therefore, represent any kind of step forward in quality terms, the best that it is possible of achieving only being parity with the original.

Second, I was present at the presentation described by RH to which Mr. Clark and Mr. Nousaine refer and was happy that RH had accurately described both the presentation and the above two correspondents' reactions at the time, reactions that hindsight perhaps has obscured. And Bob's point was not that "the scientific evidence" had been summarily dismissed by Philips (which Mr. Clark's out-of-context selection of the quoted passages would suggest), but that it had not been considered a sufficiently rigorous test of the system's quality, something that Mr. Clark confirms in his letter.

—JA

DO was wrong?
Editor:
As a music lover who attends over 20 live classical concerts a year and as a tinkerer of Knight, Eico, and Dyna vintage equipment, I am the type who enjoys a magazine such as Stereophile and I sometimes do.

Dick Olsher's first speaker cable review [Vol.11 No.7] left a lasting impression... but Stereophile's continuing promotion of easy fixes such as CD Stoplight and Armor All detracts from your credibility and ultimately from your reputation as a serious publication for audiophiles.

Recently, however, I am seeing some promising signs regarding claims such as those that have been made for the Lindsay-Geyer interconnects. Following DO's recommendation, my brother bought two pairs of L-G interconnects. I listened to them for over a week in my system (which includes equipment reviewed by Robert Harley). From my experience, I can relate to very little of what DO said—or worse, wrote.

JA, keep on questioning exaggerated claims; please limit use of the word "quite"; and please measure everything at the speakers!

José F. Ballester
Bayamon, PR

DO did not exaggerate
Editor:
Dick Olsher's February 1991 review of the Lindsay-Geyer magnetic cable interconnect was technically beyond my comprehension. His conclusions about this cable were so dramatically in its favor as to generate disbelief; was this another example of the kind of literary excess not uncommon with Stereophile writers? Yet one could not dismiss a man of his credentials.

My Adcom preamp and amplifier are connected with a very well-known brand of cable. I bought a Lindsay-Geyer interconnect and performed comparisons using the same record, alternating the existing interconnect and the L-G between these two components.

The result? The L-G performed so dramatically better that I keep doing the listening test again and again. It didn't seem likely to me that merely substituting an interconnect could produce such improved clarity. It seemed that any aspect of listening one chose to consider was significantly improved. I admit it: Mr. Olsher did not exaggerate.

John Guenther
Stuart, FL

Never mind the whys and wherefores
Editor:
In his June follow-up on the Lindsay-Geyer interconnects initially reviewed and praised by Dick Olsher, John Atkinson presents test reports made in order to prove or disprove claims by David Lindsay as to why his highly magnetic
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THE CRITICS CHOICE
material should behave in a superior manner to other kinds of interconnect materials. Not being able to prove Lindsay's claims, one may indeed walk away from this follow-up with an overall negative impression of the L-G interconnect; too bad, should that be the case. Regardless of the whys and wherefores of the L-G technology, this is a superior product, competing easily with interconnects costing at least five times as much. That Mr. Lindsay has come up with such a cost-effective means for producing a true high-end cable should be cause for celebration! Besides, when did you guys attempt to prove the claims of other cable manufacturers (Cardas's "Golden-Section Ratios," etc.)?

**Stewart Glick**
Springwater, NY

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**Tice redux**

**Editor:**

After reading TJJN's review of the Tice Clock and JA's "As We See It" (March 1991), it was impossible not to write to you... As far as Myles Astor's report [about a demonstration of the TPT effect staged by Mr. Tice] is concerned, I was present at the same demo as Mr. Astor. (There were about 30 others present.) The system used for the audition was quite expensive. One would think that subtle variations would be audible on this all-Class A setup. But, to be fair to Mr. Tice, it was not the best possible circumstance to hear very, very subtle variations. On the other hand, he did volunteer to make the demo, presumably with full knowledge of the circumstances and confident of positive results.

Mr. Tice began by holding up two AC cords. They were both identical, he explained. But one had been "treated." Both appeared to be standard AC cords rather than speaker cable, about 6' long, plugs on one end, the other unterminated. Mr. Tice went on to say that he would plug one cable into the AC outlets and there would be an improvement in the sound of the system. This was the treated one. On the other hand, he said, the untreated cable would have no effect!

The experiment was conducted, but the results were "unclear." Since the preamps and source were plugged in separately from the amps, Mr. Tice elected to try the experiment again, using the other outlets. I forget which he did first, amps or preamps. Again, the results were "unclear" in that no one heard much of any difference. Certainly the audience response indicated that there were no "earthshaking" or easily discernible differences. Privately, I queried at least a half dozen individuals, and none acknowledged hearing any difference [presumably other than Mr. Astor—Ed.]. Since they were all strangers to me, no one would seem to have a reason to color their private observations. I do not remember many (if any) publicly raising their hands to acknowledge hearing an effect. I know that I heard absolutely no discernible change... If anything at all audible had occurred, I would be pleased to report it. Ten years ago, I was skeptical regarding the audibility of speaker cable. All it took to convince me was one listening test on a system of sufficiently high caliber, where the results were unmistakable.

**Randi Bradley**
Hannacroix, NY

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**And again**

**Editor:**

Should Mr. Tice be so angry with those who criticize his new clock (Vol.14 No.3, pp.29 & 217, and No.6, p.285)? Is it not possible to have conflicting opinions about such devices? Did anyone criticize his Power Block so severely? Perhaps it is Mr. Tice himself who should look inward to ask himself, "Why are there those who are criticizing me?"

While I've never lived in Ronkonkoma, NY (only Queens and Manhattan), in my neighborhood here in Ohio our powerline electronics seems to be well behaved, and seems not to benefit from Mr. Tice's Clocks. Like Old Man River, they jus' keep flowin' along.

When proffered explanations of these devices and potions clash with established knowledge of physics, while simultaneously failing the listening test, I can't help think that the capitalism Mr. Tice seems so enamored of is good old-fashioned capitalist bucksterism. Barnum was a master at it and did it in such a way that the people loved it, and went back again and again. But I don't remember him damning those who criticized him.

I suspect Stereophile readers want news about the latest crazes and gimmicks and about stereos from the cheapest to the most expensive dream system that they cannot afford until next Saturday's Lotto. What I think they don't need is depreciation of themselves, their hearing, or their systems via status-seeking, price-

Stereophile, August 1991
The Mirage M-1s have garnered their fair share of raves from the industry. They've invoked such comments as "I'm completely bonkers over this product..." and "The M-1 is and will be for many people their absolute reference."

Upon first listen, most people are astonished by their sonic transparency. The speakers virtually seem to disappear. In our view, that's the mark of a good loudspeaker.

We've extended that philosophy to the Mirage 60-Series loudspeakers as well. Each reflects an overall concern for naturalness, genuine musicality and transparency.

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For a free booklet of M-1 reviews from seven leading audio publications, write us or see your Mirage dealer.
tag-conscious, and equipment-name dropping to intimidate those who honestly don’t hear (or hear and don’t like) these “magic” improvements in their stereos.

The race is not always to the swift or the battle to the strong, but that’s the best way to place a bet.

And that’s the way to buy a stereo: on the possible, provable, and bearable, not on the improbable or the fantastic!

But my disbelief in magic devices is more likely to increase sales to the true believers, and certainly anyone who wants these devices should be able to buy what they want. The right to make a fool of yourself is a cherished American right, and if it wasn’t, Stereophile would never sell. But please give us magic-device agnostics the right to disbelieve in what we cannot hear or see!  
Donald Bisbee  
Columbus, OH

Tice, genius, uncertainty, & indistinguishability
Editor:
Congratulations to Stereophile for taking a reasonable stance on the Tice Clock issue. Doug Blackburn’s “Clocked” article (June 1991, pp.124–5) refreshingly used satire to address the issue.

Might it be that many audiophiles suffer system insecurity and subscribe to an existential (ie, only what one experiences to be real is real) approach to system optimization? Constant bombardment with manufacturer claims and varying reviewer opinions has brought on system insecurity. An emphasis on the subjective and a lack of understanding of fundamental scientific principles has led to the present irrationality in high-end audio. Many of the professionals who can afford high-end gear needed only rudimentary education in the physical sciences (leastly, modern physics). Has this fostered a generation of wealthy customers who are easily beguiled by impressively constructed components accompanied by shrewdly composed copy? The recent Tice Clock phenomenon typifies this concern—especially the aspect of copy.

The hypotheses set forth by George Tice violate two fundamental principles of quantum physics: the Heisenberg Uncertainty Principle and the Principle of Indistinguishability. He proposes that his “TPT-treated” clock somehow correlates the flow of electrons in a determined manner. This claim suggests that he can change the wave function that describes the electron flow in order to obtain a specific result (ie, “orderly” electron flow). Unfortunately, all one can hope to obtain is a distribution of results due to the Heisenberg Uncertainty Principle. Furthermore, the suggestion that electrons can be “programmed” implies distinguishability. The assertion that “normal” electron “flow” is random is essentially correct. Electron “flow” is random in the sense that it is described by a probability density function based on the wave function for the electronic system. The wave nature of the electron implies that the electron should be thought of as being distributed (delocalized) throughout the conductor. At any given time and for every location in the conduction band, there exists a probability that the electron resides at each location. (The probabilities are given by the above probability density function.)

Obviously, power-line conditioning is a practical concern, which has been addressed seriously by Tice’s other products. His current explanation for the “effect” of his clock on a sound system leaves much to be desired. The significance of his latest contribution remains highly elusive, given the present state of our knowledge. To expand further on Tice’s comment about genius, history has demonstrated that true genius is often not recognized until many years later. If the Tice Clock and TPT Technology reflect the man’s genius, then it may not be recognized for a long time.

Karl A. Weber, Ph.D.
Dublin, OH

Tice, physical reality, & closed minds
Editor:
As a certified audiopsychotic, music buff, and student of silliness, I have been amused and bemused by the Tice Clock controversy since, knowing little about the physical laws said to govern our universe, I am mainly impressed by my own experience of reality. In this context, anything that promises to make my sound system sound better is sound. If someone told me that mumbling incantations into my speaker cones might yield positive results, I would try it. Then, if it worked, I would buy it without needing to know why it worked.

Obviously, however, JA has different biases. I suggest that because JA has a technical back-
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ground, anything that doesn't fit neatly into his model of reality must, by necessity, be "bullshit." George Tice's explanation of how and why TPT works smacks him in his conceptual face. Tice must, therefore, be a bullshit artist. Otherwise JA's philosophy becomes food for the crapper. Such thinking creates martyrs. . .

Go ahead, condemn George Tice, John. You don't need George Tice: Stereophile won't fold for lack of Tice Audio's advertising revenue. But the industry does need all of its innovators to be able to flourish without becoming martyred by closed minds. And that's not bullshit.

Leonard G. Birnbaum
Plainfield, NJ

Poof!
Editor:
Couldn't we just wave our magic wand and make George and Francine Tice disappear once and for all?

Al Southwell
Las Vegas, NV

Find a good retailer
Editor:
I would like to comment on Larry Archibald's March "Final Word" (Vol.14 No.3), regarding finding a good high-end retailer. I happen to be extremely fortunate to have such a retailer two blocks from my home. The shop is Mel Mura-kami's Audio Haven. Mel is very experienced in high-end equipment. It is really a pleasure to step into his shop. He is very personable and genuinely cares about his customers. Mel has been very helpful in helping me choose my system, which consists of VTL, Muse, and CA. But most important is his support and dedication to audio equipment.

LA's advice is 100% correct: "find a good retailer and stick with him as long as he is able to make music in your home."

Long live Audio Haven in Upland!

D. George
Upland, CA

Pleased
Editor:
I was pleased to see the inclusion of a major retailer as a columnist. Auditions at retailers, which you recommended, formed the cornerstone in helping me to make a speaker selection a year ago.

Here are some audition suggestions to add to the list:

1) Hold high expectations, no matter what the budget.
2) Try the same speaker at different retailers. The presentation changes the perception.
3) Get a good night's sleep first. Sleep improves acuity.
4) Shop early in the day only. Customers buy because it's time to close (see #1). The retailer is more anxious to sell.
5) Alcohol seems like an equalizer diddling the ears. Ugh.
6) Judge the presentation against what you perceive was being miked and mixed, not against sounding "live" (which most CD productions don't achieve; a good speaker is being honest).
7) Back to #2: the acoustics vary so much that you can predict a speaker's sound in your home by the difference at each retailer.

Thanks for a very enjoyable magazine.

Dan Buckman
Sonora, CA

Bravo for Andrew Singer
Editor:
Bravo! for Andrew Singer's "Dispatches from the Front."

He definitely hit the nail on the head when he spoke about audio salesmen [being viewed as] not very trustworthy.

As an audio lover for the past five years, I have only recently begun to delve into high-end audio. The past 4½ years were spent listening to the ramblings of moronic mass-market salesmen and reading all the subsequent publications. I have, however, managed to find one audio salesman and audio lover in whom I have total trust. His advice has never faltered.

The only high-end dealer in my area (Sound II) has been very considerate of my being new to the high end. They are not afraid to let me take things home and try them, where, as Mr. Singer says, "It counts." Needless to say, the mass-market stores would not let you do this. Come to think of it, there's not much in there I would want anyway!

Magazines such as Stereophile offer people such as myself an avenue to read and learn about new products and about the high end in general. I have learned more in the first three
Some people who sell hi-fi would just as soon sell you a food mixer, or a toaster, or a microwave. It's all the same to them, because they treat hi-fi as if it were just an appliance. Others, by way of contrast, are music enthusiasts. They specialize in hi-fi, and they enjoy helping you choose the right system. Your Linn hi-fi dealer fits into this category. Of course, he doesn't just sell Linn, so you can listen to our hi-fi and compare it with other good systems. You'll find it very easy to tell the difference, because you'll be mixing with the right company.

To some shops it's a hi-fi.
issues of *Stereophile* that I received this year than in three years of *Stereo Review*! This is not to berate SR, you understand—they were good for what they were—but I feel it is time to move on; *ie*, to *Stereophile*. Keep up the good work.

Patrick M. Giordano
East Providence, RI

Who the hell is Andrew Singer?

Editor:
I am absolutely amazed at the decision to allow Andrew Singer to write a column about retailing and the high end. While I am all for communication on this subject in *Stereophile*, giving one retailer in the entire United States the opportunity, month after month, to voice his thoughts and opinions is unquestionably the wrong way to go about it. It is also a slap in the face to all the other dedicated, professional retailers in this great country of ours.

Want to know a few ways it should have been done?

1) Mr. Singer's remarks, at the very most, should have been communicated in the "Letters to the Editor" column like everyone else who thinks they have something to say. Who the hell is Andrew Singer that he gets his own column?

2) The column could have been at least rotated, whereby a cross-section of various retailers across the country were given the opportunity to express their views on pre-determined topics.

3) A national panel of retailers could have been organized to discuss the issues at hand, to be reported on collectively by a staff writer of the magazine.

I hope the hell JA's mind clears and he realizes that this decision was not only an imprudent one, but also a very callous one.

Kenneth J. Annibale
Mineola, NY

The names don't matter

Editor:
As an audiophile and non-retailer I am concerned about recent developments in your magazine. "Dispatches from the Front" provides a single retailer with a forum to express his views and promote his store. *Stereophile* should send out an open call for submissions by all articulate retailers and give your readers the opportunity to hear the widest possible range of opinions and experiences.

The names of retailers don't matter—their experiences and expertise do.

Greg Voth
New York, NY

The mail-order question

Editor:
Thank you for publishing my point of view (*Stereophile*, Vol.14 No.6, pp.37–39) in regard to what makes specialty retailers special. In the same issue, Andrew Singer, in "Dispatches from the Front," asks, "I wonder how [consumers] feel when faced, in their own fields of endeavor, with second-guessing and Monday-morning quarterbacking by well-meaning aficionados?"

Okay, since you asked, Mr. Singer! I earn my money in the backpacking and outdoor equipment industry (formerly as national sales manager of a high-end outdoor apparel manufacturer, currently as a retail sales training consultant to a major outerwear fabric supplier). Many (most?) of the high-end outdoor specialty retailers feel the same way you do, for the same reasons, about mail-order firms.

They would say that for a consumer to get a proper fit in a pair of mountaineering boots, or to select the most appropriate internal-frame pack, or to choose the right pair of cross-country skis (for their height, weight, and skill level), the consumer must visit a high-end outdoor specialty retailer. No, they would not like second-guessing and Monday-morning quarterbacking by well-meaning aficionados who shop the L.L. Bean catalog rather than supporting their local outdoor specialty retailer.

You say you love the L.L. Bean catalog and buy from it. Surely you are not telling us—are you, Mr. Singer?—that while it is correct for an audio retailer to purchase outdoor gear via mail order, it is not correct for an outdoor retailer to buy audio gear via mail order. After all, the quality of your outdoor gear may save your life when the going gets tough.

You also say, "With high-end audio, however, the process from selection through installation is simply too complex to lend itself to long-distance do-it-yourself operations." That statement suggests, at least, that Sound by Singer refuses to sell via long-distance telephone because "what is eminently clear is that there is no substitute for being there." I was curious, so I dialed the telephone number in your *Stereophile* advertisement. A polite and helpful voice answered and told me, "Yes, we can sell to you in California. Just send us authorization
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SOUNDS LIKE NO OTHER...
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to use your credit card via a letter or fax, and a photocopy of the card." Is that a long-distance deal or what?

"In a free-market society there is no greater guarantee of integrity than knowing that failure to exercise it will lead to loss of revenue." Given Mr. Singer's propensity to sell via long-distance telephone, it would seem that integrity is more easily preached than practiced.

Again, the bottom line is that special retailers with a storefront operation (and a telephone?) have nothing to fear from mail-order-only firms. So relax, Mr. Singer, and enjoy the music your cash register is making! Leave the homilies on integrity to the televangelists and the politicians. I'd much rather hear what you have to say about assembling a system that makes music. And if what you say makes good sense, I may call Sound by Singer again and we can talk about spending some of my money. In the meantime, trash those L.L. Bean catalogs and support your local outdoor specialty retailer.

John Arrington
Arcata, CA

Again the mail-order question

Editor:

Reading the letters in the May and June issues of Stereophile on the debate about mail-order vs high-end dealers got me stirred up enough to add in my 2¢ (actually 29¢) worth. I, "Joe Buyer," have dealt with both local high-end dealers and mail-order companies. I feel both sides have presented arguments that warrant their existences.

For components which I am not familiar with or which I am undecided about, I seek the advice of my local dealer. If I solicit the help of my dealer, I will buy that product from him if it happens to be the product I decide upon. I would never use my dealer to audition a component and then buy it from a mail-order house.

Depending on the price, I may buy from a mail-order house components which I am familiar with, or which I have blind faith in. This includes items such as Monster X-Terminators, Tiptoes, etc. These are products I have either read about or which friends of mine have recommended. The only reason I use a mail-order house for these products is for the cost savings. This gives me more money to spend on other components (which I may purchase from my dealer).

I have also purchased larger items from a mail-order house. For example, a couple of years ago I bought a pair of Stax SR34 Pro Ear-speakers from my dealer. I had a friend who owned a pair of Stax Lambda Pro Signatures and I fell in love with them. I really wanted a pair, but not enough to spend $2000. Then one day I heard through the grapevine that HCM Audio had a super special on these headphones (only $1250). I couldn't pass up this deal, so I bought them. My dealer didn't lose a sale because I would never have bought them for $2000.

In most cases I am very happy about the service I receive from my local dealer. But dealers are also biased toward the products they sell (logically so). My main dealer sells Mark Levinson amplifiers and Apogee speakers, along with many other fine products. I bought a pair of Duetta Signatures which are currently being driven by my Adcom GFA-555. This amp does a good job with my speakers, but I am looking to upgrade to a true Class A amplifier. I have listened to both Krell and Mark Levinson amplifiers on Apogees, and in my opinion—the one that counts—I slightly prefer the Krell. My dealer disagrees, thinking the Mark Levinson would be a better match for my speakers. However, the local Krell dealer panned me off the first day I walked into his store by telling me my Apogees weren't true high-end speakers; that real audiophiles listened to dynamic speakers such as Hales and B&W (the speakers he happens to sell). He has his opinion and I have mine. I know this subject (dynamic vs planar) is very touchy among audiophiles, but removing a potential customer's preference is not a good way to make a sale. That leaves me with two alternatives: drive 200 miles to Houston or Austin, or order the Krell through a mail-order house.

The latter choice puts me on my soap box. The June Stereophile contains a column by Andrew Singer. Mr. Singer, of Sound by Singer, proceeds to tell us how we should not buy high-end audio by mail. But in the very same issue (p.88), Mr. Singer's company has an advertisement that displays the price of Krell amplifiers and other products. I called the number in the ad and asked if I could order one of these Krell amplifiers by mail. The answer was "Yes." Now, Mr. Singer, please explain to me how this would be any different from me ordering this product through a mail-order house. I don't fault you for wanting to sell me an amplifier through the mail. Why should you fault others.
"The choice is simple. Whether for your living room or our recording studios, you can't buy finer amplifiers than Hafler... at any price."

Pat Weber, National Technical Director, MCA Recording Studios

When America's major recording studios make their masters, they rely on the dependable quality reproduction of sound from Hafler. These same professionals make Hafler their choice at home as well. In the studio or your home, all Hafler amplifiers provide superior reproduction of sound through the use of advanced MOSFET circuitry. The Hafler SE120, SE240, XL280, & XL600 amplifiers. Unsurpassed performance at an affordable price.
Mr. Singer responds below to the letters questioning the apparent contradiction in his views on selling products by mail-order. First, however, I would like to address a couple of points regarding the "Dispatches" column. In addition to such routine editorial matters as that any columnist must both have something to say and be able to express it in writing—I say "routine"; these are the two biggest hurdles for any would-be writer to overcome—there are two issues involved which to a large extent are mutually contradictory: 1) that only an active retailer can discuss high-end life from the retailer's point of view; 2) but that if a retailer writes such a column, there is a danger that he or she would use it for self-promotion. In addition, it could be interpreted that Stereophile endorsed this retailer over all others.

While I feel that Mr. Singer has been honorable in avoiding self-promotion and has addressed issues that concern all specialist retailers, I acknowledge the risk that some readers might assume an apparent endorsement by this magazine of Mr. Singer's store. However, this is certainly not intended to be the case. The fact that Mr. Singer is writing a column for Stereophile does not mean that his store is any better or any worse than any other retailer, whether they are a few blocks from Sound by Singer or on the other side of the country. It has always been Stereophile's policy to advise its readers to patronize their local retailer. If their local retailer cannot give them either the service they require or what they are looking for, then of course they should shop around; but they should turn to their local retailer first.

And please, if you find a retailer who takes the time to let you audition equipment in his store and even lends it to you to audition in your own home, purchase your components from that retailer. (And like Mr. Giordano, when you find such a paragon, write to tell us.) To take advantage of that store's generosity only then to buy from someone else who offers a bigger discount or even a discount at all may seem like prudish consuming but it is actually dishonorable. Stealing time still counts as theft.

I feel that the dangers of one retailer contributing are outweighed by Mr. Singer's status as a member of the high-end retailing community, which lends what he has to say the ring of truth. Nevertheless, I am sufficiently impressed by Mr. Voib's mention of "an open call for submissions by all articulate retailers [to give readers] the opportunity to bear the widest possible range of opinions and experiences" to change the format of "Dispatches from the Front." While Mr. Singer will continue to contribute, the column is now thrown open to anyone involved in high-end retail sales—from store owners and the principals of mail-order operations on down to the most junior salesperson on the floor—who feels that he or she has something to contribute. Please send contributions directly to me at P.O. Box 5529, Santa Fe, NM 87502.

—JA

Mr. Buckman makes some excellent points. I would add only two things. First, look for a high-end retailer who offers an exchange policy for any component that proves not to perform as well in the home system as expected. Second, before locking on to a given product, be sure to query your dealer about bow he feels it will work in a given system or listening environment. So, rely on your local dealer and thank you for your support.

Mr. Giordano, people like you and Mr. Buckman make it all worthwhile. Thank you.

I quite agree with Mr. Voib that it is the experience, not the name of the retailer, that matters. I have 13 years of experience in every aspect of high-end retailing. I have set up more turntables, evaluated more components, helped more customers, and planned and installed more systems than I could count in a week. I have built Sound by Singer from nothing to one of the most respected high-end stores in the world, working an average of 60 to 70 hours a week to do it. That is who the bell I am, Mr. Annibale. I have earned the right to express my point of view by experience, knowledge, and hard work. Moreover, other dealers have been invited to submit articles for publication in this column. I guess who the bell I am is the only qualified person thus far who has shown a willingness to take on the responsibility of submitting an article every month. I welcome company.

It is amazing how much emotion seems to be generated by "Dispatches from the Front"—as well as how much misunderstanding. We are in agreement, Mr. Arrington. I would no sooner buy a pair of skis or mountain boots
Line protection - you can pay a little for it now, or you can pay a lot for it later.

—Ken Pohlman, AUDIO, November 1987.

Regardless of how sophisticated your stereo and video system is, it may never achieve its full potential if plugged directly into an AC outlet. Raw and unprocessed AC power can severely diminish the clarity of audio signals and reduce the resolution of your video picture. Harmful high-voltage spikes and surges can also damage your valuable equipment.

The ADCOM ACE-515 AC Enhancer significantly improves the performance capabilities of your system by filtering and processing raw AC power, unveiling a pure, noise-free power source. And, it protects your components from harmful line voltage disturbances.

Listen To The Critics

"Electronic equipment (especially digital audio gear) is vulnerable to both annoying and catastrophic power-line problems. Your stereo gear should have line spike and surge protection, with hash filters thrown in too."
—Ken Pohlman, AUDIO, November 1987.

"...the effective suppression of AC 'RF hash' by the ACE-515 improved clarity and lowered noise in all three CD players...the significant improvements in instrumental and vocal harmonic retrieval and hall ambience are superb...it simply appears to allow musical information to be passed through to the listener with less veil and electronic 'haze.'
—Lewis Lipnick, Stereophile, Vol. 11 No. 4, April 1988.

Recommended accessory in Stereophile, Vol. 12 No. 4, April 1989.

For a modest investment, the ADCOM ACE-515 enhances both audio and video clarity while protecting your equipment. Once again, ADCOM lives up to its reputation of offering superior performance at a reasonable cost. For complete technical data, please visit your Adcom dealer. You'll discover the ACE-515 is more than an accessory. It's a necessity.
from a mail-order house than watch 24 hours of Doris Day movies in a row. My reference to the L.L. Bean catalog was obviously directed toward nonperformance products: sweaters, chinos, etc. So have no fear, high-end outdoor sporting-goods retailers have my full support.

Insofar as selling audio by long distance is concerned, Mr. Arrington is quite right. We sell components to anyone who wants to buy them anywhere in the US, under certain circumstances. I see no inconsistency between this policy and statements made in my column, for several reasons. First, we encourage people to patronize their local high-end dealer. We will never parasitize another dealer's work. We tell callers who are looking for the best price that they are looking in the wrong place. Second, in many parts of the country there simply aren't any high-end audio dealers. Try finding an outlet for Krell or Levinson in North Dakota or West Texas. If you do, it may be such a long drive or such an expensive airplane flight (it costs more to fly from Jackson, WY to Denver, CO than from NY to CA) that it is cheaper and easier to go to NY or CA to purchase components. We greet four to five visitors every day who make this trek for this reason. For those who can't make the trip, shopping by mail or telephone may be the only alternative. Then, too, as Mr. Ihrer points out, personality conflicts may arise that make the local dealer less desirable than someone further away. When further away is 200 miles or more, shopping by mail sometimes becomes the best alternative.

Third and finally, I never stated that buying something long-distance from a high-end audio dealer is unreasonable when local sources are not available. It is the character of the dealer, not its proximity, that is the key factor. The "long distance do-it-yourself operations" which I excoriated and to which Mr. Arrington refers are undesirable primarily because of the do-it-yourself part of the process. Given appropriate information (room dimensions and sonic characteristics, listening tastes, budget, etc.) a good high-end retailer can recommend a system for a given listening environment with a high degree of success. At Sound by Singer, we are set up to sell, install, and service systems all over the country and to make additions and substitutions in the field if necessary. Many other high-end retailers possess the expertise and provide the services necessary to service customers many miles away. Still, there's nothing like being there.

—Andrew Singer

A requiem for the Garrott Bros.

Editor:

A requiem for John and Brian Garrott, who with their wives committed suicide [at the end of April]. They not only did a great deal for the whole audiophile and music-loving community, but also for the local industry and individuals trying to compete internationally. For the benefit of everyone, their interest was to economically improve the quality of music reproduction, which puts them in an elite group. That life should become so unendurable as to presage such a conclusion to such genuine worthwhile talent is sad and tragic. May the band play "Waltzing Matilda."

G. Young
Australia

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Australia: John Atkinson
I was saddened to learn of the recent death by suicide of the Garrott brothers (see this month's "Letters"). Though reclusive by nature, John and Brian Garrott had had a significant effect on the state of analog replay in the late '70s and early '80s with their development of the Garrott diamond stylus, whose profile (variously called "Parabolic" or "Microscanner") was intended to more closely resemble that of the cutting stylus. I have fond memories of auditioning a Decca cartridge fitted with a Garrott tip, while Anthony H. Cordesman, writing in Stereophile a few years back (Vol. 7 No. 8, December 1984), was also impressed by the Garrott Decca, finding it to be superior to the more widely available Decca fitted with a van den Hul tip. Though Brian, the younger brother at 46, was in good health, John, 54, was suffering from a terminal heart condition. Perfectionists both, they were apparently depressed by the commercial success of Compact Disc. A May 4 article in the Sydney Morning Herald quoted John as saying that CD players "couldn't play a note of music."

US: Peter W. Mitchell
The royalty wars seem to be over. As this issue goes to press, an announcement is expected any day confirming an agreement between the recording and electronics industries. In the past, manufacturers of recording equipment have stoutly opposed any royalty tax on hardware and tapes, while record companies have campaigned for royalties of up to 10% on recorders and 15% on blank tapes. The RIAA's last request was for a tax on DAT blanks of 1.2¢ per minute, adding $1.44 to the cost of an R-120 tape. As an alternative there have been many discussions about including a "debit card" system in digital recorders that would identify the CDs that you copy and serve as the basis for distributing royalties to the appropriate performers and composers.

On the second day of June's CES, Robert Heiblim of Denon told me that negotiations between electronics manufacturers (represented by the EIA) and record companies (represented by the RIAA) had just reached a conclusion, and an agreement specifying a 2% royalty on digital recorders might be announced on the following Monday. He said, and I agreed, that it was regrettable to give in on the principled opposition to royalties, but since the tax is small the compromise would be worth making in order to stop the organized opposition to digital media. Without some compromise DCC, MD, and recordable CD might never get off the ground.

I already knew about another major news story which would be announced that Monday (NBC's selection of Jay Leno to succeed Johnny Carson next May as the permanent host of the "Tonight" show), so it promised to be an interesting day. As luck would have it, at lunch on Sunday I found myself sitting next to Gary Shapiro, CEO of the EIA, so I asked about the royalty agreement. He replied that he knew of no Monday announcement, but couldn't comment on the status of the negotiations.

Sunday's TWICE Today CES newsmagazine featured a front-page report that Radio Shack and Matsushita had abandoned their opposition to royalties and were engaged in negotiations. The article speculated that the major Japanese electronics manufacturers might have become more sympathetic to royalties after they acquired financial interests in audio and video software. (Sony owns CBS Records and

1 My thanks to Australian subscriber Peter Lynden for faxing me this story.
Columbia Pictures, Matsushita bought Universal Studios and MCA records, Toshiba has a piece of EMI Music, etc.)

Other stories published after CES, based on interviews with Radio Shack chairman John Roach, confirmed that after discussions with Philips, Roach had been vigorously lobbying fellow electronics manufacturers to compromise on a small royalty tax. Only a few months earlier, in a Radio Shack circular mailed to 50 million homes, Roach proclaimed the freedom of consumers to use tape recorders without paying royalties. But he has also said that Radio Shack won’t start selling DCC decks until the royalty question is settled. Apparently the final breakthrough occurred during CES: the governing board of the EIA’s Consumer Electronics Group voted to seek a compromise with the music industry in order to break the five-year-old stalemate on copyrights and digital recorders. This was a radical turnaround, since the EIA has been a leading member of the Home Recording Rights Coalition, the lobbying group that was still campaigning against any royalty tax in its booth on the main CES floor.

According to Audio Week, the emerging compromise will involve the 2% tax on digital recorders mentioned earlier, plus a 3% royalty on digital media (blank tapes and discs). In exchange, the music industry will stop fighting digital media and will forget about debit cards, royalties on analog recorders, and VCRs with digital sound.

**Motown: Corey Greenberg**

Every once in a while a dispatch comes over the wire so vile, so purely EVIL that I feel its terrifying chill from the tip of my monkey bone all the way to the center of my heart. As I get older and ever more jaded, this happens less and less frequently, but an item in the May 17th issue of Pro Sound News just shot off the page and put a topspin on my medulla the likes of which I haven’t felt in a long time. Here’s how it went:

Motown apparently decided that even their current crop of lifeless, soundalike danceteria Jheri-curl airbrushed razor-cut first-name-only young malleable disposable café au lait not-talent teen dream cream superstars wasn’t enough to fully conquer the charts and sync the butts of Young America as they had in their glorious funky heyday back in the ’60s and ’70s, so they hired a prototypical soulless white synthnerd to “massage into commercial shape some rough recordings in the Marvin Gaye vault.”

Now stop for a moment. Reread that last sentence out loud. Call your wife, your husband, your children, your visiting clergy into the room and read it to them as well, looking straight into their eyes as you do. I’m serious—this is very important. Sampling, the practice of lifting a drum beat or a James Brown “Ungh!” off a classic record and using it as a rhythmic device on a new recording, has hinted at the horrifying and artistically barren possibilities of our ever-increasing technical ability to dissect, manipulate, and reconfigure audio, but I believe that this Marvin Gaye project is the wave of the future, and we should ALL be aware of the ugliness that awaits.

The synthnerd, one Steve Lindsey, was sent the original 16-track Marvin Gaye masters from Motown, who instructed him to turn the “incomplete songs” into modern-sounding hits: “My Last Chance,” already a hit on the black charts, and a remake of the Presidents’ “5, 10, 15, 20, 25, 30 Years of Love,” which is just starting to show some chart life. Without going into all the technical details, what Mr. Lindsey did was dub the original vocal tracks directly to DAT; from there the tracks were sampled, one eight-bar vocal phrase at a time, into an Akai S1000 sampler. The Akai has the ability to edit, reconstruct, and even change the pitch of an audio waveform in real-time, so he was able to twiddle his pitchwheel and “correct” Marvin’s vocals when Lindsey decided they were off. Forget matters of idiосyncratic vocalization, or even style; PERFECTION was what Motown wanted, and that’s what Lindsey delivered. But HORROR OF HORRORS!! That silly, uncooperative negro had the audacity to *speed up the beat* as he sang! Lindsey found the “5, 10, 15 . . .” track to accelerate at the rate of FOUR BEATS PER MINUTE!!!! This whiteboy decided that this was UNACCEPTABLE. Screw

2 Actually, this whole trip is nothing new; producer Alan Douglas got hold of some unfinished Jimi Hendrix multitrack tapes in the early ’70s and proceeded to WIPE the original bass and drum tracks, replacing them with *wastily* different tracks cut long after Jimi’s death by various LA slickers. The resulting albums, Midnight Lightning and Crash Landing, were so unbelievably horrid that Rolling Stone’s Dave Marsh, not normally very excitable, deemed them "blasphemy unto the Lord."

Also, Clint Eastwood commissioned a reworking of classic Charlie Parker sides for his otherwise excellent film *Bird*, and Parker’s solos were digitally removed from their surrounding accompaniment and reconstructed with modern tracks from Ron Carter and Herbie Hancock. While not quite as blasphemous as the Hendrix hybrids, I still have a fundamental problem and hatred of this type of recording, for reasons I’ve gone into in the main part of this update.

Stereophile, August 1991
the emotional effects that a slight tempo acceleration (or deceleration) has on the listener; Lindsey and Motown wanted PERFECTION, in all likelihood so that these archaic, funky old tracks wouldn’t hip Young America to the utter vapidity and lack of soul in Motown’s contemporary roster of 120bpm no-talent.

Now Marvin’s vocals are in “perfect” pitch and time, so that can only mean one thing: DIGITAL DRUM-MACHINE TIME! And as if this weasel hadn’t already pushed the envelope of pure, naked evil, he went and sampled Mo'town great Benny Benjamin’s drum sounds off the classic Gaye “What’s Goin’ On” album to use as the discrete triggered drumbeats for the rhythm track. Lindsey did all this sampling and sequencing on an Akai MPC-60 digital sampling drum machine, of which he gushes, “At this point I really can’t live without the MPC-60.”

I believe him, and am seriously contemplating heading out to La-La Land and stealing Mr. Lindsey’s Akai, just to watch from the shadows as he arrives at the studio the next morning, sees the drum machine gone, thrashes around the room spewing vomit and coke-phlegm all over the platinum albums on the walls, and falls to the floor wriggling like a worm on a hook until he dissolves to a small stain of peanut-butter–based protoplasm on the carpet, which I’ll then wipe up, spread on a Ritz cracker, and feed at gunpoint to Motown head Jheryl Busby.

After the drum sounds were pieced together, real live studio players were brought in to lay down wimpy tracks with just the right lack of soul so they wouldn’t interfere with the precision of the rest of the tracks, and there you have it: completely new Marvin Gaye songs, with as much of Marvin’s personal vision and artistic direction as was possible surgically removed with Today’s Technology. And look at ‘em zoom up them charts!

I want you to think about just what went on here: Lindsey did, and has no problem sleeping at night. He “corrected” Marvin’s vocals when be felt them to be flat, sharp, etc., without regard to insignificant little matters of non-import like original artistic intent, organic non-homogeneity, and the wonderfully human characteristic of joyous imperfection. Imagine Billie Holiday’s vocals as they would sound “corrected” of their pitch abnormalities. Or Muddy Waters’s guitar lines “corrected” of their atonal slides and intentionally off-key embellishments. Imagine the Beatles’ Sgt. Pepper “corrected” of all off-pitch and rhythmic irregularities. Imagine being fondled by a robotic arm, while a quartz-clocked solenoid thrusts a cold steel tongue into your mouth at perfect three-second intervals. I can, and I feel like killing someone.

Music used to be made by musicians who played together in real time, who learned how to create emotionally stirring grooves by RE- ACTING to each other as they played. If the drummer pushed the beat ahead and you followed him, you created a feeling of impending excitement, like a rush of adrenaline. If the guitar player was T-Bone Walker, he played around, behind, and on top of the beat in a game of musical tag that drove audiences crazy with tension. He SWUNG, as did early Ellington, Monk, Louis Jordan, Gene Vincent, and the Meters. What’s the common denominator? They all played and recorded in REAL TIME, as in, all together, all at the same time in the same room in one take. Multitrack recording has its advantages, don’t get me wrong; Electric Ladyland wouldn’t have been possible without it, and it serves a very useful and creative purpose for certain types of recording. But an artist like Marvin Gaye, so deeply rooted in the gospel tradition, a genre characterized by extreme emotional and hence musical peaks and valleys, is best served by a REAL band, playing in REAL time, recorded by a REAL producer. Without REAL art, I don’t know of any reason anyone would give a good god damn about music, life, or anything else.

I won’t listen to these new Marvin Gaye songs. The very fact of their existence fills me with anger and a sense of deep betrayal. When technological advancements make horrors like this possible, accessible even, to anyone with a basic knowledge of addition and subtraction, maybe it’s time to sell the Clavis, buy some plastique, and head for Detroit. BYOB.

3 I find all this disturbing if only for one reason. Drum machines and MIDI sequencers may be great for laying down demos, but if real music is about communication, what the hell does an Akai MPC-60 have to communicate? “Mmmm, those electrons feel so organized!” Give me a break. —JA

US: John Atkinson
In last month’s affordable loudspeaker survey, though the panel in general found the diminu-
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ative Wharfedale Diamond IV to be musically satisfying, its midrange was felt to be too colored for a general recommendation at its $400/pair price. "If they were $250–$300/pair I could recommend them," said Guy Lemcoe. After the review had been set in stone, we found out that a change in US distribution has led to the price of the Diamond dropping precipitously, to $299/pair, which makes the speaker a solid, if somewhat bass-shy, Class D Recommended Loudspeaker. For details on the Diamonds and the other speakers in the Wharfedale line, contact Geoff Miller at Wharfedale, 1940 Blake Street, Suite 101, Denver, CO 80202. Tel: (303) 291-3100, Fax (303) 293-9738.

Japan: Peter W. Mitchell
In May's "Update" I cited a report in Audio Week saying that Sony's new Mini Disc system would employ a new technology called Thermal Eclipse Reading. Also known by the acronym IRISTER, this would enable a normal infrared laser to record and play half-size spots, so that the disc could contain four times as much data per square inch. The report, which evidently originated at a Sony press conference in England, was premature to say the least. Apparently what Sony's UK spokesman actually said was that the new technology "is being considered" for use in the Mini Disc.

In fact, the first-generation MD system, described here in the July issue by Robert Harley, will use normal-size pits. Instead of using IRISTER to quadruple the information density on the disc, Sony adopted an aggressive 5:1 data-compression scheme that reduces the data rate from 1.4 megabits per second (as in the CD) to only 0.3 MBs. Of course, IRISTER technology could be used in a future generation of MD machines, but that would create a standardization problem: discs made with IRISTER would not play on first-generation MD machines.

That might not matter if the MD were being sold mainly as a home-recording format. If you are recording your own discs, you can always play them on the machine you used for recording. But Mini Disc is also intended to be a mass-market playback format, optimized for portability, and its success will depend on the willingness of record companies to issue lots of recordings in MD format. One of the MD's major selling points is that prerecorded Mini Discs can be mass-produced in existing CD pressing plants with only minor hardware modifications. Sony Music (formerly CBS Records) plans to release popular recordings in both CD and MD formats. The assumption is that people who listen to music at home will buy the CD. Those who listen mainly on the move, for example teenagers who are permanently grafted to a Walkman or boombox, will convert to the Mini Disc (which is much smaller than any tape cassette and shares the CD's quick access and non-contact playback). Obviously the MD could never succeed as a mass-market music format if Sony switched in midstream to an incompatible format using half-size pits.

Denon faces a similar obstacle with its blue-laser high-density CD, which was described in last October's "Update" and was shown at the June CES. Its short-wavelength laser plays half-size pits, allowing 80 minutes of music to be packed into a conveniently tiny 3" mini-CD with no data compression to impair the sound. It's a very appealing concept. But because such CDs would be incompatible with the existing universe of CD players, Denon isn't producing high-density discs and players for sale. Similarly, IRISTER technology could be used for the home-recordable version of MD, to provide hour-plus recording times on the 2.5" disc without using digital data compression. But it might cause confusion if mass-produced MDs were made with normal pits and 5:1 compression while home-recorded MDs used an incompatible combination of half-size pits and no compression.

In engineering, as in biology, the central problem is too much diversity. Given a set of goals, designers often come up with six solutions rather than just one. Back in the late '70s, for example, a dozen formats were proposed for the digital audio disc. These were narrowed down to three compact designs (including one from Telefunken called the Mini-disc) before the Philips/Sony Compact Disc emerged as the worldwide standard. That selection process was not an afterthought but a practical necessity. The music industry learned from the contest between the Edison cylinder and the flat Berliner gramophone disc a century ago, and has insisted on standards ever since. In each era, uniform standards have made it practical to dis-
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"The survival of the fittest," Darwin's phrase for the competition among biological species, may now be applied to the digital audio formats that have been designed to replace the analog tape cassette. Since each of these new formats is supposed to have the same relationship to the CD that the analog cassette had to the LP, there has never been any disagreement about its essential properties. It must be user-recordable, compact, highly portable, and supported by a raft of affordable prerecorded software.

The R-DAT format, created nearly a decade ago, met all but the last of these goals. Japanese companies developed an assortment of digital tape systems, which were boiled down to two basic formats: rotary-head (R-DAT) and stationary head (S-DAT). In 1985 16 companies agreed on a single R-DAT format as the digital replacement for the analog cassette. But this choice was exclusively Japanese, with no participation by the European and American interests that eventually would have to accept it. They didn't.

In Darwinian terms the DAT may prove to be the dinosaur of digital recording formats. Like some of the dinosaur species of old, which are thought to have survived by evolving into flying birds, the DAT is dying as a mass-market consumer format but has evolved into an unexpectedly popular system for professional recording and CD mastering. $800 seems to have become the standard price point for consumer DAT recorders that exhibit small but detectable imperfections in sound quality at very low signal levels. Interestingly, the drive to get consumer DAT decks down to that price level also affected the cost of professional DAT decks that have more flexible operation and essentially transparent sound.

Case in point: the Panasonic 3500 Pro DAT deck was large and solidly built, with balanced analog input/output connections and a very good sounding MASH 1-bit A/D. It cost about $2200. Its replacement, the 3700, has even more transparent-sounding delta-sigma A/D and D/A converters, simpler but very flexible controls (including a jog/shuttle dial), both consumer (S/P-DIF) and professional (AES/EBU) digital input/output connections, and costs only $1600. When using the AES/EBU connections you can even set the SCMS control code by hand so that the resulting tape will be freely copiable (or uncopyable, if that's what you want) on consumer machines.

With DAT safely relegated to the professional and high-end audiophile markets, the road was wide open for a new format that would become the worldwide mass-market digital successor to the analog cassette. The Philips Digital Compact Cassette (DCC), described here in April, seemed to be that product. All of the potential obstacles to its success have been dealt with. The hardware will be produced by major manufacturers in Europe (Philips), Japan (Matsushita and Sony), and the US (Radio Shack). Ditto for blank tapes: BASF in Europe, Tandy/Memorex here, and several companies in Japan. Seagate, the world's largest manufacturer of computer hard-disk drives using thin-film technology, joined with Philips to develop the thin-film heads required for the DCC. Seagate's vast and efficient Silicon Valley factories can turn out DCC heads by the millions and will sell them at low cost to any company that gets a Philips license to produce DCC machines.

DCC, unlike DAT, will be supported by a raft of software. In addition to the dozen or so labels that Philips has already signed up to issue DCC recordings, most other major labels (such as BMG/RCA) have been waiting only for an agreement on royalties. Even Sony/CBS has announced its intention to produce DCC tapes.

DCC's future seemed clear until Sony threw a brick into the works by introducing the Mini Disc. Now the only thing that seems certain is that there will be a format war. Sony has tried to diminish that prospect by emphasizing that the real design goal of the Mini Disc was to make a more perfectly portable CD. Nearly a decade after the CD's launch, only about a fourth of the nation's households have CD players, and only a fifth of those (ie, 5% of the total) listen to CDs away from home. Sony's design goal for the Mini Disc system was to combine the small size, home recordability, and go-anywhere convenience of a Walkman with the clarity, fast track access, and wear-free non-contact play of the CD.

Of course, Sony (and others) already make truckloads of portable CD players; but as you know if you've ever jogged while wearing one, they mistrack. You can stroll through the park while swinging a CD portable on a strap, but it can't take the sharp jolts that come with jogging (or driving a car on the potholed streets of a northern city). Besides, 5" CDs are too big.
How a little company from Huntingdon, England, consistently produces the world’s best-sounding CD players.

Meridian’s first CD player, the MCD, single-handedly opened the door to higher CD sound quality. Each and every Meridian CD player that followed—the PRO-MCD, the 207 and then the 206—set progressively higher standards for sound quality, winning the highest praise from audiophiles and critics alike.

This time, Meridian has refined a new type of digital signal processing to create the Dual Differential PDM BITSTREAM D-A Conversion System. Available first in the 208 CD Player, this breakthrough Meridian technology results in CD reproduction with unequalled clarity, resolution and accuracy. Now, the Meridian 208 CD Player/Preamplifier, the new 206B CD Player, the 203 and 606 Outboard D-A Converters, the 603 Control Unit, and the amazing D600 and D6000 Digital Loudspeakers all use the Dual Differential PDM BITSTREAM Conversion System.

Never satisfied with “good enough”, Meridian always can be counted on to make the best sounding digital technology sound better.

For the technically-minded, this new Meridian conversion system employs two parallel, 256x oversampling BITSTREAM processors in each channel. Exclusive digital circuitry makes an inverted copy of each channel’s signal and then sends this normal/inverted pair of differential digital signals to the converters. After conversion, a differential passive analog filter eliminates extraneous ultrasonic noise; then a differential amplifier combines the two audio signals into one ultra-low-noise, ultra-low-distortion signal. This system offers a phenomenal linearity of ±0.5dB, from 0 to -120dB, a range as wide as that of human hearing and greater than that of existing live recording systems.
to carry in a shirt pocket, and jewel-box carriers are awkward to cope with when you're jogging or driving. All these drawbacks were eliminated in the design of the MD.

For public consumption Sony has been unwilling to state that the MD will compete directly with the DCC. But when Philips introduced the DCC as the direct successor to the analog cassette, it emphasized that the core market for cassettes resides not in living-room stereo but in portable applications. Sony's target market for the Mini Disc is the same. Indeed, at a CES press conference Sony exhibited mockups of a headphone portable, a boombox, and a car stereo, each containing an MD player. A Sony white paper explaining Mini Disc technology contains these words: "It is expected that the CD and the MD will peacefully coexist in much the same way as the LP and the analog cassette have for so many years."

The clear conclusion, as Robert Harley suggested last month, is that the MD and the DCC will compete head-on to replace the analog cassette for portable listening. What's the most likely result of such a format war? I suspect that a large part of the mass market, which might be ready to invest in a new digital audio format if there were just one, will look at the competing formats and decline to buy either. "A plague on both your houses!" No one wants to buy a new format that might vanish into oblivion a few years later. Of course, there are rebellious loyalists like me who still use Beta VCRs, and a smaller number of car buyers who treasure their Edsels. But most people want to be part of a majority, and will postpone a buying choice until it becomes clear which format will win.

In view of the general approval that the DCC won earlier this year, why didn't Sony cancel the MD? Why start another format war? One possible answer has to do with the personal egos of corporate heads. It points to the longstanding rivalry between Sony and Matsushita, exemplified first by the contest between Beta and VHS and now between camcorder formats (8mm vs VHS-C). Matsushita, Sony's enemy, has a technology-sharing alliance with Philips that goes back a half-century, to before World War II. In this view the Sony/Philips partnership that produced the CD a decade ago was just a temporary marriage of convenience.

A better answer, perhaps, is that Sony genuinely believes in optical disc technology. Sony created a laseroptical digital audio disc in the late '70s, before Philips unveiled its prototype CD. Sony is a major CD/laserdisc manufacturer, an important supplier of laserdisc players, the principal developer and supporter of the 3" mini-CD, a leading maker of computer-based CD-ROM players, and has been selling a pocket-size Dataman "electronic book" that combines half-size CD-ROM information discs with integrated computer access circuitry and a small LCD screen. Sony has also experimented extensively with magneto-optical disc recording. It is easy to make the case that the optical disc, in all its guises, is the technology of the future. Tape, whether analog or digital, is the technology of the past. (Of course, Sony won't say this in public. As part of its campaign to be the leader in all things digital, Sony is the biggest producer of digital tape recorders for professional and consumer use.)

A third possible answer is that Sony has invested too much in MD to back out now. Why did they do it? Fifteen years ago the executives of Sony and Matsushita experienced an epiphany—a new view of the future of audiovisual entertainment. Hi-fi audio and video must move out of the living room, not only to the kitchen and bedroom but also to the car and the Great Outdoors. New product categories such as the boombox, the Walkman headphone stereo, the 3" mini-CD, the 10-CD changer for the car trunk, the portable DAT recorder, the color-LCD pocket TV, and the tiny 8mm camcorder did not arise spontaneously from technology labs; they were part of a long-term plan to invest in the creation of audio and video products that can be used everywhere, becoming a part of nearly every activity. Twenty years ago people listened to music or watched TV only a couple of hours a day, mainly in the living room. In the New Age we will be able to enjoy music and TV anywhere and everywhere, whenever we are not working or sleeping. And with all these new product categories, manufacturers will make a lot more money than if they were selling only stereos and TV sets for the living room.

This world-view affected the design of the CD, for which much of the development work had already been completed by Philips before Japanese designers got their hands on it. Recall chairman Akio Morita's now-legendary demand when Sony joined Philips as co-developer: the CD must have enough playing time to accommodate the longest performance of Beethoven's Ninth Symphony, yet the disc must be smaller.
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than 5" so that a player could fit within a DIN-size car-radio cutout.

A later development, the 10-disc CD changer, freed automobile drivers from the problem of getting CDs out of, and back into, their jewel boxes while keeping one hand on the steering wheel and both eyes on the road. Still, as noted earlier, 5" CDs can't be carried in a shirt pocket. So for true play-everywhere convenience Sony developed the 3" mini-CD, whose 20-minute playing time equals an average LP side, long enough for a Mozart symphony or six pop songs. I love the ease of carrying several mini-CDs in a pocket, and the format has been fairly successful in Japan, where something like 20% of all CDs sold are 3" discs. But the little disc flopped in the US and Europe, partly because major record companies didn't support it. CBS and WEA issued a few CD-3s, but RCA, Geffen, Arista, and other big labels never even tried.

The go-everywhere goal also played a major role in the design of the DAT, whose cassette is half the size of the already-small 8mm video-cassette and much smaller than either analog or DCC cassette. Sony now makes a DAT Walkman, but the effort to make it small, combined with the complexity of its helical-scan mechanism, yielded a system that is delicate and of doubtful reliability. In any case, DAT's prospects as a mass-market medium were crippled by the cost of the VCR-based hardware, the high cost of prerecorded tapes, and the unshakeable opposition of the record industry.

The Mini Disc is Sony's response to the failure of both the CD-3 and the DAT as mass-market formats. It combines their virtues without their drawbacks. Specifically:

- The MD is even smaller than the CD-3, so you can carry several discs in a shirt pocket; yet each has the same 74-minute capacity as a standard 5" CD. As mentioned earlier, this capacity was made possible by a 5:1 digital compression scheme that cuts the bit rate from 1.4 megabits per second (as in regular CDs) to only 300 kilobits/s, similar to that in the DCC.
- The Mini Disc is permanently packaged in a slim protective carrier, so you'll never have to fumble with a jewel box. The physical design of the MD, a circular 2.5" disc spinning within a 3"-square hard-plastic sleeve with a spring-back metal cover, was old hat to Sony engineers. Nine years ago another group of Sony engineers invented the 3.5" mini-floppy disk, which uses the same construction and has become the world standard for personal computers—Apple Macintoshes, IBM-standard office PCs, most portables, and a flock of domestic Japanese PCs.
- Recorded MD discs can be stamped out like CDs for about a dollar apiece, much cheaper than recorded DAT cassettes. Recorded DCCs and MDs probably will both be priced around $10 in record stores. Dominant factors in the price will include performer royalties, booklets, packaging, distribution, and profit, not the cost of pressing or high-speed duplication.
- An MD player will have the same nearly-instant track access as a CD player—a lot quicker than a DCC or DAT. And its non-contact playback produces no wear, while a DAT or DCC tape may begin to develop dropouts after a few dozen plays.
- A Mini Disc player is virtually immune to jolts. The pickup may mistrack, but you'll never hear it. Data coming off the disc is fed into a one-megabit memory chip. At the MD's low bit rate this buffer contains a full three seconds of music. So if the pickup mistracks the D/A converter will continue to receive data for three seconds, more than enough time for the pickup to reset itself and resume play. (ID codes in each block of data allow the player to reassemble an unbroken bit-stream in memory.) At a press conference Sony even took a disc out of the player while the music played on for another three seconds.
- Play-only Mini Disc decks are only slightly more complex than CD players, and before long they could be priced below $200—a lot less than any DAT, and less than first-generation DCC decks.

The Mini Disc is actually two products in one. As a playback medium for mass-produced software, it is basically identical to the CD except for its small size and reduced bit rate, made possible by digital data compression. But the Mini Disc is also a recording medium. A recordable Mini Disc has a magnetic coating on its "label" side, and an MD recorder contains a

Stereophile, August 1991
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clever magneto-optical recording system. (See RH's report elsewhere in this month's "Update.") An MD recorder is considerably more complex than a play-only MD and will cost proportionately more, perhaps as much as a DAT recorder. My guess is that the market for MD recorders will be relatively small. The MD, like the DCC and the analog cassette, will be mainly a playback product whose commercial success will depend on the availability of lots of prerecorded software. In that respect, DCC has a clear lead in signing up record labels. But Sony can use the top-selling CBS Records catalog with star performances by Michael Jackson, Bruce Springsteen, and Leonard Bernstein to get MD off to a strong start when it arrives around Christmas 1992, six months after DCC.

Then perhaps we'll be able to judge whether the digital compression systems in the MD and DCC produce equally good (or impaired) sound. Sony asserts only that its 5:1 digital compression provides "near CD" quality. Phillips used blind-listening panels and repeated encoder refinements to obtain 4:1 compression that even skilled listeners can't easily distinguish from CD.

**Japan: Robert Harley**

Last month I reported on Sony's announcement of the 2.5" Mini Disc (MD), a consumer digital recording format destined for head-to-head competition with Philips's Digital Compact Cassette (DCC). In development since 1986, the MD, based on four technologies either invented by Sony or refined by them, is a *tour de force* of technical innovation. These technologies 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 MD is so packed with new technology that nearly 300 patents have been applied for or are in filing preparation.

**ATRAC (Adaptive Transform Acoustic Coding) data compression**

To provide 74 minutes' playing time on a 2.5" disc (and make the entire format possible), Sony developed the ATRAC data-compression scheme. Using more efficient coding techniques as well as throwing out musical information judged to be inaudible, ATRAC reduces the storage requirements of the medium by a factor of five. Like all data-compression systems, ATRAC relies on human hearing models to decide which information is audible and which isn't. With these techniques, a stereo digital audio signal that consumes 1.41 million bits per second with PCM encoding (as on a CD) requires only 256 kilobits after ATRAC encoding (looking just at audio information; error correction and subcode bring the total up to 300kb/s), or one fifth the amount of data.

This compression rate is greater than the PASC encoding Phillips developed for DCC. ATRAC, however, differs from PASC in many areas. Although Sony was reluctant to talk about how it works, they did say that ATRAC is based on a different human hearing masking model and uses a completely different coding scheme. Presumably, ATRAC takes advantage of the higher ambient noise levels present outdoors and in cars, where MD is most likely to be used.

Unlike Phillips's position on PASC encoding, Sony admits that an ATRAC-compressed signal is of lower quality than an uncompressed signal from CD. According to Sony, "some people will hear" the difference ATRAC encoding produces, but this is limited to "2% of the population." When pressed for a description of the differences, Sony representatives were hesitant to say anything disparaging about ATRAC, but did admit that in classical music some "harmonics will be lost." Although I'm suspicious of data compression, Sony should be commended for positioning the Mini Disc as a personal portable format (where fidelity is less critical than in the home) and emphasizing that uncompressed CD audio is superior. Philips maintains that the PASC encoding used in DCC is "inaudible" and "transparent." According to Ron Sommer, President and COO of Sony Corporation of America, ATRAC-encoded audio quality is the "same as DCC."

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5 For a full discussion of data compression, see "Industry Update" and "As We See It," Vol.14 No.4, and "As We See It," Vol.14 No.5. See also "Letters" in this issue.

Stereophile, August 1991
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ATRAC operates in the digital domain on normal 16-bit PCM-encoded digital audio. The ATRAC encoder divides the PCM digital data into 20ms segments (about 1000 samples) and performs Fourier transform analysis on the digital waveform in each segment. Fourier transform analysis converts a complex waveform into individual pure sinewave components, and bits are then allocated based on the signal's spectral distribution, amplitude (taking into account the threshold of hearing), and masking effects. During playback, the decoder reassembles the many frequency components, and the 20ms segments are reconstructed into 16-bit PCM audio data for conversion by conventional 16-bit converters.

By going through a 16-bit PCM interface at both ends of the encoding/decoding chain, the MD format provides a standard digital interface to other digital audio products, as well as opening the possibility of Digital Signal Processing (DSP) in conjunction with an MD recorder. It will thus be possible to drive an MD recorder with the conventional S/PDIF (Sony/Philips Digital Interface Format) digital output found on CD players, DAT recorders, or even other MD machines. The most likely source, however, for home recordists will be the CD: The MD's 74-minute playing time is no accident.

According to Sony, one MD-to-MD generation is "OK," but multiple generations would introduce audible errors. Although an MD-to-MD transfer is done entirely in the digital domain, the audible generation loss is the result of the ATRAC encoding/decoding process: With each successive ATRAC encoding/decoding cycle more information is said to be lost as the encoder ignores certain musical information.6

Despite the generation loss when copying from one MD machine to another, Sony has incorporated the Serial Copy Management System (SCMS) in the MD format. This is the identical scheme now used in DAT recorders that permits one digital-to-digital copy, but prohibits second-generation digital-to-digital transfers. At Sony's press conference, it was implied that including SCMS was more of a political move to placate software interests than a technical necessity to prevent multiple-generation copies. According to Sony, three to four MD-to-MD generations introduce less degradation than three to four analog-cassette-to-analog-cassette generations.

**Magneto-optical technology with overwrite capability**

The record/erase aspects of the Mini Disc are based on magneto-optical (MO) technology first used in the computer industry for data storage. Computer MO drives are large and expensive, hardly the technology one would expect to find in the portable MD. Sony, however, has vastly refined MO to make it practical for such a small, inexpensive consumer product.

As its name implies, magneto-optical is a combination of magnetic and optical techniques. The process is based on two phenomena: 1) the coercivity of a magnetic material (its resistance to its magnetic orientation being changed) drops when heated, and 2) laser light's polarization is rotated when reflected from a magnetized material. Here's how it works.

A laser with a very small spot size is focused on a spinning disc coated with magnetic particles standing on end—like trees in a forest instead of flat like most magnetic media. The laser heats the magnetic particles to the "Curie point," the temperature threshold at which their resistance to being magnetized is minimal. A magnetic head on the opposite side of the disc from the laser source is driven by the signal we wish to record. The disc's rotation displaces the area to be recorded, at which point the magnetic material takes on the polarity of the applied magnetic force. By heating a small area of the disc with a laser, a very weak magnetic field can change the magnetic particles' orientation. The signal applied to the magnetic head is thus converted to a magnetic pattern on the disc.

During playback, the laser is reflected from the spinning disc where it is exposed to the magnetic fields recorded on the disc. These magnetic fields rotate the laser beam's polarization, a phenomenon called the "Kerr Effect." The reflected beam, now containing two alternating polarizations as a result of the north-south and south-north magnetic fields, is passed through a polarizing beam splitter that passes one polarization to one photodetector and the other polarization to a second photodetector. The signals from the photodetectors thus represent the north-south and south-north magnetic fields on the disc, which in turn represent the original binary data applied to the magnetic

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6 See my report from the Paris Audio Engineering Society Convention in "Industry Update," Vol. 14 No. 6, for a discussion of the possible effects of data compression over multiple encode/decode generations.
Remember a time, not too long ago, when we just listened to music? There was no worry whether the source was analog or digital, no debate about digital strings, harsh brass or the lack of sweetness and air in a good recording. There was only the music.

Well, the music is back. Audio Research, the most trusted name in high-resolution electronics for over twenty years, is proud to introduce its own digital-to-analog converter for digital-source playback: the DAC1. This very carefully conceived product delivers unprecedented musicality, beauty and realism. It brings back the joy to listening that never should have been lost, getting us back to where we belong.

The result is music.
recording head.7

Rather than having one magnetic orientation (and thus one polarization plane) represent binary "1," and the other orientation represent binary "0," MD uses Eight-to-Fourteen Modulation (EFM), the same encoding scheme used in the CD. EFM encoding creates a specific pattern of ones and zeros that results in nine discrete lengths of magnetic orientation on the MO disc. These patterns correspond exactly to the nine discrete pit or land lengths on a CD. Just as how a CD's pit edge (either leading or trailing) represents binary "1" and all other surfaces (pit bottom or land) represent binary "0," a change in magnetic orientation recorded on an MD represents binary "1" and no change represents binary "0." Think of one magnetic orientation as a pit, the other orientation as land, with the information encoded in the lengths between transitions.8

Sony has refined and miniaturized MO technology to the point that it can be made smaller, lighter, cheaper, and with lower power consumption—all requirements of a personal portable format. These refinements include the "overwrite" technique that permits direct recording over a previously recorded disc without the need for either a second erase laser or a twocycle (erase/record) record process. Computer MO recorders use a second, higher-powered laser for erasure or require a separate erase step before rerecording new data.

Another Sony breakthrough in MO technology is the very low coercivity magnetic material, allowing magnetization with a very weak field. This reduces the size and power requirements of the magnetic head, reducing weight, cost, and power consumption. The magnetic material is called Terbium Ferrite Cobalt and has a coercivity of 80 Oersteds, about a third the coercivity required in conventional MO media. Further, the magnetic head can perform polarity reversals at the rate of 100ns per reversal. It remains to be seen, however, how cheap Sony can make an MD recorder.

**Dual-function laser pickup**

Perhaps the most remarkable aspect of the MD is its ability to record and play recordable erasable MO discs as well as prerecorded polycarbonate discs with the same 0.5mW laser. Prerecorded discs work exactly the same way as conventional CDs, with pits impressed in a polycarbonate substrate. Despite the many technological achievements in realizing a lightweight, portable, and inexpensive MO device, the adaptation of MO technology to be compatible with an existing optical format is a remarkable achievement. Without this capability of playing prerecorded discs and home-recorded discs in the same player, MD would likely have been doomed. Further, conventionally manufactured polycarbonate discs were a requirement because of their low cost and ability to be manufactured at existing CD pressing plants.

**Shockproof memory**

A major stumbling block to widespread acceptance of portable CD has been its susceptibility to mistracking when jostled. Sony has addressed this problem with a so-called "Shockproof Memory" that produces uninterrupted music even under the worst conditions.

The shockproof memory is based on the fact that data can be read from the disc at the rate of 1.4 million bits per second, yet the decoder needs to be fed data at the rate of only 300 kb/s. This differential is exploited by putting a large buffer (1 megabit) between the optical pickup and the ATRAC decoder. The buffer is fed data in chunks from the disc, just often enough to keep the buffer full. If the laser mistracks during a shock, the buffer continues outputting uninterrupted data. Meanwhile, the laser pickup has plenty of time to start feeding data into the buffer again, ensuring uninterrupted playback.

This technique is analogous to water flowing slowly from a hole in a bucket, with the water replaced by periodically dumping water from another bucket into it. The water flows slowly and continuously from the hole despite the periodic bursts used to refill the bucket.

We've all experienced laser skips on a CD and know that the laser almost never returns to the

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7 To understand light polarization and polarizing filters, think of a string stretched through a grating with vertical bars. If we move one end of the string up and down, imparting a vertical wave motion to it, the vertically polarized wave will pass through the grating unimpeded. If we move the string from side to side, the grating will not let the wave through. The situation is reversed with horizontal bars: side-to-side wave motion will pass, but not vertical motion.

Similarly, a polarizing filter allows only one direction of polarization to pass: it is opaque to all light except that polarized in a certain plane. If you've ever looked through two polarizing lenses simultaneously, you may have noted that by rotating one of the lenses, the two layers become alternately translucent and opaque. Although normal light is not polarized (as is laser light), the first polarizing filter allows only one plane to pass. When the second filter is rotated so that it allows that same plane to pass, the two layers become transparent.

8 See "Jitter, Errors, and Magic," Vol.13 No.5, for a description of how EFM encoding is used in the CD.
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—Larry Archibald, Stereophile June 1990 Vol. 13 No. 6

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spot where it left the track. How can the MD player produce skip-free audio even when the laser pickup is shaken off the track?

This clever trick is based on CD-ROM (CD Read-Only Memory) technology. Like the CD-ROM format, the MD block structure includes a unique address that identifies each block. When the laser pickup is shaken off the track, the MD player knows which block address was read last and positions the pickup so that it begins reading the next block into the buffer. Meanwhile, data is continuously clocked out of the buffer, making laser mistracking completely transparent to the listener.

During the press conference launching the MD, a Sony representative threw a player in the air while its audio output was fed through the sound reinforcement speakers. There was no interruption of the music. He then took the disc out of the player and the music continued for three seconds.

Exclusively portable
The MD uses the same Cross Interleaved Reed-Solomon Coding (CIRC) error-correction system used in the Compact Disc. By using the same error-correction system and EFM encoding scheme in the MD as the CD, both formats can share decoders and error-correction chips, realizing a substantial cost savings.

A logical question is whether MD will be marketed as a home digital recording format in addition to its primary function as a personal portable. Sony responded with an emphatic “No,” insisting that the MD is designed exclusively for portable use. A Sony spokesman said MD has no advantages in the home, and that consumers shouldn’t needlessly “sacrifice” fidelity. Sony considers DAT the format for consumer digital recording in the home. However, without saying as much, I got the impression that a home digital disc recording system, using a full-sized (120mm) disc and based on magneto-optical technology, is in the works. Indeed, it is reasonable to expect Sony to exploit MO technology after spending so much time and money making MO small and affordable. It may be several years away, but such a system would be the death knell for consumer DAT provided the new disc recording system is not based on a data-compression scheme. Incidentally, don’t look for a dual CDMD machine using one transport; the spindle sizes of each are very different and incompatible with a common mechanism.

US: Peter W. Mitchell
In July’s “Update” I quoted the explanation by Bob Katz of Chesky, to the effect that the distortion in the “bonger” track of the Chesky Jazz Sampler & Test CD affects only the highest-level portion of the track and was caused by a slight DC offset in Chesky’s special A/D converter. E. Brad Meyer, audio writer and president of the Boston Audio Society, examined the disc using the Digidesign Sound Tools digital editor, which accepts the digital code from any source and displays the corresponding analog waveform on the Macintosh computer screen. The waveform was visibly clipped in the same way at maximum level and at −13dB. Evidently the bonger signal actually overloaded an analog input stage in Chesky’s recorder, ahead of the input-level control and A/D converter. Brad also noticed that at low levels, in the “conventional” A/D converter portion of the test, the character of the signal resembles that of the Sony 501 and 601 PCM processors (whose distortion peaks around −45dB because of a linearity error), not the professional PCM-1610 (whose distortion tends to increase below −60dB because of inadequate dithering). Meyer phoned Katz and learned that the conventional encoder actually was the input stage of a Sony DTC-1000 DAT.

France: Martin Colloms
Nice was lovely in mid-May. Technics, the hi-fi division of electronics giant Matsushita, hosted their 1991 European new-product seminar at the Meridian Hotel on the Promenade des Anglais. Barely a day had passed since Sony’s announcement of their new MD Mini Disc digital audio format when Technics, in apparent reply, provided the first official confirmation of their widely surmised major involvement in DCC. Up till now there have been only diplomatic denials from Matsushita and evasions from Philips.

Technics confirmed that they had a whole-hearted commitment to the new tape medium and that its great promise rested on two main factors: backward compatibility with existing
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Responding to detailed questioning, the impressive array of assembled managers and senior engineers was understandably cautious in their replies, but it could be seen that despite Technics' known strong commitment to R-DAT, no new product introductions were to be seen in this format. When asked about this apparent omission, it was explained that R-DAT efforts were devoted to products for the professional market, where better prospects were forthcoming. The contrast between DCC and R-DAT was inferred rather than spelled out, but the meaning was clear enough. R-DAT has been unsuccessful on the domestic market because it is incompatible and too expensive. The lack of a decent stock of pre-recorded material was the final blow.

A strangely familiar working DCC machine was demonstrated; we were asked if we'd seen it before. Every delegate bad since it was the very same model Philips had previously shown. Still more intriguing was the total absence of any name, model number, or identifying mark. Technics admitted to no less than two years of technical cooperation with Philips on this shared design. It was established that Technics was well advanced on the construction of the thin-film heads and that the integrated-circuit chip set, now through its third iteration, was close to full production. Both of these critical high-tech areas have been the responsibility of the Japanese partner—[but also see Peter Mitchell's report—Ed.]—while Philips has concentrated on the coding research and marketing the system to the record business.

On one point there seemed to be a discrepancy. Philips had stated recently that their as-yet-unnamed partner was a "co-licensor" of DCC. Technics denied this, saying instead that they were "co-developers" and that Philips would handle all licensing. This is a technicality; Matsushita will still take a share of the license revenue whatever the arrangements. Technics did say that the DCC demonstrator would carry an official designation within the week. No promises could be extracted from them concerning likely launch dates for machines, but I got the impression that they could act quite quickly if they wished. Moreover, while the feeling seems to be that DCC will be mid-market technology at first, there were hints that lower pricing was certainly possible from an early stage. These are difficult marketing decisions which will strongly influence the rate of growth. If the very high growth rates suggested by Philips are to be achieved, more competitive pricing would certainly help. While Technics executives would not be drawn on the likely software involvement of their American MCA acquisition, they backed Philips with the claim that 500 software titles would be available by the spring of '92.

No extravagant claim was made that DCC sound would beat CD. Rather, it was anticipated that it would stand as a high-quality medium in its own right. In any case, it was again pointed out that the coding design allowed for future compatible upgrades to be made in the coding as knowledge advances in this area. (In the September issue I will report on listening tests where DCC was compared with CD.)

New-product introductions included the latest super-thin CD portable, the SL-XP700 (successor to the SL-X6). Like its much-praised predecessor, the "700, it comes in a tough, cast-metal casing. It measures just 17.5mm, or 0.69" thick, which is less than two stacked CD cases! Regular batteries can be used; a pair of AA alkalines will give 4 hours of continuous play. NiCad cells (included) run for 2 hours. The SL-XP6 had 4x oversampling, while this latest model had 8x with an 18-bit filter plus 16-bit final conversion. CD portables may sound like nothing special when linked to a high-quality audio system, but listening on a pair of good-quality headphones is something else. I never travel any distance without a well-filled wallet of CDs and a pair of cans—for example, the Aiwa in-ear type HP-V99 or, for a change, the Sony MVRD-V3.

Innovation was claimed on two fronts as far as full-sized CD players were concerned. One was for improved playability of badly produced or damaged CDs. A Sony model was shown to fail on a given test track with a wide error band, while a Technics model played without error. Essentially the improvement rests on the replacement of the traditional analog servo tracking circuit by one with a small digital processor. Philips has used a 4-bit system for a few years now, and Technics has chosen a 6-bit processor. Faster track seeking and better recovery from error modes was seen, the outcome being better transient behavior and ultimately better tracking of severe errors.

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of their "3⅜"-bit "low-bit" D/A conversion system known as "MASH." It was noteworthy that, on its introduction, Technics seemed embarrassed by the "low-bit" classification; in the UK at least, they used to mislabel their MASH decks as "8 x 18 bit." Now they're called "1-bit"! The redesign addresses in more detail aspects of precise pulse timing and waveform centration to reduce phase distortion. Called "Advanced MASH," the revision increases the clock frequency from 32x to 64xfs and the theoretical S/N ratio from 103 to 123dB. Allied to the MASH change is a reduction in the PWM (Pulse Width Modulation) conversion rate from 24 clock pulses per sample to 12. This provides the desired improvement in pulse centration or symmetry, and is said to give significant improvements in high-frequency distortion. All of this is contained in the new MN6476 Mash chip. Very good monotonicity was demonstrated by the top-end machine, the SL-PS900, and a constant frequency response was also shown over a wide dynamic range. This latter aspect needs further exploration as it is known that some conversion systems/filters can vary their responses at different modulation levels.

Several topics were covered in the loudspeaker seminar, including further progress in the use of mica in loudspeaker diaphragms. The latest cones and domes are made of epoxy loaded with up to 80% of crushed mica and reinforced with aramid (Kevlar) fiber. It is rumored that Matsushita has bought itself a mica mine! These cones have greater stiffness for weight than aluminum, yet offer greater self-damping than polypropylene or paper pulp; hmmm ... sounds promising. The tweeter dome on a big exhibition-quality four-way system was of expanded graphite with a claimed stiffness midway between beryllium and aluminum but a damping coefficient similar to polypropylene.

Also presented was a refinement in speaker analysis called "PTA," or "Power Transient Analysis." This is a development of Wigner analysis, a special windowed representation of frequency energy and time. Using a processing workstation, music signals may be played into a speaker system and the result analyzed for a three-dimensional time/spectrogram. From the data shown, a good sensitivity to audible distortion and resonance effects resulted. Using this technique for analysis, this year's buzzword was "Silence Technique," whereby sources of unwanted radiated and stored energy are tracked down and eliminated.

UK: Ken Kessler

One-upmanship and xenophobia have always been a part of hi-fi, but who'd have thought they'd involve the survival of the vinyl LP? If you believe high-enders—trade, press, or civilian—every country is a bastion against CD and still strong on vinyl. Indeed, the only honest comments have come from the Japanese, who readily, almost gleefully admit that vinyl is dead in the home country.

Meet any European audiophile and you'll hear how his or her country is the last stronghold of vinyl. As British companies close their pressing plants, they turn to Europe to satisfy what demand remains. I've had LPs this year with so many catalog numbers printed on the "generic" sleeves that I don't know which to use in my reviews.

But I'm still betting on the UK as the Last Stronghold. Although the multiples, the chain stores like Our Price Music (formerly Our Price Records), seem to be cutting back the record racks by a row per week, my local specialist shop devotes as much floor space to vinyl as to CD. And there are as many, if not more, customers thumbing through the LPs as the CDs.

Another uniquely British situation is the number of surviving turntable manufacturers. I'd hazard a guess that the UK has as many as the rest of the world's turntable producers combined. British magazines still review analog hardware without making too many apologies, and you can still buy 7" vinyl for most new singles releases. And I'm under the impression that the wretched cassette single isn't doing as well as the record companies would have it.

Rationalization and pragmatism have replaced the conflicting attitudes which have been the knee-jerk reactions to vinyl manufacture. For the past few years it's been deep-seated paranoia about the pending demise of vinyl or misguided cockiness from die-hard pro-analog types who believe that the world will wake up to the evils of digital. While there are still some of both—those who expect the LP to disappear any second and those who think the same of
CD—the more mature among the specialist labels have taken a new approach to LP manufacture. Instead of throwing up their hands in despair, they’ve emulated the Swiss watch industry, which was almost murdered by those odious quartz and digital affairs. What the Swiss did is re-educate the consumer by selling him quality, cachet, and not a little romance. So now you have to wait a few months or even pay over the odds for a Rolex Daytona, a Jaeger-Le Coultre Odysseus, or an Omega Louis Brandt.

Take Ace, for example. While not a so-called audiophile label, Ace has always been proud of its reissues, mainly rhythm and blues, early rock ’n’ roll, rockabilly, and (with the UK rights to post-’68 Stax, Specialty, and Fantasy) soul and jazz. They always go back to the master tapes when possible, they avoid gimmicky processing, and the releases are always historically correct. Because Ace deals primarily with those of a collector mentality and with genres which resisted CD the longest, it was obvious that a small but dependable segment of the clientele preferred vinyl. While most other reissue labels hope to phase out vinyl completely—though none has just yet—Ace recently announced a special line of LPs.

The company’s latest monthly release sheet lists 15 new releases, only two of which are available on vinyl. That’s because most of the others were all out on vinyl before, and the latest incarnations are the CD transfers. But it’s a run of special compilations which best illustrates Ace’s commitment to vinyl rather than the multi-format viability of the regular titles. Ace has chosen to offer LPs limited to 1500 copies and at a price above normal LPs but just below CDs. The number was arrived at after years of selling in closely observed niche markets. And you can bet that when Ace says a new rockabilly compilation will move 1500 units, they’ll be accurate to one or two percentage points.

The premium pricing and the finite number of copies adds cachet, so the Ace vinyls will become collectable in the future. BGO, See For Miles, Demon/Edsel, and the other reissue labels still produce vinyl, though Charly looks like being first to abandon it completely. But it’s Demon/Edsel which has had the problem taken out of its hands through the involvement of Linn Products.

Linn has had its own record label for some time, and it’s done a fine job of spreading the word on Carole Kidd and the Blue Nile. But Linn Selekt, the latest software venture, frees the company from talent scouting, all the while ensuring a supply of saleable, desirable LPs to sustain sales of LP-12 turntables. Regard it cynically if you must, but Linn is doing exactly the same as Sony and JVC: producing software to support its hardware.

Unusual for a specialist hi-fi manufacturer producing records, Linn makes few if any claims about the “audiophile quotient” of the titles in the Selekt program. No boasts of “virgin vinyl,” trick inner sleeves, remastering, or smearings of fairy dust. Instead, Linn has—modestly rather than arrogantly—chosen titles which meet the musical criteria of various Linn employees. And the company employs some people who really do know good music from bad. I mean, Rockin’ Jimmy and the Brothers of the Night? That’s serious.

The catalog runs the gamut, from classical to jazz to rock to blues, and from the famous to the cultist. Response to the selections has been favorable, but then it’s hard to criticize tastes when they include Al Green, Elvis Costello, Coleman Hawkins, John Coltrane, the London Symphony Orchestra, and other performers whose back catalog would be out of reach of most specialist labels. And “back catalog” is the key ingredient, because Linn is simply ensuring that the vinyl which might have been phased out will stay in production.

That’s where the Demon/Edsel connection comes in, as Linn had been using some of their titles during demonstrations at hi-fi shows and musical evenings. Linn, like Roksan, had already been distributing Demon releases. The arrangement developed into the maintenance of a continuous supply of vinyl for Linn Selekt dealers even after Demon itself deleted the vinyl versions. So now Demon won’t have to look like it’s killing off the LP, at the same time not having to worry about selling records in a CD world.

And other labels are showing interest, so Linn should have no problems keeping the LP alive for as long as it wishes, if only through a global network of Linn dealers. The company is simply taking standard pressings and making them easily available in a marketplace which has never been kind to titles outside of the Hot 100.

But when an LP is deleted, or Linn isn’t happy...
with the sonics, permission is granted to re-master or re-cut the disc to "Linn's recipe."
Three titles have been re-cut for Linn at Abbey Road, another four at The Exchange, but Linn is playing this down. They seem—genuinely—to want people to buy the LPs for the content rather than the sound quality.

The Select LPs sell for approximately $2 more than "normal" releases, although most record shops are pushing up the prices of LPs to make CDs seem more attractive. What Linn has avoided, as if to ensure that the cynics have little or no argument about motives, is the "limited edition" concept which works so well for Ace. Remember, Ace is selling to cognoscenti who know, say, the difference between Ray Campi and Charlie Feathers, whereas Linn's activity borders on missionary zeal. By eliminating the appeal of limited editions, Linn knows that its customers are buying Select titles for the right reasons.

I applaud the effort, especially since I already own a third of the catalog. And I never thought I'd live to say that I thought along the same lines as Linn. Now, what will it take for the Glaswegians to use their might to reissue Howard Tate's Get It While You Can?

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DIMENSIONAL PURITY
How do you know when you’re in a high-end (high-fidelity) dealer? You might think that seeing a certain number of easily recognizable, accepted high-end brands guarantees that the dealership is high-end. Unfortunately, the commercial success of high-fidelity audio over the past few years, in the face of an overall slump and shrinkage in the stereo market, has driven a lot of mid-fi stores into expanding their product mix to include whatever high-end brands they can acquire. So, seeing certain products on the shelf of a store is a necessary but insufficient guide to the kind of operation you’re dealing with. It is, however, the starting point.

“What do you sell?” is the first question to ask when you walk into a dealer’s. Dealers (myself included) don’t like this question because it’s so open-ended. It gives one no clue as to what the customer is really thinking. Being human, we’re likely to forget the very product the inquirer seeks if our lines are large enough. However, it’s a valid question and should be answered. There are products everyone would agree are high-end; there are products most persons would agree are not. Then there is a large gray area in between. I won’t attempt to tell you which products are or are not high-end—for one thing, I don’t feel like being sued. For another, that determination should really be left up to you as much as to me. Suffice it to say that the more a product’s promotional material focuses on sound and reproducing music, the more likely it is that the product is aimed toward the consumer who wants to listen to music; the more its literature concentrates on convenience features, the less likely it is that the product is designed to produce musical results. In other words, in most cases, bells and whistles bear an inverse relationship to sound quality.

Making this evaluation is more difficult with speakers than with electronics. In most cases, however, the more complex speakers are, the worse they sound. It’s rare that multi-driver dynamic speaker systems—i.e., those employing more than four drivers—are particularly musical. Naturally, there are exceptions. As a rule of thumb, however, it seems pretty clear that to approach the theoretical point source or line source, simple is best. Once again, with speakers, a manufacturer’s literature will often reveal the company’s goals.

Reproducing a natural soundstage and the timbre and pitch of music should be the goals of a loudspeaker, not going from DC to light in frequency response or making the largest possible presence in someone’s living room. Use your judgment and rely on your dealer once you’ve chosen him.

Having established that the store you’re in carries high-end equipment, the next step is to determine whether they know one end of a preamp from the other—not in terms of technical features, but of sound sense and practical setup. Product knowledge in this regard is important. The store and its sales staff have to know how to compile systems, and why. So put your cards on the table—tell them your budget, what kind of room you have, what kind of music you like, what size and other restrictions apply for components and speakers, and simply ask their advice. Then sit back and listen carefully to the response. This may vary widely from store to store. Some will simply sit you down and play music before you say a word. Others will use a didactic approach, explaining each component and its advantages before playing a single piece. Both are equally valid. Again, use your judgment.

We’ve all been exposed at one time or another to the high-pressure, noninformative sales pitch. This has no place in high-end audio—if you encounter it, run. Remember, I said high-pressure and noninformative; some of the best and most knowledgeable high-end salespeople can be quick and somewhat brusque. That doesn’t mean they’re any less interested in producing musical results than someone more low-key. Evaluate the information as you get it. Evaluate the manner in which it is presented. Evaluate the salesperson’s logic. In short, use your brain, not your emotions. Don’t expect anyone to know everything about every product in the store. Indeed, it can be a bad sign when someone claims to do so. One clear sign of mid-fi-ism is bullshitting your way through an embarrassing question. A salesperson’s
proper response when asked something he doesn't know is to simply say, "I don't know, but I'll find out." Of course, this shouldn't happen too often.

Once you've established that the salesman knows his stuff and that the product mix is right, consider the services offered by the establishment. Do they custom-terminate cables? Do they do home installations? Do they offer on-premises service? Consider the demonstration facilities. If every room uses switching consoles, if there are no facilities for mixing and matching components out of prearranged systems to suit your individual needs, then it is less likely to be a high-end store than something else masquerading as one.

Conversely, moving components at random from one room to another doesn't necessarily indicate a high degree of professionalism. A store should have a position on given systems and given price ranges. It should know what it considers to be best and should be willing to tell you. The idea that there is tremendous subjectivity in audio is something I have always questioned. We'll deal with that another time. For now, it's enough to say that a high-end store should have a philosophy; it should know precisely what system it recommends, and given price ranges for a particular size room. The salesman should be willing to tell you that, and why.

Beware the salesman who doesn't know how to hook up a product or make a system operate. Unless he's a trainee, he has no business selling high-end audio if he doesn't know how the stuff works. Of course, having said that, I can only think of the many times we've received new products whose idiosyncrasies have taken days, maybe even weeks, to grow accustomed to.

Consider the demonstration—always bring recordings with which you are familiar. But first let the salesman play something that he feels will bring out the qualities of the system he's recommending. A major difference between a real high-end shop and a mid-fi pretender is the staff's knowledge of music—rare these days. When the salesmen know music, you can be damn sure they know how to make the stereo system sound like music. Evaluate the demonstration—how does it sound? If it sounds good, it is good. Play one of your own discs or records. How does that sound? If it sounds bad, try to find out how the salesman thinks it sounds. If he can't hear it, run like the wind.

If he can, listen to his explanation of why. If he blames it on the recording, he may be right. Ask him to play something of a similar kind of music, but a better recording. See if he can do it. If he can, you're probably with a winner.

If the store has passed all these tests, it is a high-end store. So what? How do you know it's the store for you? This is where human judgment and common sense play the largest part. Simply stated, using all your faculties of reason and critical judgment, does this store offer a level of expertise, professionalism, and service you feel is up to your standards of quality? Have you experienced an adequate comfort level in all these areas?

I find it interesting that human beings make crucial life-and-death decisions—such as selecting an attorney for a divorce or lawsuit, or choosing a surgeon for a major operation—with far less consternation and vacillation than they display in selecting their stereo store. Remember, your critical faculties are just as keen here as in those other areas, so use them. Remember, also, that buying a stereo ought not to be a popularity contest. This is, and ought to be, a professional relationship. It should result in your receiving the best system and the best service, not the biggest slap on the back and the most promises.

With that in mind, we turn to one of the most controversial issues which arises between hi-fi dealers and consumers: price. Contrary to popular misconceptions, mark-ups on high-end audio components are pretty miserable. In order for a store to maintain a level of quality in staff, service, and display facilities commensurate with the standard we would all like to see, it cannot discount—period! Any time a store discounts a product, or a system, it must make a choice between reducing service, losing money, or sacrificing integrity. In other words, the best price is almost never the best deal. The best deal for you is to have your dealer put all his efforts into selecting the best-sounding possible system for you. If he knows that you expect a discount, you put him in the unfair position of either losing money or selling you something with a higher mark-up or something he wants to be rid of whether it suits your needs or not. High-end dealers are in business just like anyone else. They, like other retail establishments, operate on a net profit of around 10% of gross sales! So when your dealer knocks off 10% on your sale, he simply
isn't making money. How long do you think he would last if he operated in this fashion?

In the early days of high-end audio, discounts were simply unheard of. As mid-fi establishments have encroached more and more on our territory, their methods of doing business, including offering discounts in place of service, display facilities, and the other parameters we've discussed above, have infiltrated the market place. Should this become pervasive, and eventually the norm, high-end stores would simply cease to exist; that discount costs the customer that extra bit of service, the quality of sales people, the display facilities, and the time and attention paid in real high-end shops. As a consumer, you have a choice between getting a good price—rather, a discounted price—or getting honest advice, excellent service, adequate demonstration facilities, and sufficient attention from the high-end dealer of your choice. So when your high-end dealer kindly declines to sell you a system for 10–20% off list, breath a sigh of relief. He's likely to be around for a while to take care of you and your hi-fi. That is, so long as you, the consumer, continue to value and support him and what he is trying to accomplish.

“Make no mistake about it, this is the finest player evaluated to date...” So concludes Martin DeWulf, Bound for Sound Newsletter publisher, after extensive listening sessions with the McCormack Prism II CD Player.

You may agree with him. You may not. Either way, you will want to listen for yourself.

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INTERMEZZO
Brahms
Piano Sonata in f, Op. 5
Intermezzo, Op. 117, No. 1
Robert Silverman, piano

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Recorded by the legendary recording engineer Kavichandran Alexander at Santa Barbara's Universalist Unitarian Church, this new release features the internationally famed Canadian pianist Robert Silverman. The program combines early and late piano works of Johannes Brahms. Luxuriate, as we did during the recording sessions, in the majestic warmth of the 9' Steinway "D" concert grand in a natural acoustic—captured by two tube microphones designed by Tim De Paravicini and an Ampex MR70 tube tape recorder.

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Corey Greenberg opens
I got in to Chicago Wednesday night, hungry. The chicken fricka-zee on the flight looked more like dachshund, and the inedible brownie was one of those New Age hyper-personal underdog types; you know, the kind of products with handwritten labels and little cards that say, "hi! i'm llewellyn, and this is a llewel-licious® brownie, baked with socially aware goodness right here in the garage apartment behind my parents' house, where i live at age forty still unmarried with two cats named t.s. and eliot, baking these goddamned brownies day and night, writing these little cards by hand because every single brownie is special and unique, and wrapping them in generic plastic wrap because the Saran company supports pro-life legislation. when you taste the all-natural ingredients and the secret recipe handed down from my spinster great-aunt, you'll say to yourself, 'wow, how the hell did this loser ever get a food contract with continental airlines?'"

So the first thing I did after checking in was go looking for some eats, and I found exactly what I wanted over by the El: Soul By The Pound, where the brothers sell everything from oxtails to blueberry cobbler, pigs' feet to cornbread, butter beans to pork ribs, all for just $2.95 a pound! That's right—you just order, say, half a pound of ribs, a quarter pound of black-eye peas and ham chunks, and a quarter pound of pecan pie, and Sonny Boy, you pay $2.95 plus tax! They just throw everything you order onto a scale and multiply it by $2.95; if only high-end audio was that simple.

I'd left for Chicago a couple of days early so I'd have some time to relax, see some sights, and let my ears unpop, so Thursday was my day; nothing to do, nowhere to go, I wanna be sedated by vinyl. I asked a young lingerie boutique salesgirl for the best used-record store in
Chicago; “Like, there’s places that sell used records?” So young, and so innocent. Me, that is. So I went next door and asked an art supplies clerk wearing a Butthole Surfers T-shirt; “Restless Records on Broadway, dude,” was the answer, and one wildly cussing Indian cabbie named Sunji but whose friends call him Eddie later, I was up to my backside in Used Vinyl! Heaven! If you get to Chicago, I suggest you check this place out; it’s one of the better used-LP stores I’ve run across. They had everything from German industrial bondage disco to a Mercury Living Presence of János Starker (but not after I left; the MLP, that is), and I spent hours going through it all with a big sloppy grin on my face. I finally wound up with the Starker, Aerosmith’s Gems, Jeff Beck’s Truth, a couple of old Billie Holiday and Leadbelly 10” shellac 33⅓s, Solo Monk, and the best deal of the day, a 6-LP boxed set of Columbia Miles Davis, mint, for only $15. I even picked up a copy of Elvis’s Sun Sessions for LA, but I forgot to give it to him. Larry, next time you come up to Austin for some more Sam’s BBQ, the Rosetta Stone awaits.

Shameless nepotismal anecdote

One reason I was excited to be in Chicago was that I had a chance to visit my brother Mark, who just moved there out of art school to share a downtown loft/warehouse with his band, the Coctails;1 seeing as how they had a gig Saturday night, I cabbied over to Club Lower Links in the boho district to catch their act. The transition from prowling the Hilton halls was startling: dignified coats and ties were replaced by a dark smoke-filled beatnik club filled with dozens of Young Americans trying to erase upper-middle-class upbringings with jet-black hair dye, thrift-store duds, and film noir manners. I loved it! The Coctails played a great set, too, and Mark even kicked his drums over at the end just like Keith Moon. What does this have to do with the CES? Nothing; the Coctails

1 The Coctails’ two albums, Hip Hip Hooray and their new release Here Now Today, are available on LP only from Hi-Ball Records, 657 W. Lake St., Chicago, IL 60661, (312) 876-9128. Both albums were recorded in minimalist fashion, live in the studio, by guys who didn’t know enough about studio technology to screw up the sound, which is pretty good. The Coctails’ music is a lot of jazz, a lot of fun, and a lot of wit; a sense of humor is mandatory for your listening pleasure.
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need this paragraph for their press kit, and blood’s thicker than Tweek.

**Lookit ’em purty colors!**

On Friday night, JA, RH, and I attended one of the more twisted affairs I’ve seen: my first Giant Japanese Corporate Press Conference, a Pioneer reception/dinner to spread the video laserdisc gospel. The press conference itself was truly weird. After drinks, they ushered us into the presentation room, where we all sat down to chat and wait for the speech. Suddenly, thick, acrid-smelling smoke began jetting out of strategically placed spigots around the perimeter of the room... I was just about to bolt when they killed the lights, and the theme to the movie *Superman* came over the sound system. “What kind of—” was all I could get out of my smoke-filled throat before... the laser show began. And the press corps clapped! At a laser show the likes of which pimplefarms were stonily staring at while scam artists played *Tubular Bells* at “Laserium 2000” head-shows across the country back in the mid-’70s! The multicolored lasers shot across the room, first in skinny beams, then in wide swaths of oscillating light that cut through the smoke, to the press’s utter delight. I heard a soft moaning and turned my head to find the guy sitting next to me, an editor for some video mag, watching the dancing lasers with an expression of sheer ecstasy. As the swath of red laser light began pulsing and changing course, cutting the room up into little slices of press corps pie, he started whimpering like some dying animal.

“Doesn’t anyone notice this deviant?!” I wondered, but nobody paid him any attention, choosing instead to watch the hypnotic pulsing lasers, while far below the threshold of audibility the sound system played the words, “Write nice things about Pioneer. It’ll make you feel good,” over and over again under the music. The room-wide layer of laser light slowly descended from the ceiling to head level as the music segued into *Lois’s Theme*, and right when the plane of the laser broke over Video Boy’s darkened, contorted face, he swallowed thickly and flung his head back, the sweat off his forehead fish-tailing off onto the reporters four rows back.

And just what was all this pomp’n’circumstance for, you ask? The official introduction of what Pioneer sincerely promised us will be the Wave Of The Future; a product so heralded, so right, that the whole press corps greeted its introduction with tears of unrestrained joy and wild applause:

Pioneer’s combination 5-CD + 1 video laserdisc player.

The whole press corps minus four,2 that is; JA, RH, and I sat there staring at each other in disbelief. Since when do journalists *clap* at the announcement of something as socially repressive as a machine that provides enough prerecorded audio and video to keep its owner glued to his La-Z-Boy for over 10 hours at a time? I mean, who *wants* this?3 The CDs and LD can’t even play at the same time, so it’s not like you can have Vivaldi wafting through the room while “Faster Pussycat: Kill! Kill!” glows off the big screen in a sort of random multimedia art happening at your next party; what’s the point? I did sit next to a lovely young Pioneer rep at the dinner afterward, though, and she promised to send me their new home Karaoke player for review; watch for it in an upcoming issue unless JA decides the idea’s not quite so funny in the interim.

2 Peter Mitchell was at the Pioneer press conference as well, and was not only the only journalist who asked a good question (*ie*, why didn’t Pioneer make more titles available for rental, rather than force LD owners to buy every title they wanted to view), but also the only one to get a non-answer; Pioneer’s response was that it was up to the retailer whether or not rentals of LDs were available, not Pioneer.

3 Seriously, the statistics shown by Pioneer at the presentation indicated that LaserVision is the only segment of the US consumer electronics market currently showing healthy growth. With their new range of LD players, Pioneer obviously wants to cut themselves some of that commercial action. And I don’t blame them.

—JA

Most CD players sold in the US are carousel or changer multi-disc types. The one growth area in consumer electronics in 1991 is LaserDisc players and software. Put those two concepts together and you have Pioneer’s CLD-M90 combination player, a probable bestseller for just $700. (Manufacturer’s photo)
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INTRODUCES
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MARK II D2A
DIGITAL TO ANALOG CONVERTER

The most important part of digital is analog. It is for this reason that Mondial has created the Aragon MKII D2A. The new analog stage is fully discrete class A with a low impedance FET buffered output.

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Yes, we have no jitter
Saturday morning, JA, RH, and I made it to the Museatex suite, where Ed Meitner introduced a new measurement technique for explaining and quantifying the audible differences between CD transports and coaxial data cables: “LIM,” for Logic Induced Modulation, is directly related to digital’s hottest buzzword these days, JITTER. I’m sure RH will expand on this measurement and the technical aspects [He will, but next month—Ed.], but suffice it to say, Museatex has developed a circuit called “C-Lock” to reduce the jitter inherent in CD transports by more than 70%. And the good news is that the C-Lock circuit doesn’t appear to be expensive; Museatex expects to license it to makers of inexpensive players, and president Kurien Jacob envisions future $200 CD players with the C-Lock circuit having less intrinsic jitter than the best currently available transports.

Speaking of digital, a laser/optical engineer named Armando Martinez has formed a new company called Laser Illusions to market his first product: the Focus, an aperture for the laser assembly in CD player drives. Armando told me that when he first started playing around with CD players, he couldn’t believe that the laser lens had no aperture, a device considered mandatory for high-tech commercial lasers; now he makes these little black plastic hoods that stick on the face of the laser lens (he has several different sizes to accommodate different transports, including the popular Philips models used in most players) with a small hole for the laser to shoot through. Armando claims that the Focus lowers “optical phase jitter”; it seemed that everyone at the show was claiming to reduce jitter, even the AudioQuest babes. While $59.95 might seem a bit high for a tiny plastic lens cap with a hole punched through it, you do get some lens paper, methanol to clean the laser lens, and a pair of tweezers to install the Focus on your laser assembly. Yeah, I know, it still sounds expensive, but the folks in the Goldmund and McCormack suites were sufficiently impressed with the Focus that they left it in place to demonstrate their CD players. Armando’s given me a Focus to try with my player; I’ll let you know how it sounds shortly.

Everyone was jabbering about the affordable digital gear from a new company, Audio Alchemy. How affordable? Well, their Digital Decoding Engine v1.0 D/A converter’s got the latest Philips 256x-oversampling BitStream integrated digital filter/DAC, the SAA7323, plus Toslink optical as well as a standard 75 ohm coaxial input. How affordable? It’s also got an outboard power supply, front-panel-switchable polarity inversion performed in the digital domain, and a high-speed, high-current analog stage. HOW AFFORDABLE?! Try $399. Audio Alchemy also showed their full line of digital hardware and cables, including a very impressive top-loading twin-chassis CD transport called the Digital Drive System, for only $699. The ports, layout, and build quality in the units they had on hand looked ridiculously good considering the absurdly low prices; ST and RH are currently playing with these units, so watch for their reviews. [RH’s appears in this very issue!—Ed.]

Audio Research had a new D/A converter to show: the $3495 20-bit DACI-20. As you can probably suss, this unit substitutes the 20-bit version of the heralded UltraAnalog DAC for the 18-bit model found in the DACI-18 reviewed by RH in the June issue. ARC’s sent RH the new unit for a “Follow-Up,” but am I jealous? Not at all; do you see Pioneer sending Bob any home Karaoke? I got a kick out of the fact that while the demo models of ARC’s tube gear had clear lexiglass “lookee” top chassis plates, the new $2995 solid-state D240 amplifier did not! I personally find good solid-state as cool-looking as tubes, so c’mon, boys; drop the D240’s trou in Vegas. The ARC room was one of the better-sounding at the show, with the big Thiel CS5s placed well out into the room and making a very impressive noise indeed.

And the rest of the lot? Undoubtedly the most physically gorgeous digital product at the show was the new Jadis D/A; played over an all-Jadis system driving Avalon Eclipses, it sounded almost as good as it looked. Krell showed their Stealth D/A Converter in, unfortunately, a silent display.4 I was, however, able to get some disdainful, monosyllabic replies from Krell’s Dan D’Agostino in response to several questions I posed to him; to hear the elders around the fire tell it, you haven’t really arrived as an audio reviewer until you’ve been curtly replied to by the D’Agmeister. Naim introduced

4 But I did get to hear the Krell digital gear, as well as their amps and preamp, at the Apogee Grand demonstrations. Suffice it to say, it was far and away the best sound of the show, and not an LP in sight. “But how can this be?” demanded the ostrich, shaking the sand from its head.
their first CD player, the $6750 CDS; unlike every other two-chassis player I've seen, the CDS houses the power supply in one box and the rest of the player in the other. Unfortunately, I really couldn't tell how it sounded over the all-Naim system, as they were playing the truly wretched CD transfer of Miles Davis's *Kind Of Blue*\(^5\) when I dropped in. I hope to get another chance at the promising CDS in Vegas.

Digital history was made on Saturday afternoon as JA, RH, GL, Ken Kessler, and I had lunch in the Hilton's Presidential Suite with Linn's Ivor Tiefenbrun and his communications manager, the stunningly beautiful Anne Young; a woman so lovely, so effortlessly striking that even during Ivor and Ken's Punch 'n Judy routine, I found it impossible to avert my locked gaze from Ms. Young's limpid pools of Scottish sea-blue. As she crossed and uncrossed her long, perfect gams, my pulse grew loud inside my head, pounding, *pounding*. *Pounding*, like the wild jungle drums that must have heralded the Earthly arrival of this she-lion, this Glaswegian Empress, this combination of all that is good and right about life wrapped in delicate, milk-white chamois. Her jet-back hair fell in laughing tresses upon her soft, rounded shoulders, and when she giggled at an especially vulgar Ivor/Ken wisecrack, it seemed as if the Gates of Heaven had been thrown wide open and a billion white doves burst forth in a perfectly executed spiral of feather, bone, and brilliance. When she led me into the next room to get a press kit together for me, I could barely walk; my legs seized as without oil, stiff. I wanted to tell her how beautiful she was, how I wanted to take her away from all of this nonsense of hi-fi and build us a hut on a far corner of Marlon Brando's island, where we'd live totally naked and I'd hunt for wild monkey and bluefish with my bare hands and she'd never have to lift a finger except to appraise the exotic floral arrangements I'd daily construct from the forest growth for her aesthetic pleasure to greet her as she awoke. Oh yeah, and they showed the production prototype of the Linn CD player to be launched in 1992, too.

**The analog they couldn't hang**

Even as record stores stop selling new vinyl, even as the major record companies cease making records, even as digital playback keeps improving to the point where many holdouts are now starting to grudgingly accept CD as a viable high-end medium, *still* analog refuses to die. She may be tired, beaten down, riddled with bullet holes—hell, I think she's even got *athlete's foot* from being hustled out of so many record stores—but turntables, arms, and cartridges were still to be found in Chicago. There weren't many *new* models present, but the

---

\(^5\) *Wretched sones*; this is one of the greatest recordings of all time, of any musical genre. *TAS*’s Michael Fremer was absolutely correct when he slammed the digitally remastered CD of *KOB*; it’s so dull-sounding compared to the LP, even the reissue pressings, that I’d go so far as to say that you haven’t heard this music if you’ve only heard this CD. I picked up a latter-day Columbia red-label *KOB* LP at a used-record store here in Austin for five bucks, and it *wipes* the CD.

Producing one of the better sounds at CES, Jadis electronics driving Avalon Eclipse speakers. Altis’s Howard Mandel (left) supplies Jadis, represented by Victor Goldstein (right), with the Bitstream D/A circuitry for the Jadis processor. The little electrostatic speaker to their right is *not* a speaker; it is instead one of Michael Green’s RoomTune modules, that were to be seen everywhere at the show. (Photo: Guy Lemcoe)

Guy Lemcoe captures (from left to right) JA, Audiophile Systems’ proxy Gary Warzin, CG, Anne Young and Ivor Tiefenbrun of Linn Products, and RH getting in some serious pre-prandial conversation before Ken Kessler arrives.
AFFORDABLE HIGH-END!

The NAD 2400THX Power Amplifier

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The 2400 THX power amplifier, pictured above, is a fine example of NAD engineering. While this amplifier is modestly rated at 100W RMS, it is capable of producing up to 400 watts of clean dynamic power! It is the world's first power amplifier certified by Lucasfilm Ltd. for the exclusive THX home theatre designation, a most rigorous challenge. And... at a suggested retail price of $599.00, the contradiction ends!

At NAD, we invest your money wisely! Call TOLL FREE 1-800-263-4641 for further product information or the name of your nearest NAD dealer.
Speakers are the most important part of your stereo system. It is the speaker that turns amplifier signal into sound and so ultimately determines what you hear. If your speakers do not perform well, your stereo system will simply not sound like music.

The search for musically satisfying speakers, however, can lead to some very expensive products. And if you have already bought those high priced speakers, then you better not listen to Paradigms. But if you haven't, better not miss them. Why? Because from the time they were first introduced, Paradigm's sheer musical ability utterly amazed listeners... but what caused even more amazement was the unprecedented low price.

Now you can settle for more... without more expense. Visit your authorized Paradigm dealer... and listen.

The critics agree:

"... the [Paradigm] 5se is no more colored than speakers costing up to two or three times its price, and gave a consistently musical presentation...
Conclusion: the Paradigm 5se offers excellent performance at a very competitive price..."
- John Atkinson / Sterophile Vol. 11 No. 1 January, 1988

"... natural, open and clear... excellent depth... lots of hall sound... big, expensive soundstage... well defined... a rare achievement for any loudspeaker, but when the price is taken into account the Paradigm's performance must be considered as nothing short of remarkable."
- Sound & Vision Magazine

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Sound & Vision
CRITIC'S CHOICE AWARD
established turntable manufacturers like Linn, VPI, SOTA (now reorganized and transferred to Illinois), and Well-Tempered all had their current 'tables out and playing all over the show; the Well-Tempered, in particular, served as the front end for many of the demo rooms at the Hilton. One new turntable that really caught my eye and ear was Allen Perkins's new $1500 Immedia RPM 1, a stunning-looking 'table with a faux-marble paint job by none other than Allen's wife Julia. Fitted with the Graham arm and Parnassus cartridge, this was one of the best analog front ends I heard at the show.

Bruce Thigpen had the RPM 1 in the Eminent Technology room, fitted with his ET 2 tonearm and the Lyra Clavis; this combo sounded killer over Bruce's ET Ribbon speakers, and I plan on getting one into my listening room for a full review in the very near future. Incidentally, Allen also had on hand some samples of a specially woven cloth that, when used to clean the stylus, resulted in sonic improvements that were not subtle. GL and I heard Allen demonstrate the cloth in both the Immedia and ET rooms; the improvements were increased treble purity and midrange outline, and the whole presentation became more tightly focused than it was before a few simple wipes of Allen's cloth. At present, there's no price or even name for this stuff, but Allen's got to put it out; it really works!

Bob and Carol and amps and preamps

The latest 'sky's falling' panic in the high end is the fear that tubes are rapidly becoming extinct; indeed, many of the best tube plants have closed down in the past several years. But to look at the rooms at the Hilton, you'd think it was the '50s for all the tube amps and preamps. ARC, Jadis, and VTL all had their lines of tube gear at the show, and many newcomers were in evidence as well, showing a few novel technical and cosmetic twists to add to the family tree. Valve Amplification Company, better known as VAC, showed their full line of uniquely styled gloss-black-chassis tube amps and preamps, along with the new Golden Dragon line of replacement tubes. Sonic Frontiers, a Canadian company best known to DIYers for their extensive catalog of audiophile parts, had their $3495/pair SFM-75 Mk.II 75W tube monoblocks on hand, as well as the $2195 50Wpc stereo SFS-50; in the Dynaco tradition, these are

The last hoorah of the analog hordes? VPI's Harry and Sheila Weisfeld with their tasty TNT turntable. (Photo: Guy Lemcoe)

A manly tube amplifier from Yakov Aronov. (Photo: Guy Lemcoe)

One of the show's hot products! The First Sound amplifiers/tube repositories driving Sound-Lab A-3s. (Photo: Guy Lemcoe)
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affordable audio for the critical listener
also available in factory-direct kit form, for $2795/pair and $1750, respectively. A new-
comer to the audio scene, Nobis had a room
took of their attractive line of speakers, but what
captured my eye was their beautiful little $1695
Cantabile tube amp; with two EL-34s per side
and a similar size, it looked like a Dyna Stereo
70 in a stained wood chassis. And as with sev-
eral of the other new tube amps I saw at the
show, output tube bias is set using an LED as
the indicator; turn the trimpot until the LED
is extinguished, and you're in like Flintstone.

Two tube amp companies deserve special
mention here, one for cosmetics and one for
sheer majesty. Yakov Aronov came to America
from Russia ten years ago; today he runs
Aro-
nov, a company driven by the philosophy that
aesthetic design has been in a state of regres-
sion ever since the "big is beautiful" '50s. Other
tube amp companies offer their own take on
the physical appearance of their gear; Jadis
creates ethereal objets d'art, VTL builds 'em simple and plain, ARt builds theirs hidden behind
faceplates, and Sci-Fi eats acid like it was jelly
beans; Aronov likes things Big, Black, and Red.
Their amp, called, simply, the Aronov Amplifi-
er, is a throwback to the days when men were
men and tube amps were big, macho, imposing
beasts you fed tubes to like so much coal. Two
feet wide and a foot tall, this 90-pound hunk
of shiny black and red is in a visual class of its
own; there are Manley amps and there are manly
amps, and the Aronov will definitely appeal to
those who always felt that Chuck Connors was just too damn swishy.

As for the majesty, I found it from the only
amp of the show that announced its presence
down the hall not with sound, but with
beat! Throughout the CES, everybody I talked
with spoke in hushed, reverent tones of the big
tube amps in the First Sound room; "You've
gotta check these things out," Guy Lemcoe
panted, "You won't believe 'em!" I made it up
to the First Sound room the next day, but as the
signs showing which exhibit room was where
weren't up yet, I could only guess as to which
direction to walk from the elevator. Suddenly,
a pocket of warm air wafted over my face,
clearly coming from the hallway to my left!
No way, I laughed. "Way," whispered the air
pocket. "No way!" I spoke aloud. "Follow me,
and you shall see," said the pocket, so I walked
down the hall and, sure enough, the farther I
went, the warmer it got. A blind man could've
found it; once I stepped into the room, a blast
of hot air hit me in the face like I'd just opened
my car door in the middle of a Texas July. And
there on the floor, in between the monolithic
Sound-Lab A-3s, was the biggest tube amp I've
ever seen in my entire life. Tube Research calls
it The 800; I call it The Zip Code. These aren't
just monoblocks, they're city blocks, with the
power supply and audio stages each sitting
in their own separate 36" by 19" by 12" chassis
and weighing in at 160 pounds. The output sec-
tion is the largest I've ever seen, with twenty
KT90s per side for 1300W in ultralinear and
800W in triode mode! The sound, with the
imposing Sound-Labs, was room-filling to say
the least, but who cares what they sound like?
At $45,000/pair, these are amps built by the
insane for the insane, and I'm sending them my
down payment just as soon as I sell off my col-
collection of Fabergé eggs.

The most bitchin'-looking tube gear, hands
down, was in the Scientific Fidelity room.
The Mike Moffat-designed electronics and Sci-
Fi head Mike Maloney-designed cosmetics of the
$5000 Aurora preamp and $7500/pair Tril-
lium amplifier just knocked me out; the Tril-
lium even has a red LED, used in the circuit,
mounted directly under the input tube to dra-
matic visual effect. Unfortunately, we've all got
biases; a very common audio bias is Bang&
Olufsenism: "If it looks great, it must sound
bad." The wild, radical looks of the Sci-Fi gear
has caused many to doubt their sonic value, but
the sound of the Sci-Fi system, driving their
excellent $1990 Tesla speakers, was one of the
best I heard at the show. Mike's flair for the dra-
matic also extended to the decor of his dark-
ened, eerily lit demo room, easily the most distin-
ticive at the Hilton.

Solid-state was on hand as well, with several
pieces that caught my attention; in particular,
the John Curl-designed $1475 HCA-2200
amplifier. The Parasound/Curl team is an
exciting prospect for those of us who still eat
Budget Gourmets; Parasound plans to have a
$1000 Curl-designed preamp ready to show at
the Winter CES. Other good-sounding solid-
state gear included the Ensemble room, where
the new $4000 Caruso 100Wpc hybrid amp
drove the $5000 Ensemble Reference Monitors
to good effect. Muse Electronics had one of
the best sounds of the show with their all-Muse
system of their $2500 Model One preamp,
$2280/pair Model One Hundred Fifty MOSFET

Stereophile, August 1991
monoblocks, and a speaker tandem of the killer $2500 Model 18 powered subwoofer and the $4000/pair Rush Sound Monument II speakers, a design collaboration (as with the Model 18 subwoofer) between Muse's Kevin Halverson and Jim Rush. With a Dynavector XX-IL/Wheaton/SOTA Star Sapphire front end, the Muse room had an exceedingly natural sound, especially when they played my just-purchased LP copy of Robert Lucas's AudioQuest recording, Usin' Man Blues; Big Luke sounded almost as real as he did in the flesh at the Vandersteen boat party6 Monday night. Also on display were the massive $5700/pair, 105-pound Model Two Hundred Fifty monoblocks, capable of 250W into 8 ohms, 1kW into 2 ohms, and 2kW into 1 ohm, which should drive die-hard Apogee-whizzers crazy with current-lust.

I couldn't think of a play on words for speakers

One of the best things about the CES, for me, was the chance to hear many speakers that I'd only heard about before; several were very impressive. One was the prototype of the forthcoming Hales Model One, projected to retail for $16,000; this time around, designer Paul Hales has opted for a three-way design, with a unique 1" ceramic inverted-dome tweeter replacing the popular titanium MB Quart tweeter of the Hales Signature Two, flanked above and below by 2" metal-dome midrange drivers. The sealed bass alignment uses a 10" woofer, and although the speakers at the show were still just prototypes, they sounded very clean and clear driven by Rowland electronics and a Rockport turntable. The Model One is scheduled for a late fall release, and I look forward to hearing the final version after Paul finishes tweaking it into shape. Vortex's Albert Von Schweikert had one of the absolute best-sounding rooms at the Hilton, sharing it as he was with Luke Manley and the VTL tube amplifiers; Herr Schweikert's $3000 (factory direct) Kevlar Reference Screens, driven by the KT90-equipped VTL Deluxe 225s, provided one of the most vivid reproductions of a drum kit I've ever heard, during DAT playback of some jazz recordings engineered by VTL's David Manley. The KRS utilizes transmission-line loading for both the 4" Kevlar midrange and the 8.5" Kevlar woofer, and the MB Quart titanium tweeter uses special foam damping material to smooth out internal resonances. The room's acoustics lent the bass a tubby quality, but whether we listened to the VTLS DATs or the stunning new Chesky McCoy Tyner CD, the KRSes were highly musical, with pinpoint imaging and depth out the ass; I'd love to hear the Vortexes in a better room to really hear their bass, but even in the less-than-optimal room, the Kevlar Reference Screens were easily one of a handful of speakers that really knocked me out.

Another knockout of a different sort was the smallest member of Apogee's new Centaur line of dynamic/ribbon hybrid speakers, the Centaur Minor; at $995/pair, these two-way hybrids are a steal. One of the stated design goals of the Centaur line was to permit speaker placement closer to the rear wall, and that's just where the Minor was in the Apogee room, providing loads of detail and amazingly extended bass for a sealed 6.5" woofer. The Minors sounded great with Acurus amplification; I'd love to hear them with big tubes. Former Polk Audio co-founder Sandy Gross had his new Definitive Technology speaker line, a bi-polar group reminiscent of the big Mirages in concept if not in price; the two-way DR7s retail for only $750/pair. I also got a chance to swing by the McCormick to check out the B&W 800s Lewis Lipnick jizzed over in the June issue, but the speakers were set away too far apart in a less-than-good room, and the sound was distinctly underwhelming. I hope to get a chance to hear them again some day under better circumstances.

Jim Thiel held a press breakfast (great undercooked bacon, just the way Elvis liked it) to introduce two new products, the $2050/pair CS2.2 and the $1090/pair SCS Coherent Source loudspeakers. This was the first time I'd met Jim, and I found him to be one of the most down-to-Earth designers I've come across; after two days of hearing every Tom, Dick, and Olaf at the show extolling the obvious superiority of their speakers over all else, it was downright refreshing to hear Jim talk about such taboo subjects as design tradeoffs and real-world limitations. Naturally, the CS2.2 replaces the long-popular CS2, and offers several interesting design improvements. The new woofer has two cones, one straight-sided, one flared, mounted on top of each other with a small air pocket sandwiched between them; Thiel claims this results in a single very stiff dia-
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phragm with minimal diaphragmic resonances and break-up modes, resulting in smoother and more linear response. The magnet system is also a new design, with a protruding lower lip in the gap to equalize the magnetic field strength on both sides of the voice-coil; this looks very similar to the Symmetrical Field Geometry designs of (horrors!) the JBL company. Either way, this design reportedly reduces the driver's distortion by up to 50%.

But as impressive as the CS2.2s appeared, I was actually more intrigued by the SCSeS. These are smallish two-way designs, designed expressly for use as bookshelf speakers; a genre that I remember as extremely popular in my younger days, but that seems to have given way to the stand-mounted "minimonitor" school of small speaker design. A lot of designers seem to have forgotten that there's a whole segment of music-lovers who just don't have the space (or aesthetic desire) to own large, floor-standing speakers, and Jim Thiel should be applauded for bringing these to market. The first Thiel speaker to use a coaxially mounted tweeter in the center of the woofer cone, Jim readily admitted, to my utter astonishment, that this was a sonically compromised design when compared with his floor-standing models; I'm just not used to such admissions from designers! But for listeners who need to put their speakers on bookshelves, the SCSeS look to be at the top of the genre.

The good, the bad, and the Gins

Although the boys in Santa Fe probably never want to see another small, inexpensive speaker ever again after the infamous "Blind Date '91" in the July issue, I came across a model that is by far the most musical speaker I've heard under $301: the new $300/pair Signet SL250s. Marrying a 5.5" ported woofer/midrange to a ½" polycarbonate-dome tweeter, these little gems sounded way larger and way more expensive than three bills. I actually asked Signet if an external subwoofer was playing as well; not that the bass went down that low, but the extension, and the quality of that extension, were remarkable for such an inexpensive speaker. TJN was suitably impressed by Signet's larger SL280, and the lil' 250s are clearly cut from the same cloth.

The worst speakers of the show? This is interesting, as it should shed some light for those readers unaware of what recording studios use to monitor their recordings, and why most popular releases sound so miserable. Now, I know what you're thinking: "he's gonna say JBL, I just know he's gonna slam JBL!" But I'm not, even though their speakers were pretty lousy. No, the worst-sounding speakers I heard were undoubtedly the new home versions of the immensely popular Westlake studio monitors. The domestic Westlakes, like their pro counterparts, sport midrange and tweeter horns, big-ass underdamped ported woofers, and sounded just about as boomy, harsh, and confused as the ones the big studios in LA use every day of the week to determine what kind of EQ curves their mixes need.

And why, you ask, do these studios swear by Westlakes and others of their ilk? Four words: THESE PUPPIES MOVE AIR. The Westlakes have typical sensitivities of around 100dB/W/m, and can safely sink upward of 600W before you disembowel. That translates to a continuous sound-pressure level of over 125dB, just loud enough to judge the sonic subtleties while mixing the new Poison CD. So after a few years of this kind of exposure to positively damaging dB levels, just what kind of hearing loss do you think most pop/rock engineers and producers sustain? And just bow much do you think they need to jack up the highs during every stage of the recording from basic tracks to final mix-down in order to compensate for this hearing loss? And just bow much do you think this cumulative high-end boost, often as high as 20dB and many times even greater, over-stresses the 5532s in the industry-standard SSL, Neve, and Trident mixing boards? And just bow much of this tangential, 3am-the-night-before-

Now let me see: "The music goes round and round... and I guess it comes out here!" CG and the grandiose Gins. (Photo: Guy Lemcoe)
THE CD PLAYER.

"It's fair to say that the Rotel RCD 855 is the steal of the century. Musically, the RCD 855 is very refined, with a degree of transparency and harmonic neutrality found only with the real expensive stuff. As an integrated unit, the 855 is truly extraordinary."

Lewis Lipnick
Stereophile Vol. 13 No. 7, July 1990

"It's rare to find a product that offers so much music for so little money as the Rotel RCD 855. One would have to spend a thousand dollars, however, to better the RCD 855's performance."

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Winner: Best CD Player
Awards 1990, WHAT HI FI? (U.K.)
deadline-on-nine-cups-of-coffee-and-as-many-boxes-of-Hot-Tamales tirade do you think JA's already edited before you've read this?

Okay, so I lied: there were speakers at the CES worse than the Westlake. I ventured over to the McCormick to see NHT's Ken Kantor, and he took me by the arm and led me downstairs to see what, by the end of the show, had become the most talked-about speaker of the entire CES: the mind-bending, howlingly funny GinS. These Korean kim-chee nightmares are unlike any speaker you're likely to see, as their port is a real, shiny brass TUBA HORN, mounted flush with the front baffle! Two identical 8" coax car-speaker drivers complete the picture, and suffice to say, these things sounded so ridiculously horrible that I immediately fell in love with them and sincerely want a pair of my own, just to look at in wondemento. I mean, you have to be seriously unwell to not only conceive of such a thing, but to build it, like it, and go to the trouble and expense of producing color brochures and exhibiting at CES. The mad cherry atop this bizzarro sundae is the price: $2400/pair! I want them, and I'm not sure I want to know why.

**First time at the Show complaint**

One of the most telling incidents happened to me on Day Three; even though the sound in the room was good, the names have been changed to protect the guilty. I wanted to get an earful of some new, much-talked-about speakers from a company I'd never heard of, and the designer asked what I'd like to hear. At this point, I'd heard Jennifer Warnes's Famous Blue Rain Coat over 300 times, plus a lot of classical that I wasn't really all that familiar with, so I went over to the pile of CDs by the player and flipped through them. Audiophile, audiophile, audiophile, David Lindley and El Rayo X, audiophile, audiophile—

WHAT THE—flip flip flip—El Rayo X! Man-oh-man, this is one of the baddest albums ever! What the bell was it doing wedged between Phil Woods and Frederick Fennell? I grabbed it and handed it to, er, "Randy."

"I wanna hear this one!" Randy's face fell.

"Uhmm... this isn't really all that, ah, son-

ically refined. Actually, I was going to play you this new Dorian CD, recorded in a just-closed Texas S&L..."

"Randy, have you heard this Lindley? It's KILLER!" But Randy wasn't happy. Here he had a genyowine Reviewer in his room, and what did he want to hear over Randy's newest speaker, his blood sweat 'n' tears, his CHILD?! Mutant overdriven reggae insect rock and roll. He looked at me like a man sentenced to death by rodent gnawing.

"Randy, please; I've been forced to listen to stuff I can't stomach for days! I beg you, just let me hear "Mercury Blues," and I promise I'll listen to whatever pristine example of boring music you want to show off your new speakers with; deal?" Randy's shoulders sagged. He reached for the disc as if it were a piece of dung. I saw a tear roll down his cheek as he pushed Play and closed his eyes.

"If I had money, I'll tell you what I'd do / I'd go downtown and buy a Mercury or two / I'm crazy 'bout a Mercury... I'm crazy 'bout a Mercury / I'm gonna find me a Mercury and cruise it up and down the road!"

It was GREAT! Lindley's distorted slide-guitar lines sizzled right out of the speakers, careening crazily down the road like hell-bent-for-leather Cobras while El Rayo X cooked so hard flan shot out of their nostrils... I was rolling back and forth in my chair, air-drumming right along with the mighty Ian Wallace, stomping my boots on the floor... it was the most fun I had listening to music the whole show, and when it was over, I fell back in my chair with a big smile on my face; the kind of reviewer's smile most speaker designers would sell their first-born to cannibals for.

But was Randy smiling? No. Randy was, in fact, heavily bumming; he actually came just short of physically blocking my path from the room as I thanked him for the great time on the way out.

"But you haven't heard the Dorian yet!" he cried, but luckily, Guy Lemcoe had come to get me for lunch, so I split with Lindley's searing slide guitar lines freshly baking in my head.

I caught this sort of act throughout the whole show; whether it was a group of reviewers or buyers or whoever, the manufacturers would play some Audiophile-Approved recording while everyone would sit with furrowed brows, chin in hand, stock-still in concentration while the music played. The manu-
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facturer would be off to the side standing on eggshells and holding his breath; his entire company might’ve depended on the opinions of the men seated in those chairs. And after the “real” listening session was over and everyone had successfully kept their professional poker faces intact, invariably somebody would put on something fun, like El Rayo X, or Dwight Yoakam covering the Dead on the Deadicated disc, and the whole mood of the room swung around; suddenly, everybody was having FUN! People relaxed, started talking, and we were all allowed to scratch ourselves in private places. I saw smiles, laughter... people enjoying themselves. What a novel idea!

Another bit of surrealism: when I got Apogee’s Jason Bloom to play the Sun Sessions’ “Milk Cow Blues Boogie” on his remarkable Grands, I got a lot of disapproving glares from the Peanut Gallery. What’s wrong with these people? One guy was so appalled, he actually left the room! Call me a country bumpkin, but I can’t understand how any piece of music can be deemed UNWORTHY! of a playback system, merely because a) the music isn’t “serious,” and/or b) the recording quality is below that of the playback gear. People, I got news for you: most of you own systems that are so far ahead of most studios in terms of neutrality and resolution that if you adhere to Tenet B, you may as well chuck it all and take up catfish breeding. I find the notion of playing distorted mono Elvis over the Apogee Grands eminently more appropriate than pretending to enjoy some off-key Brazilian yawling over wind chimes, just because it’s well-recorded.

The Best Sound at the Show: a group of one
I’ve saved the best for last. Because while there were several really fine-sounding rooms at the Chicago CES, one speaker stood out so far away from the rest of the pack that it redefined my expectations of what can be achieved in the art of sound reproduction. I’ve heard great-sounding systems and I’ve heard GREAT-sounding systems, but I’ve never heard anything even remotely as good as the demonstration of the new $60,000 Apogee Grand speaker system. Not even close. Driven by a Krell digital front end and preamp, the longest runs of Magnan wire I’ve ever seen, and $40,000 worth of Krell amplification, the big Grands, which combine a three-way ribbon with a dynamic subwoofer, were simply awe-inspiring. With flawless dynamics, unequalled coherence throughout the midrange, bass definition heretofore unheard of by me anywhere outside of live music, highs as free of coloration as the real thing, the Grand demonstration was, for me, the highest expression of music reproduction I’ve yet heard. I know all of this sounds like typical over-the-top reviewer gush, but I’m not alone; the Grand reduced a room full of the cream of the high-end reviewing crop, men who’ve seen it all and heard it thrice, to a gaggle of wildly jabbering geese. To expect a chance to review these speakers is to be hallucinating like a mofo, but I can assure you that when Stereophile gets a pair of the Grands to review, I’m packing a sack full of pork ribs, slapping on my leathers, and pointing my motorcycle toward the New Mexican border.

Darling, you—owweeyou—tweak me!
As should be expected, tweaks abounded at the CES, but none sillier than the various permutations of the “cable stands” : little acrylic holders that raise your interconnects, speaker cable, and power cords from the floor at intervals all along their lengths. I’d say that almost half the rooms I saw had these things, and every time I asked the guys running the room if they could really hear any improvements, they all had exactly the same sheepish answer: “Well, no, but theoretically...”

The new purple and green XLO cable was in almost every room, it seemed, as was Room-Tunes’ Michael Green, who I swear I saw get on one elevator and get off another at the same time; did he clone himself for the show? The guy was everywhere, taming poor room acoustics in nearly every room I checked out. He must be doing something right, because everybody I talked to spoke highly of his absorptive room treatments. And what show report would be complete without Ray Shab and his Arcici line of equipment stands? Ray was showing his new Upscale stand system, and it looked so cool that I ordered one myself.

8 But not from Jason himself, who was very gracious about playing my request; no, the glares were from people who obviously felt that Sam Philips’ crude 1954 recording was unfit for playback over the $60,000 Apogee Grands. Personally, I never heard Elvis sound better, and if He could’ve heard himself over the Grands, He might still be with us today instead of hiding out in South America.9
9 I thought he was in the Federal Witness Protection Program.
—JA

Stereophile, August 1991
I have to say that the AE1 is one of the finest, most transparent cone speakers I have heard.
...As far as I'm concerned, it redefines the art of miniature speaker design.
*John Atkinson, Stereophile, Sep 1988.*

This is without doubt a wholly remarkable loudspeaker, and a stunning endorsement of the well developed metal cone bass units.
...on current showing the state of the art miniature, bar none.
...to the author's knowledge, the most awesomely dynamic and articulate miniature ever made.
*Alvin Gold, Hi-Fi Choice, Jun 1988*
Best babes of the Show
Like the Apogee Grand, Linn's Anne Young is in a class of her own, but I found the AudioQuest babes to run a close second. Ever wonder why AudioQuest president Bill Low is always smiling in all of his pictures? Now you know. I saw guys in the AudioQuest room asking the most pathetic questions, anything just to stand downwind of the AudioQuest babes just that much longer. Other knockouts, at a show I never dreamed would have any good-looking womenfolk due to the inherently nerd-like nature of this business we call the high end, included Kimber's Brandee Slosar, fiancée of Kimber GM Jeff Young and looking resplendent in a red silk dress by Evan Kiwi at the Stereophile party, and Audioophile Systems' Stacy Harding, who wore an oversized Loch Ness Monster T-shirt that hung down past her knees and patiently explained Linn's Selekt program of LP reissues to a young Texan who blissfully never heard a single word she said.

Best time at the Show
Undoubtedly, the Pax Mondial party Sunday night, where Mondial's Tony Federici and Paul Rosenberg threw their second annual bash for the high-end community. The 21-course Russian meal at Chicago's Moscow Nights threw me for a loop; I was expecting exotic, mysterious Russkie eats, but the spread was exactly what we used to gorge on when we visited my grandparents in Brooklyn! Potato knishes, tongue, herring in cream sauce...Semitic Soul Food. I'll leave accounts of the music portion of the evening up to those with a better perspective—as in, the audience—but I do want to say that I had almost as good a time playing guitar with the boys onstage as I did watching the high-end designers, reps, and journalists get down on the dance floor, inhale the vodka, and just generally go apeshit; you haven't really been to the mountain until you've seen John Curl doing the Camel-Walk like James Brown in his prime. It was the best time I had at the show, and I want to thank Tony, Paul, and Bainbridge's Helene Marshall for putting it all together; we all had a blast! Next year, Frank Doris, it's you and me, pal.

All in all, I had a great time in Chicago; being new to this sport, it gave me the opportunity to meet all of the names behind the products, and I met a lot of fascinating, warm people. Yes, it's a business, but it was very reassuring to see the excitement, passion, and fun these people had for music of all kinds, and I'm glad I got the chance to know them.

Corny outro
Of all the Stereophile staffers who helped me out during my CES deflowering, I really must thank Bob Harley for not only putting up with my groggy "What %### time is it?!" every morning, but showing me the ropes and just generally being my Big Bro. Bob, thank you.

"Can you hear me Jimi?" The axeman in action at Pax Mondial. (Photo: Guy Lemcoe)

"Is it the subdominant after the tonic in "Louie Louie", or should I just slide up a major second, or should I just sneak a peak at Elliot's fingers?" Elliot Kallen of The Iweak Shop tickles the Yamaha and JA gets creaking digits into action for yet another Bainbridge/Mondial charity CD. (Photo: Guy Lemcoe)
Robert Harley relieves

Another Consumer Electronics show rolled around, bringing with it a whole new crop of digital products. Although there were fewer new entries in the digital arena at this show than last, there were some interesting surprises, including CD players from the two companies you’d least expect to become involved in digital. I’ll give you a clue: they’re both British.

The two companies are Linn and Naim. Both forswore digital when CD was introduced, and both have consistently maintained they wouldn’t introduce a digital product until it could compete musically with the LP.

Unfortunately, there isn’t much to report on the Linn CD player; we saw and heard the unit in Ivor Tiefenbrun’s private suite (it wasn’t shown in the official Linn room, though the new Kremlin FM tuner and Kairn preamp were shown), but no details were given. No pricing, no hint of the technology inside, no delivery dates, nothing. Don’t hold your breath.

The Naim Audio CDS, as it’s called, is a different story; the $6750 CD player is now shipping and technical details were readily available. The CDS is a two-piece unit that incorporates the power supplies in one box and the transport/decoder in the other. The top-loading machine uses the Philips chip set and transport, along with some interesting and unique design techniques, especially in the transport mechanism.

Another company with their first digital product was Jadis, known for their exquisite tube power amplifiers and preamplifiers. The Jadis JT-1 Symmetrical Decoder is a two-chassis D/A converter with the most massive power supply ever seen in a digital processor (it’s three times the size of their JT-80MC supply!). The JT-1 uses two 12AX7 and two 12AU7 tubes, with the digital board supplied by Altis Audio (the 1-bit based circuit used in the Altis DAP Reference). The gold-finished JT-1 will sell for $9000 and should be available in September. I was quite impressed during a brief audition through Jadis amplifiers driving Avalon Eclipse loudspeakers.

The first digital processors from established analog companies were plentiful: Conrad-Johnson showed a very early version of their digital processor, the DA-1. The technology in the DA-1 isn’t firmly established yet, but C-J is leaning toward Bitstream. The $1495 unit should be available in October.

The Mark Levinson No. 30 digital processor from Madrigal was shown in its full glory. Previous reports were based on previews of some circuit boards, not a fully finished unit. The No.30 is visually stunning, sonically ambitious, and uses some very unusual design techniques. The “under $15,000” No.30 should be available by the time you read this. Watch for a review.

Krell Digital showed two new digital products and announced upgrades for their existing processors and transports. First, the long-awaited Stealth digital processor is now in full production. The $1850 machine was originally shown in prototype form a year ago as a multi-bit converter, but its introduction was delayed to take advantage of the new Burr-Brown PCM67 hybrid DAC. The PCM67 combines a multi-bit ladder DAC on the upper ten bits with a 1-bit converter operating on the lower eight bits. The PCM67 reportedly combines the subjective advantages of multi-bit (dynamics, tight bass) with the superior low-level linearity of 1-bit conversion. The Stealth has balanced and single-ended outputs, multiple digital inputs, and can be ordered with an optional AT&T glass fiber input.

After the success of the Krell CD-DSP, the first CD player with integral software-based processing, the Connecticut company has followed up with the CD One-Bit, a $2750 integrated CD player. No details on the conversion system were available, but it should ship in September.

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Toslink, AT&T glass fiber), Krell has introduced the DSN-I, a multiple input, multiple output digital switching network. The DSN-I accepts all digital input types (except BNC) and outputs the digital signal to any of four digital products via RCA, Toslink, or AT&T glass-fiber interfaces. The DSN-I retails for $1000.

Krell now offers AT&T glass-fiber inputs/outputs on selected processors and transports as an option for new purchasers or as an upgrade for existing units. The upgradable units include the SBP-64X and SBP-32X processors, MD-1 and MD-2 transports, and the CD-DSP CD player. No upgrade prices were announced.

The Wadia Digital room featured their usual array of digital processors and CD transports, but with one surprise: a digital "amplifier" called the "Power DAC." Unlike any other product currently available, the Power DAC takes a digital signal at its input and drives a loudspeaker at its output. No, it’s not just a D/A converter followed by a power amplifier in the same chassis. The Power DAC functions entirely in the digital domain, with volume controlled digitally. The signal becomes analog right at the Power DAC’s output, with no analog amplification or processing after the D/A converters (except, of course, I/V conversion). The D/A converters use several 50A transistor pairs to provide suitable output current.

The Power DAC is also unique in appearance and construction. The 30”-tall cylinder is machined from aluminum with heatsinks running down the unit’s length. Two are required for stereo, and the projected retail price is $18,000/pair. The Power DAC will be available in October.

Audio Alchemy, a newcomer to the digital arena, showed their line of very inexpensive digital products including the $399 Digital Decoding Engine reviewed in this issue. The company also unveiled a $699 two-piece CD transport designed from the ground up around a Philips mechanism. Other products included a Digital Transmission Interface ($299) that goes between a CD transport and digital processor and reportedly reduces jitter in the data stream, an Analog Decoding Engine ($199) that "conditions the analog output from any digital source,” and the ClearStream coaxial digital cable ($49). The transport and cable use a new (for audio) "SMA termination" in addition to RCA plugs and jacks.

In a foreshadowing of the future, Meridian introduced the 601 DSP preamplifier. The twobox unit performs all the functions of a preamplifier, but does it in the digital domain using Digital Signal Processing (DSP). The remote-controlled 601 accepts analog inputs from tape, tuner, and other line-level sources and converts them to digital. Six digital inputs are also provided. If used with the Meridian D6000 Digital Active Loudspeaker (to be reviewed next month), the 601’s digital output drives the D6000 directly. For those using conventional power amplifiers and loudspeakers, the 601 has an onboard D/A converter (based on the new Philips DAC 7 Bitstream chip) that provides a normal line-level analog output signal (balanced and single-ended). Phono signals are also digitized, with RIAA equalization performed in the digital domain. The 601 will sell for $5000.

Meridian also showed their 603 D/A con-

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The literally awesome Mark Levinson No.30 digital processor. (Manufacturer’s photo)

Pregnant styling for Krell’s 1-bit CD player. (Manufacturer’s photo)
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Stereophile, August 1991
converter/preamplifier. The 603 accepts both analog and digital inputs, and combines a dual-differential Bitstream converter (as in the 203) with a full-function remote-controlled preamplifier.

Digital signal processing is becoming more and more prevalent in audio equipment, but this CES saw a new application of DSP: correcting loudspeaker deficiencies. A new Texas-based company called Audile showed their ACT1 system, a small, unusually shaped loudspeaker whose input signal is processed by a companion black box that connects to a CD player. The box’s DSP compensates for loudspeaker irregularities (amplitude, phase, and time alignment), the result said to be flat response and linear phase. The entire system, including speakers (which have passive crossovers), stands, and the DSP box, will retail for $6000. During a demonstration, I was very impressed by the ACT1’s imaging capabilities. They threw pinpoint, clearly defined images that existed outside the loudspeaker boundaries. This kind of technology is quite exciting, and something we’re likely to see much more of in the future.

A very unusual new product at the show was Theta Digital’s $2000 Theta-Data CD transport. What makes the Theta-Data unique is that it’s based on a videodisc player. Theta designer Mike Moffat discovered by accident that his videodisc player, driving a processor, produced better sound from CD than any CD-only transport he’d heard. Theta buys the videodisc player, trashes most of it, and rebuilds the machine around their box. Theta is also now in full production of the DS Prime, a $1250 processor that combines a single DSP chip running at 4x oversampling with Theta’s software with a Philips 7350 Bitstream DAC. My wish list of products to review keeps getting longer!

Three new DA converters from Mirror Image Audio made their debut at the show. The .2D module fits into the company’s .2P preamplifier, and the .3D and .4D are stand-alone units. The three are reportedly sonically identical, differing only in application and features. The .2D retails for $1985 (when installed in a .2P preamplifier), the .3D lists for $3990, and the .4D will set you back $5135. The processors are unusual in that the DAC was reportedly designed by Mirror Image and custom-made to their specifications.

Museatex announced at a press conference two “major developments in digital technology” called “Logic Induced Modulation” (LIM) and “C-Lock.” Their interesting discoveries deserve more space than a mention in a CES report. Watch for an “Industry Update” next issue for a full discussion of this potentially important development.

On the budget side, NAD showed the $299 Model 5425 CD player based on MASH 1-bit conversion. The 5425 features high parts quality (film caps and metal-film resistors) and minimalist styling.

The Texan Audile speakers use conventional crossovers but digital signal processing to correct amplitude and phase response on the listening axis. (Manufacturer’s photo)

JA thought the stainless-steel Primare electronics from Denmark among the best-looking of all time. This is the Series 200 preamplifier; the CD player and power amplifier look almost identical. (Manufacturer’s photo)
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The Danish company Primare Systems, known for their unusual design and styling, introduced the model 204 "Goldtop" CD player. The unit is finished in polished stainless steel, and uses Burr-Brown DACs and a Philips transport.

Altis Audio showed their new $2995 CD transport. The unit's servos are discretely regulated and electrically decoupled from the rest of the circuit. The Philips-based machine reportedly uses a new type of laser. Coax and glass-fiber output are provided, and the top-loader has a removable dustcover attached by piano hinges. First shipments are scheduled for late July.

Threshold is in production of the DAC 1e digital converter described in my previous CES report. The $2990 unit features a proprietary reclocking circuit, a proprietary chip set using eight 1-bit DACs performing the conversion, and a discrete FET/bipolar output stage with passive filtering. The unit claims a linearity error of 0.3dB at -120dB, distortion of less than 0.002% across the band, and less than 20 picoseconds of clock jitter. These are quite impressive figures; I'm eager to audition and measure the DAC 1e for myself. This is another product on my "must review" list.

The British company Deltec, who claimed to have the first Bitstream DA converter on the market a few years ago, has developed a new line of digital processors. The top-of-the-line PDM Two Series two ($5600) is based on the latest-generation Bitstream chip from Philips, the TDA 1547 (more commonly called the DAC 7). The company also showed the "Little Bit," a $995 converter using the 7350 Bitstream chip, and the PDM One Series Two, priced at $1995.

Spectral showed their SDR-1000 SL CD player, an upgraded version of the successful SDR-1000. Like the original unit, the SL includes Spectral's unique user-selectable program correction filters to compensate for problems in A/D converters used to make CDs. The sound in the Spectral room was first-rate, with Wilson WATT/Puppies at the end of the chain of Spectral electronics including the SDR-1000 SL. Spectral co-designer and recording engineer Keith Johnson was also on hand to play his original master tapes.

Every CES seems to bring another CD tweak, and this year was no exception. There was a buzz around the show about a very simple device that fits over a CD transport or player's lens that changes the lens's numerical aperture. Developed by a group of laser engineers and physicists who call themselves Laser Illusions, the very inexpensive device reportedly affects the RF signal retrieved from the disc. Although I didn't hear it myself, the reports I got from ears I trust included words like "stunning" and "staggering." The company, which applied for a patent on the device, intends to sell it to transport manufacturers on an OEM basis. Laser Illusions is sending me a sample: watch for a full report.

In a welcome trend, manufacturers are introducing more affordable CD transports. This was exemplified by Music and Sound's CDT-1, an $895 unit that includes an AT&T glass-fiber output as well as standard coaxial. The CDT-1 uses a material designed for aircraft vibration damping to reduce resonances, and features a diecast metal transport. The CDT-1 will be available by the time you read this, and I'll be reviewing it in a coming issue.

The Audio Research DAC1 reviewed in June is soon to be available with a 20-bit UltraAnalog DAC. The DAC1-20, as it's called, will retail for $3495, a $500 increase over the original unit. Owners of the DAC1 can have their unit upgraded for $600 through Audio Research dealers. Audio Research will continue to offer the 18-bit DAC1 for $2995. I'll be doing a "Follow-Up" on the DAC1-20.

The giant German tape manufacturer BASF announced their support for Philips' Digital Compact Cassette (DCC). BASF is installing a pilot DCC tape-manufacturing line within an existing plant, and is building a dedicated facility to manufacture DCC blank tape and shells. At BASF's press conference, they made some interesting comments about music listeners' discrimination abilities: Their research showed that "less than 1%" of the population could detect the difference between a CD and their analog cassette tape. Given that BASF believes the public can't discriminate between CD and analog cassette, why do we need DCC? Simple, according to BASF: DCC carries the "magic" marketing word "digital," and consumers want features like track search and time counter. Despite BASF's bullishness on DCC, they predict only a small niche market for DAT among "hi-fi freaks." Presumably, a "freak" is anyone who can detect the difference between CD and analog cassette. I wonder what they'd call LP lovers!

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Barclay Digital showed their gorgeous $6000 Cabernet Reserve CD transport. The unit is machined from 1" acrylic and features the Barclay Bus System (BBS), a modular card and motherboard arrangement to accommodate future upgrades. The AT&T glass-fiber optic output is included, along with coaxial and plastic optical (Toslink) outputs.

Swiss company Meta Research, closely associated with Goldmund and Stellavox, introduced the Meta-Laser 1 CD Transport and Meta-Convert 1 D/A Converter. The transport uses the best Philips mechanism and a metacyrivate CD clamp derived from Goldmund's research into record-vibration canceling. No technical information was available on the D/A converter; the conversion electronics are secret and encased in a potted module that not only conceals the circuitry and components, but also allows easy replacement when technology progresses. Prices are $3750 for the Meta-Laser and $3200 for the Meta-Convert.

Meta also showed the Meta-Speaker, a floor-standing loudspeaker that accepts plug-in amplifier modules and D/A converters for a fully active digital system. The Meta-Speaker functions as a normal loudspeaker until the amplifier and D/A converters are installed, making the system upgradable. Approximate price on the Meta-Speaker is in the low to mid-$5000 range, with amplifier and D/A modules costing about $3000/channel.

Goldmund showed their "Lineal" digital cable, a $495 product that is the result of "more than ten years of research by Goldmund" into improving the S/PDIF interface. Believe it or not, there's more to discuss about this cable than a show report can accommodate. Suffice it to say, however, that the design and construction are elaborate and unprecedented.

Now that we're finished with new digital products, I'd like to briefly list what I thought was good sound at the show.

I'll start with the Apogee Grand loudspeaker. The Grand is, in my opinion, a stunning breakthrough in loudspeaker design. Even in a less than optimum listening position, the beauty and majesty of this remarkable loudspeaker were unmistakable. Driven by eight Krell MDA-300s, Krell MD-l transport, and Krell SBP-64X, the Grand produced the best recorded sound I've ever experienced. It was transcendental—the kind of sound you'd mortgage your house for. I'd love to hear it with a top-notch analog front end. The sobering fact, however, is that the Grand costs between $45,000 and $60,000, depending on finish, and requires a fairly large room. I hope that the technological breakthroughs that made the Grand possible will find their way into a smaller and less expensive product—I'll be the first in line. Bravo, Apogee!

Although the Grand skewed my standards for the rest of the CES, I did hear some very musical displays throughout the show. The new Thiel CS2.2 driven by Audio Research electronics was impressive, and at $2050/pair, may become a serious contender in this popular price range. I was also surprised by the new $16,000 Hales System One. Paul Hales's all-out design effort. They achieved a level of detail and refinement rarely heard in dynamic loud-
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speakers. British turntable manufacturer Roksan had a good-sounding room, playing prototypes of their new electronics and loudspeakers. The Roksan folks also had excellent musical taste.

Great music and superb sound was also bountiful in the Ensemble room. With Ensemble’s Caruso and Virtuoso electronics driving the Ensemble Reference loudspeakers on Landmark stands and some great recordings, I melted into the chair and enjoyed a musical respite from the rigors (and often bad sound) of the show. The synergy of the Ensemble system was eminently musical.

I was also impressed by the affordable new Magnepan 1.1QR ($1000) and 1.5QR ($1350) loudspeakers. Other good sound, in no particular order, was heard in the aforementioned Spectral room, the Jadis electronics driving Avalon Eclipses, the new Vortex Screens driven by VTL electronics, the Canadian-built Metronome loudspeaker, the Artemis EOS loudspeaker driven by the Artemis power amplifier (which looked like a subwoofer), some inexpensive loudspeakers from newcomer Nobis, Yakov Aronov tube electronics driving Mirage M3s, and the new JS Engineering loudspeaker with Bitwise’s Musik System One digital front end.

Overall, it was a good show for hearing good sound—let’s hope the high end exhibits in the Chicago Hilton next year. Meanwhile, I saw plenty of new products to keep my reviewing schedule busy. Stay tuned.

**Lewis Lipnick closes**

_Damn United Airlines._ It was bad enough that I had only two days to cover the Summer Consumer Electronics Show in Chicago this year, but when United decided to cancel their 6:30 am flight from DC to O’Hare without telling me, I really got pissed. Since we had a National Symphony concert on the evening of the first Show day, I couldn’t leave until the next morning. Got home at 11:30 pm from the Kennedy Center, and up at 4:00 am to make the 6:30 flight from Dulles. Thank goodness I called first to confirm my reservation. “We’re sorry, Mr. Lipnick, but your flight was canceled due to bad weather.” What bad weather? Turns out that there were only 21 confirmed passengers, all of whom were mysteriously transferred onto the 8:00 am flight, a 737 packed like a sardine can. Of course, United Airlines couldn’t care less that I was going to miss the press introduction of the new Apogee Grand speaker at the Ritz-Carlton, or that my whole planned schedule was shot to hell. And just to add insult to injury, the breakfast they served (plastic omelet) was unquestionably the most inedible tray of crap I’ve tasted to date and the rude flight attendants made Attila the Hun look like a nice guy. It’ll be a cold day in hell before I fly United again.

Finally arrived in the Windy City and got a cab down to East McCormick Center to pick up my press badge. Then into another cab to the Ritz-Carlton, arriving just in time to miss both the breakfast and press introduction of the

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*Photo: Guy Lemco*
Apogee Grand. By this time it was already 11am, and half of the day was already shot. Jason Bloom took pity on my harassed mental state, and was gracious enough to give me a short private demo of his new $60,000 creation. This speaker is nothing short of stupendous. Of course, it’s impossible to make any finite judgments of any new product with such an impromptu audition, but initial impressions were overwhelming. Unquestionably the best thing to ever come out of Jason Bloom’s and Leo Spiegel’s bag of musical treats, and a definite contender for first prize in the “cost no object” world of speaker design. All electronics were supplied by Krell (including eight MDA-300 power amplifiers—the production Grand will only need six as it will incorporate a dedicated Krell-designed amplifier for its moving-coil subwoofer!), which helped to create the most visually impressive array of audio products this writer has ever laid eyes on. The room in which these superspeakers were placed had obvious resonance problems, causing an annoying midrange honk (similar to that encountered in the Kennedy Center Concert Hall). I’m sure that anyone with the wherewithal to afford these speakers will have (or should have) a listening space designed to deal with large bipolar radiators.

Since my mandate from JA was to uncover the musical aspects (or lack of same) at the show, I brought along some of my own program material. Antoine Brumel’s Mass for 12 Voices (Sony Vivarte SK 46348, reviewed elsewhere in this issue) was reproduced with an unearthly degree of transparency previously unheard by this listener. But that irritating midrange honk caused by the horrible surroundings made the voices a bit too hollow and hard sounding. The complexities of George Lloyd’s Symphony 7 (Conifer CDCF143) were magically unraveled by the Grands, almost to the point of distraction. Is it possible for a speaker to be too transparent? Perhaps, but I’d love to have an opportunity to hear this new product in a kinder, more acoustically friendly environment. CESes are certainly not the venue in which products should be ultimately judged. In spite of this, Jason Bloom and a handful of other conscientious exhibitors somehow manage to consistently produce very good to outstanding sonic results at every CES.

By now it was past noon, and I schlepped down to the Hilton, where the majority of the
high-end audio manufacturers were displaying their wares. There appeared to be a disproportionate number of static exhibits this year, so finding good sounds worth writing about was not easy. My first stop, at the KINERGETICS Research room, found Tony DiChiro demonstrating his $5000 SW800 subwoofer system (which includes dedicated amplification and crossover) in conjunction with a pair of the visually striking Immedia Model 175 Flatline hybrid ribbon speakers ($3900/pair). Front end was his KCD-55 CD transport, KCD-55 Ultra Processor, and KBA-75 stereo power amp. As in past shows, Tony gleaned some really good sound from a hybrid system in less than excellent acoustical surroundings. The most interesting musical selection he offered was a superb performance of "Vitacito," from Handel's Giulio Cesare, on a Harmonia Mundi CD with countertenor Drew Minter. This particular recording appeared to have been recorded in an overly bright-sounding acoustic, making the string instruments sound a bit thin. It so happened that Tony had a second similar disc with one of those "Refine Tuning Sheets" that Victor Goldstein imports. It did indeed make the sound less bright and glassy, but also managed to turn those wonderfully crisp vocal and instrumental attacks to mush; pleasant living-room sound that wouldn't offend anyone. Everyone listening agreed that the straight-up version was more realistic and involving, albeit less romantic and rosy. Lucky for Tony he had a duplicate; once these things are attached to a CD, they can't be removed.

Next stop was WADIA, where Jim McCullough was showing off the WT-2000 CD transport and Digimaster 2000 D/A convertor in conjunction with Jeff Rowland electronics (the Consummate preamplifier, two Model One amplifiers) and a pair of Magnepan MG 3.3 speakers. The overall musical effect was excellent, with a particularly rich, clear harmonic presentation. Jim let me play some of my own recordings (the Brumel Mass and parts of Lloyd's Seventh), which were both reproduced with remarkable clarity and harmonic honesty. Just as I was about to depart, Phyllis Schwartz of Mobile Fidelity came by with a copy of their gold-plated Ultradisc of Steely Dan's Gaucho (Mobile Fidelity UDCD-545). Great sound! This is definitely going on my list of future CD purchases, and I heartily recommend it to everyone. After a rather extended listening ses-

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sion, I left the Wadia room with a very positive impression of their products.

Although Krell was set up with a silent static exhibit, their new, visually gorgeous Audio Standard amplifier was music to my eyes. Since I haven't yet heard this product, I can't comment on its musical merit, but it's certainly the most beautiful piece of audio electronics I've ever seen. Just as I left their room, Mr. Krell, Dan D'Agostino, invited me to a blues club where they were throwing a party that evening. Could I pass up an opportunity to hear some live blues in Chicago, the town known for its blues clubs? No way.

By now it was 4:30; I had just enough time to hit one more room for serious listening: Apogee. Even though it was not long ago that I had heard the spectacular new Grand speaker, what I heard at the Apogee room in the Hilton with the diminutive Centaur Minor speakers was outstanding. These baby ribbon speakers were placed atop the optional purpose-built stands ($995/pair for the speakers, an additional $149/pair for the stands), hardly taking up any floor space at all. But you'd never believe what a big sound came from these tiny little speakers: a huge soundstage, extending beyond the room boundaries, made my jaw drop almost to the floor. The rest of the system consisted of a Sony CDP ZX777ES CD player, with an Acurus preamp and power amp. (By the way, this new Acurus stuff from Mondial must be heard to be believed—fabulous sound for the price of Japanese mid-fi.) Musically, this was definitely one of the highlights of the show, and a demonstration that you don't need to rob a bank to get great sound. The clarity of the solo and ensemble voices in Ramirez's Missa Criolla (with José Carreras, Philips 420 955-2) was astounding for such a budget-priced speaker. The remarkably extended bass of the Centaur Minor was evident on the CD of Rossini Overtures (Orpheus Chamber Orchestra, DG 415 363-2), lending credibility to the philosophy of quality over quantity. This is definitely not a speaker for the boom'n'sizzle crowd.

After about an hour of listening in the Apogee suite, I walked the two blocks back to my fleabag (aka Congress) hotel, where I bumped into my roommate for the show, the notable Sam Tellig. We compared notes on what we liked and what we didn't (with an amazing degree of concurrence), and went our separate ways—he to the Mondial party, being held in some restaurant on the outskirts of town, where a famous rock band with such notables as JA and CG was going to perform; I to cover the B&W cocktail party/press briefing. Another cab ride (Chicago's downtown traffic is even horrendous on Sunday!) over to the McCormick Hotel, with a few minutes to kill. I wanted to see what Celestion was showing—JA had been enthusing over their new Model 100 loudspeaker—so I made my way down to their lower-level room. Well, no one in the room seemed to be the least bit interested in playing their products for the press. Heaven forbid that I should break up their kaffeeklatch.10

But all was not lost: I discovered what could probably be the worst-sounding speaker in CES history, right next door to those wonderful people at Celestion. The Gin Sound Company, from Korea, was demonstrating their "Theater GinS 20000" loudspeaker. What a joke. This speaker (I use the term advisedly) is intended for use in large spaces, such as theaters, and is composed of two 8" coaxial drivers (such as found in the doors of automobiles) and one woofer. But the kicker is the sawed-off bass tuba bell that sticks out from the

10 Celestion’s Model 100 two-way minimonitor, at $1299/pair, should be a bestseller, inheriting the mantle of their 31.6 as a musically accurate speaker that doesn’t cost an arm and a leg. Celestion’s new Models 7, 9, and 11, the last two featuring a new midrange unit with a very light cone, should also do well.

—JA

Stereophile, August 1991
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cabinet, behind which the woofer is located. I wonder how many tubas gave their lives for these speakers. Damn shame. But you wouldn't (or maybe you would) believe the sound! This speaker redefines the verbs "honk" and "squawk." Sonically ugly beyond words, this product should be given cement boots and quietly placed in the river at midnight.

Up on the second floor of the hotel B&W hosted a cocktail party celebrating their 25th anniversary, and showed off three loudspeakers: a redone version of an earlier product, an example of current production, and something brand-new. The newcomer, released in conjunction with the quarter-century celebration, was the "Silver Signature," which, aptly enough, uses silver wiring throughout the system (including dedicated silver speaker cables). This two-way ported design is about the size of the now-defunct Matrix One, and is supplied with an outboard crossover and dedicated stand for the rather stiff price of $7500/pair. B&W was using a prerecorded DAT for program material, which included an eclectic mix of pop to classical selections. I think that these are very good speakers, but the room was much too large, and the overall sonic effect was one of "okay sound, but are they really worth seventy-five hundred smackers?" The next contestant was the redone Matrix 801 Anniversary Limited Edition, incorporating several design changes over the stock version of this speaker. I won't go into detail with all of the changes other than to say that they do indeed seem to significantly improve the performance of this already excellent speaker. Suggested retail for the Matrix 801 Anniversary Limited Edition (of which 350 will be produced, only in rosewood) is $6500/pair. The third speaker on the menu was their flagship Matrix 800, which I reviewed in the June 1991 Stereophile. B&W used Krell electronics (KBL line-stage preamp with dual-mono MDA 300 amplifiers) to drive the 800s, with a Nakamichi 1000 DAT deck as source material, so one would assume that the sound would be stupendous. It was okay, but nothing to write home about. And they certainly didn't sound anything like the 800s I've got sitting in my listening room. As I said earlier, CES is not the place to expect great sound.

But all was not lost. After the prerecorded presentation, when everyone had migrated toward the booze and food, Luc Van der Heyden, B&W's distributor for Belgium and Luxembourg, and I sat down to an extended listening session of opera discs he had brought along to the show. A very well-informed opera aficionado, Luc played excerpts from the recent DG recording of Donizetti's L'Elisir D'Amore (DG 429 745-2) with Luciano Pavarotti and Kathleen Battle as the heavies. What a recording! After the Donizetti, we listened to an older rendition of Verdi's La Forza del Destino (DG 419 205-3) with Carreras and Freni in the title roles. Who cares if the 800s weren't tweaked to the hilt, or the room had a mid bass boom? Nothing improves the sound of an audio system quite like a good performance. We spent the next half hour comparing the two tenors, and their individual methods of approaching the roles in the two recordings. We could have listened to opera all night on the 800s, but it was getting late, and I had to high tail it to the Krell party, where live music was on the agenda.

After a 20-minute cab ride, I arrived at Blues Chicago, a funky club up on north State Street. Krell had bought the whole place for the night, so admission was by printed invitation only. It could well have been a scene from a Bogart flick, with the cigarette smoke so heavy you could cut it with a knife. Up on a slightly elevated stage at the far end of the club was a five-man, all-black band (two guitars, Fender bass, piano, and drums) with a female lead singer belting out some of the most down-home blues you've ever heard. She was no spring chicken, and could hardly get up on the bandstand. But once she got that mike in her hands, there was pure magic. It was all amplified to the point of physical pain, so conversation was just about impossible. But so what? This was music. To hell with Beethoven and Brahms.

Five beers, eight chicken fajitas, and four hours later, I stumbled into my room at the Flea bag Congress, totally exhausted. Only one more day to cover the show, and I was already wiped out. Life in the fast lane can be rough.

Bright and early the next morning I hoofed it over to the Hilton, where Thiel was hosting a press breakfast/product introduction for two new products: the CS2.2 and SCS loudspeakers. On the way to the meeting, I stopped by the Thiel exhibit room to have a listen. Cary Bassini, a Thiel dealer from Champagne, Illinois, was minding the store while the heavies...
were downstairs preparing to give us the grand spiel. Even though the show had not yet officially opened for the day, he graciously let me audition the new CS2.2 with my own program material (the Brumel Mass and Lloyd 7 again). This is one heck of a good speaker and, considering the reasonable price of $2050/pair, is definitely a great buy. Much smoother in the upper midrange than previous products from this manufacturer, the CS2.2’s clarity and recreation of hall ambience were remarkable. Of course, the ancillary electronics being used (Theta Data CD transport and Pro D/A converter, Mark Levinson No.26 preamplifier, and a pair of Audio Research Classic 150 power amplifiers) were probably a bit better than one would expect with a speaker in this price range. But the fact that this relatively inexpensive speaker could sound so good with a first-class front end is a true testament to its capabilities. Cary Bassini is working on a professional operatic career, and had some very interesting insights into the art of musical reproduction. The combination of professional musician and high-end audio retailer is rare indeed, and a welcome breath of fresh air to yours truly.

I got downstairs just in time to hear Jim Thiel’s introduction to the new speakers. He spent a few minutes on the SCS, a two-way bookshelf design, which will retail for $1090/pair. Although I didn’t have the chance to audition the SCS, the beautiful standard glossy black-lacquer finish should give this product a good chance in the upper-priced bookshelf speaker market. The CS2.2 is a three-way, floor-standing speaker incorporating a new twin-diaphragm woofer designed to reduce bass distortion, and metal diaphragm tweeter derived from their flagship CS5. Considering the reasonable price, and results from my initial audition, I’d have to say that this is just about the best value in dynamic speaker design I’ve yet heard.

Following the press breakfast, while roaming Hilton’s upstairs halls, I heard another new speaker that did many things very well. The product name is Espace, and it’s manufactured in France by a concert pianist/engineer who was unhappy with the present state of the art in speaker design. The three-way, floor-standing Octolonne Reference ($3200/pair) uses this manufacturer’s unique drivers designed without compression chambers. While there were some midrange colorations, and a slightly dark quality to the sound, the overall musical impact was remarkably realistic. A deep, three-dimensional soundstage and the ability to unravel very complex orchestral voices were among this speaker’s attributes. John Williams’s Olympic Fanfare (Telarc, Kunzel cond.) was impressive indeed, with excellent bass extension and accurate recreation of massed brass instruments. Electronics consisted of a Marantz CD-94 CD player, and B&K Pro 10-MC preamp and CX-442 power amp. I wonder how these speakers would sound with some really great high-end electronics?

Next stop: Shahinian Loudspeakers. Richard Shahinian’s exhibit is always one of the best at every show, mainly because he concentrates on the music rather than the glitz of equipment. As usual, he was playing his Diapason speakers ($7250/pair) with the same ancillary electronics he’s used for the past several shows (Philips CD player and Bedini electronics). And also, as usual, the sound was terrific. Richard’s room is considered by many, including myself, as the oasis amid the total bedlam endemic to every CES. The first selection, Franz Schmidt’s Prelude and Fugue in E-flat (Helmut Binder playing the Franz-Schmidt Organ, Motette CD 11191), was beautifully reproduced through the Diapasons. Each individual rank of this magnificent instrument was clearly delineated by Shahinian’s unusual-looking speakers, with superb bass extension well down into the nether regions. In true Shahinian style, Richard was playing “drop the needle” on me with an unmarked one-of-a-kind

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11 J. Gordon Holt is working on a review of the Diapasons, scheduled to appear in the Fall.

—JA

Dick Shahinian (standing) discusses his favorite subject—music—while his Diapasons play on. (Photo: Guy Lernco)
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CD that he pulled from his vast portable library of discs. Did I know the piece? I knew it was English, but beyond that I hadn't a clue. The master of obscurity grinned from ear to ear, having once again stumped the musician. It was none other than Bliss's First (and only) Symphony, performed by Barry Wordsworth and the BBC Welsh Orchestra. Somehow Richard had finagled a pre-production copy of this new Chandos release, adding another musical tidbit to his collection. But the day wasn't over yet. I put on George Lloyd's Seventh Symphony and played drop the needle on Richard. We all watched the sweat pour from his face as he vainly tried to name the tune. I had finally won a round over the musical guru of CES!

It was then that I discovered the French horn sitting on the floor next to Richard. What was he doing with such a contraption in an audio exhibit? "Learning to play the damn thing, of course!" he bellowed. I pointed out that, of all the instruments he could have chosen, the horn is about the most difficult and dangerous. Didn't he know that horn players are the first people conductors always pick on when something goes wrong? Or that you never know what'll come out of the bell until it's too late? He didn't care. He'd always wanted to play the horn, and was now fulfilling his wish. Knowing Richard's tenacity, we'll probably see him as principal horn in a major orchestra one of these days.

Feeling rejuvenated and musically recharged from Shahinian's exhibit, I discovered another excellent speaker from Artemis Systems of Dallas, Texas. Unlike most other speaker manufacturers, Artemis also builds a stereo power amplifier, the DM-110 ($8500), which they were using in conjunction with their EOS two-way loudspeaker ($5550/pair, in piano black, with stands). Front-end electronics consisted of an Anodyne D/A processor, CAD SCI Mk.II preamp, and Krell MCD-I CD drive. The overall sound was excellent, with clear pinpoint imaging and superb midrange detail. The only problem was the bass... it was just too light in comparison to the slightly over-prominent upper-midrange extension. Dr. Keith Johnson of Reference Recordings was sitting next to me, auditioning his CD of Eddie Daniels playing Carl Maria von Weber's Clarinet Quintet in B-flat, Op.34 (Eddie Daniels, clarinet, with the Composers String Quartet, Reference Recordings 40-CD). Harmonically, except for the noticeably lean bass, the clarinet was superbly reproduced, which is very unusual. In fact, the only other speaker I know of that does as well with the clarinet is the B&W 800, which costs about $10,000 more than the EOS. This speaker was visually similar to the Wilson Audio Watt, but was significantly larger, and more squared-off toward the rear of the cabinet.

The next floor down, Jeff Rowland was showing off his Consummate preamp/phono stage and Model 7 monoblock power amps in conjunction with a Rockport Turntable, Cardas phono cartridge, Rotel RCD-855 CD player, Enlightened Audio Designs Ultra D/A, Cardas cables, and a pair of Hales System One speakers, which sell for 16 grand a pair (and are fabulous). I had the opportunity to hear very good performances on CD of Tchaikovsky's Suite No.4 in G ("Mozartiana") with Eugeni Svetlanov and the USSR Symphony Orchestra (Melodiya SUCD 10-00104), and Benjamin Britten's Variations on a Theme of Frank Bridge with Iona Brown and the Norwegian Chamber Orchestra.
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<th>Brand</th>
<th>Model</th>
<th>Type Description</th>
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**Miscellaneous**

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(Simax DSC-1035). The overall musical effect was extraordinary, with superb reproduction of instrumental harmonic structures, attacks, and hall ambience. Jeff Rowland is one of those people I count on to produce good sounds at every show. I was not disappointed.

I bumped into George Cardas outside the Rowland suite and had a rather heated conversation concerning the attributes and failings of digital vs. analog. George was trying to tell me that I had rocks in my head for liking digital, that it was all wrong, including the ability to reproduce accurate musical pitches! He went on to say that musical performance should be recorded from the musician’s point of sonic reference. George is a great guy, manufactures some of the best cables around, and is certainly entitled to his opinion. But I’d have to say that his ideas concerning the art of musical reproduction are just a bit strange.

It had been a long day. I was on my way out of the Hilton when I passed by the room where Yakov Aronov was playing “March to the Scaffold” from Berlioz’s Symphonie Fantastique (Mazzel, Cleveland Orchestra, Telarc CD 80076) through this tube preamp and power amp with a McCormack CD drive, Theta DS Pre, and a pair of Mirage M-1 speakers. Very easy to listen to, with an astonishing midrange clarity. But the bass was just too flabby on the M-1s with the tube amps, making low-frequency transients, such as bass drum, sound dull and heavy. Perhaps if he’d chosen an electrostatic speaker, such as the Quad ESL-63 or Martin-Logan CLS, the results would have been more successful.

On my way uptown to the Palmer House Hotel and Stereophile’s traditional cocktail party (where everyone who is anyone in high-end audio shows up), I stopped by to see and hear what the exhibiting team of Cello and Theta Digital had to offer. Mark Levinson, the man behind Cello Electronics, was driving a pair of humongous Stradivarius speakers with two piles of Cello amplifiers, his Audio Suite preamp, and Audio Palette equalizer. Source components were a Theta Data CD transport and DS Pro, Generation II, and Technics portable DAT deck. Program material was, to say the least, eclectic, ranging from Telemann’s Das Seliges Erwählen des Bittern Leidens und Sterbens Jesu Christi (Amati CD SRR 8905-2), to a DAT solo percussion recording done by Mark Levinson of Bill Eggart’s A Life, to Benjamin Britten’s Noye’s Fludde (London CD 425 161-2). The overall musical effect and soundstaging were remarkably vivid, especially considering that the very tall Stradivarius speakers had so many drivers in a straight vertical array. There was a definite bass boom present, which could not be EQ’d out, because the Audio Palette had gone on the blink earlier in the day. But in spite of this, the incredibly dynamic impact that the Cello electronics and speakers delivered on the transients of the percussion DAT, combined with the most exquisite reproduction of delicate instrumental and vocal nuances, clearly made this, on balance, the most musically involving exhibit at the show. After listening for about an hour, I realized that the Stereophile reception had started, and departed for the festivities downstairs.

When I arrived at the Stereophile bash, there were already at least 50 people standing around, drinking and feeding their faces. Within an hour the room was so crowded that navigating the floor was almost impossible. By 8:30 the party had turned into an absolute zoo, and I was getting hungry (you can only eat so many crackers, cheese, and veggies). It so happened that Neil and Evelyn Sinclair of Theta fame had the same thing in mind, so the three of us escaped to the Berghof Restaurant, a Chicago legend. After a great meal and some of Berghof’s famous beer, I talked Neil into opening the Theta/Cello room back at the Palmer House for some private listening. By this time it was 10:30, and after another hour of intense listening I was about to collapse. Finally made it back to the Fleabag at midnight and realized I had to catch a 5:45am (!) flight the next morning from O’Hare to Dulles Airport, in order to make a 10am rehearsal with the National Symphony.

After three hours of sleep and a 30-minute cab ride to the airport, I found myself on a flight back to DC totally exhausted, eating one of United’s inedible breakfasts, wondering why I put myself through such misery for the sake of high-end audio. Somehow I managed to find my Jeep Cherokee in the airport parking lot and drove to the Kennedy Center. Just as Maestro Rostropovich dropped the baton on the first bar of Beethoven’s Ninth Symphony, I realized that the quest for the absolute sound does indeed make sense after all, and I’m pretty darn lucky to have the best seat in the house.
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when you graduate from mass-market hi-fi to high-end audio, one of the first things you notice is that audiophile gear dispenses with the gadgets and gimmicks that clutter up the front panels of most stereo receivers and integrated amplifiers. The dominant philosophy in mass-market design is that features sell products: the more functions a product has, the more desirable it will seem in the store. High-end designers, on the other hand, prefer the KISS approach: Keep It Simple, Stupid!

Every added feature means that the audio signal must go through additional wires, plugs, switch contacts, capacitors, and amplifying circuits—every one of which may potentially degrade the quality of the sound in some way! In the last dozen years a lot has been learned about how these losses of quality can occur.

For example, an ordinary copper wire is not perfectly continuous; on a submicroscopic scale it actually has a crystalline structure, often with copper-oxide impurities at crystal boundaries. Copper oxide is well known to be a poor conductor of electric current; it tends to distort signals by causing partial rectification. Manufacturers of high-quality cables avoid this subtle distortion in three ways: 1) by using high-purity (“oxygen-free”) copper (I use cables made of Nimico “six-nines” copper, said to be 99.99997% pure); 2) by forming the wire with long, stretched crystals having fewer boundaries (the best-known example is LC-OFC—linear-crystal oxygen-free copper); and 3) by using a completely different conductive metal, such as silver.

Very subtle changes in sound may also occur at the junctions between different kinds of metal. Plugs and sockets affect sound, as do wires. The quality of a cable may depend on how the wire is attached to the plug at each end. For example, after the insulation was cut away, was the exposed wire scraped to remove the copper oxide from its surface before it was attached to the connector? Was the wire physically crimped onto the connector under high pressure to form a real metal-to-metal connection before soldering? (If not, the solder—itself an alloy of tin and lead—may become the conductive path.) In cheap patch cords the connection may not be soldered at all; the wire may simply be held on the connector by melted plastic. It’s a shame that high-end cable manufacturers don’t discuss these construction-quality issues in their ads, instead of promoting silly mythologies about sub-nanosecond time delays, so-called “phase noise,” etc.

The plug or socket typically has a core of brass (an alloy of copper and zinc) with a shiny nickel exterior. In some connectors the nickel is covered with a molecule-thick “flashing” of gold, to produce an appearance of costly quality and perhaps also to prevent the slow corrosion that occurs in most metals when they are exposed to air.

Consider all of the metal-to-metal junctions that an audio signal’s small electrical current may have to flow through when you plug a cable into a socket: beginning in a copper wire, emerging through the wire’s unscrewed copper-oxide surface, then passing through a layer of solder (tin and lead), through the nickel plating on the metal tag where the wire is attached, into the brass core of the plug, out through the layer of nickel (and perhaps gold) on the plug’s contact surface, then into the mating gold surface of the socket, through the nickel plating into the brass core, out through the nickel plating on the socket’s wire tag, through more solder to another layer of copper oxide, and finally into the copper wire that will carry the signal to the next stage in its journey. No wonder some designers prefer to have fewer plug-in connections in the signal path!

Most electrically conductive metals undergo slow corrosion on surfaces that are exposed to air, humidity, pollution, and fingerprint oil. This applies not only to exposed wires, plugs, and sockets, but also to the electrical contacts in mechanical switches. Two metals are exceptions to the rule: silver and gold. (Some of the best switches use solid silver contacts, but they’re costly. Solid gold might be even better but would be ridiculously expensive. Gold plating, or flashing, doesn’t help in switches.
because in a well-made switch the contact surfaces scrape against each other under pressure each time the switch is operated. This wiping action would soon scrape off the plating, exposing the brass contact surfaces you started with.)

The wiping behavior of switch contacts is an important part of their design. Each time a switch is used the accumulating corrosion on its contact surfaces is scraped away. Result: a switch that is used every day is likely to be trouble-free. But a switch that is used only once a month may develop a significant film of corrosion on its contacts. Someday this will become obvious when your left channel disappears into the void. Long before the signal vanished it was slowly being corrupted by low-level rectification at the contact points.

Preventive maintenance is as easy and important as brushing your teeth: periodically, and immediately before every important listening session, exercise every switch in the signal path a few times to wipe its contacts clean. Indeed, one of the unwritten rules of good engineering design is that the only mechanical switches in the signal path should be ones that will be used often; eg, the input selector. Switches that will be used only occasionally, such as a tape monitor or tone-control bypass, should be designed so that in normal use the signal need not pass through a set of contacts.

This advice applies to mechanical switches that actually conduct the audio signal, not to electronic switches. In the latter, pressing a button simply sends a DC voltage to turn on a transistor, which conducts the signal. Most of the switching in CD players, VCRs, and modern TVs is electronic, but mechanical switches are still common in preamps.

Wiping action was also built into the design of the RCA phono plug. The male plug’s protruding central finger is scraped by the collar that it fits into, within the phono socket. And the plug’s outer skirt should scrape the exterior of the socket when plugged in. The skirt usually is not a solid cylinder but is split into several metal leaves. If the skirt doesn’t tightly grip the exterior of the socket, gently bend its leaves inward until you get a snug fit.

Wiping action provides no benefit if it isn’t used. If you leave the cables from your turntable or CD player plugged into your preamp for three years, you aren’t doing anything to prevent low-level rectification at the socket. To ensure a clean signal path, every few months you should unplug and replug every cable in your system a few times to wipe the contact surfaces clean. This is so beneficial that when somebody marvels at the sonic benefit of a new interconnect cable, I often wonder how much of the improvement was due simply to the wiping of the plug contacts that occurred when the new cable was connected.

Reviewers who are constantly hooking up and disconnecting new components may forget how important this procedure is for people who use their equipment for years at a time. Plug contacts may be a less compelling problem in the high-desert environment around Santa Fe than in the salty air of Boston and Miami or the smog-filled atmosphere of Los Angeles. In these hostile environments a contact-enhancing cleaner (Tweek, Cramolin, or Kontakt) may provide benefits far greater than their modest cost, both by improving signal flow and by deterring the re-accumulation of corrosion on the contact surfaces.

The RCA phono plug has some important drawbacks as a connector, but it has two profound virtues: its wiping action (assuming that the plug is correctly sized to make a tight fit) and its relatively large metal-to-metal contact area. Another connector used for audio, the phone plug, is terrible by comparison. (I’m referring both to the ¼” phone plug used for full-size headphones and amateur microphones, and also to the 3.5mm mini-phone plug used for walkabout products—lightweight headphones, small cassette recorders, and portable DATs.)

When a phone plug of either size is inserted into its socket, there is virtually no wiping action and no tight fit between mating metal surfaces. Within a phone socket, the round shaft of the plug makes contact only with V-shaped tips at the ends of spring-metal fingers. The area of contact between each finger and the plug shaft is tiny—a fraction of a thousandth of a square inch. Phone plugs are fine for their original use—temporary connections in old-style telephone switchboards, where they are plugged and unplugged many times every day. But they are lousy for audio applications where the plug must remain in its socket and provide continuously reliable service, such as a microphone input used for a long recording job, or the line inputs of a portable DAT. The XLR connectors used in pro audio are much better, with
wiping action and ample contact area.

Everything I've spoken of so far is minor compared to the real disaster area in audio: the use of bare-wire connections for speakers. If we could survey all of the households in the country, we would find that in the majority of stereo systems there are no connectors on the speaker wires. A half-inch of insulation was stripped off each end of the wire, and the bare copper wire was connected to the terminal. In mass-market hi-fi this approach is popular because it costs nothing and is very easy—especially if the amplifier and speakers are equipped with spring-tab terminals. (Just press the red or black tab and stick the wire in the hole.) But if you're serious about sound, you should abandon both the spring-tab terminal and the bare-wire connection.

If you own high-quality equipment you probably don't have any spring-tab connectors; they're used mainly in low-power mass-market gear. But I've seen bare-wire connections in systems at all price and quality levels. The problem is that, unlike nickel-plated phono sockets, where corrosion is slow and subtle, the corrosion of exposed copper is rapid and serious. In the short run this is okay, but in the long run a bare-wire connection is a cancer.

Perhaps my awareness of this problem is related to the fact that I've lived within ten miles of a seacoast all my adult life. This has been my experience: When you strip off the insulation from a wire, the freshly exposed copper has a brilliant reddish-gold luster like that of a new-minted penny. But the copper surface immediately starts oxidizing, and within a week the luster has lost its brilliance as the surface of each wire becomes covered with copper oxide—which, as I said earlier, is a poor conductor of electrical current. Within a month the thickening film of copper oxide visibly darkens the wire. After a year the darkened wire starts turning green (from sulfate and chloride contamination) and bits of solid copper oxide flake off. If a copper wire is fastened to a dissimilar metal, such as a steel screw or brass binding post, electrochemical reactions at the metal-to-metal interface may accelerate the buildup of corrosion.

There's a simple way to provide a secure, corrosion-free, high-current connection from amplifier to speaker: install a connector on each end of the wire, one chosen to mate well with the amplifier or speaker terminal that it will be attached to. The connector may be a U-shaped "spade" lug, a hook-shaped lug, a pin-shaft, or a banana plug. In any case the wire should be crimped onto the connector with high pressure to make a good metal-to-metal connection, then soldered.

Contrary to popular impression, the object of soldering is not just to secure the electrical connection. By flooding the wire-to-connector joint with a heavy liquid metal that solidifies as it cools, soldering seals out air and guarantees a perpetually corrosion-free joint. As a final step, any exposed length of bare wire should be wrapped in heat-shrink tubing. As its name implies, when this stuff is heated it shrinks tightly around the wire and joint, sealing out air in order to prevent the copper from oxidizing.

If you don't want to do all this yourself, now you know what to look for in store-bought cables. As I suggested earlier, when you buy high-quality cables you're paying for good connections as well as good wire.
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"What am I going to use for a lead?" I wondered, seated in the dentist’s chair, a lead apron squashing my vitals. I was doing my best to forget where I was—and what that implied for the immediate future—by mulling over the review I was about to commit to floppy disc.

"Smile," I could swear I heard the dentist say. Easy for him—he wasn’t biting down on a medieval oral torture device. The X-ray machine buzzed, the dentist emerged from behind his 3’-thick lead- and concrete-reinforced bunker to survey the damage, removed the apron from my lap and the bit from my mouth, then disappeared again, presumably to a developing room.

When he reappeared, he was wielding a syringe which convinced me he did dental work on elephants in his spare time.

"Novocaine?" he asked. Following my positive, if less than enthusiastic response, he proceeded to perform acts which some analog LP fans have been known to prefer to listening to CDs.

"That's it!" I cried, fortunately catching the startled dentist between stabs. "CDs and root-canal work. What a concept!" The good doctor, undoubtedly thinking that I was making some sort of deranged reference to a new way to pay for the current costs of oral surgery, went on about his prickly business. But I was off on a tangent of mental composition, my awareness of my surroundings numbing at about the same rate as my lower jaw...

Despite the fact that everyone "knows" that LPs are dead, killed off by "perfect sound forever," audiophiles are split into several camps, an uneasy truce existing between them. Firmly established in the center of the valley is the digital division. This group, already huge in number, grows stronger by the week, encouraged in their efforts by hardware and software manufacturers who, in turn, are bolstered by increasing sales of digital everything—a vast, self-fulfilling cycle of ever-increasing supply and demand.1 Just over the hill is the "analog forever" brigade. No CDs or CD players are allowed...
into their midst. Concluding back in 1983 that CD was the work of some evil empire, they determined then and forever that the dreaded digits would never enter their domain. They are rapidly running short of ammunition, but are still in high spirits, buoyed by the huge supply of used records discarded by the less enlightened.

Scattered about are smaller, factional encampments which take neither extreme position, but which disagree among themselves on whether to lean toward analog or digital as a primary source. Members of this group usually have good-sized collections of vinyl which they intend to keep and continue to play and enjoy, while accepting digital—either reluctantly or happily—as a fact of life. Many, if pressed, admit to a preference, marginal or substantial, for the sound of analog. They wish that the record companies continued to give them a choice in the matter, but realize that the choice is no longer there. They add to their analog collections slowly (mainly with used LPs) or not at all. They buy CDs because that is the only way to acquire new recordings. And, for the most part, they note that CDs and CD playback equipment are improving dramatically—if sometimes at a price. Still, they are looking for ways to improve their enjoyment of their existing analog collections and of any LPs they are able to add to it. The LP market no longer a mass one, but it is still a far from an insignificant one when the market in used vinyl is added into the mix. Turntable manufacturers may not be able to count on ever-increasing sales, but most of the major names are not only hanging in there, but continuing to upgrade their products.

When Oracle produced their first turntable back in the dim mists of 1979, when analog LP was clearly still king, it was a solid success, combining technical innovation, top-quality construction, and dazzling styling. Today the Oracle line has expanded to include a number of different models. The top two—the Premier Mk.IV and the Delphi Mk.IV—retain the styling of the original, which continues to look futuristic even as the status of analog in the 21st century looks increasingly tentative.

Description
To begin with, the Delphi Mk.IV—the Oracle du jour here—is a belt-driven, suspended-subchassis design. Nothing particularly new there, but, as in most things, the story is in the execution. The open design of the Delphi, which gives it its striking good looks, was apparently a deliberate design choice. Eliminating the conventional cabinet which surrounds virtually all other turntables (with a few notable exceptions) eliminates any chance of cabinet resonances being excited by airborne vibrations and of those resonances being passed on to the system's moving parts. While this is not likely to be a serious problem if the suspension design is well executed, what is possible is transmission of vibrations to the system's suspended parts—the subchassis, platter, arm, and cartridge. Oracle keeps the size of these to a minimum by reducing the dimensions of the subchassis to the barest essentials—just what is needed to hold the tonearm, the bearing assembly on which the platter rests, a built-in bubble-level, and the support arms which rest on the three suspension towers. The subchassis itself is a four-ply laminate. New to the Mk.IV is a 3 lb counterweight on the subchassis opposite the tonearm, which improves the overall stability of the suspended system. The use of such a counterweight was, to my knowledge, first proposed by Brooks Berdan several years ago and incorporated in his mods for earlier Oracles.

The Delphi Mk.IV's platter is a laminate of a composite material sandwiched between layers of aluminum. This platter is also new to the Mk.IV (previous versions were all-aluminum). Its mass is concentrated at the perimeter to increase momentum and minimize the effect of outside disturbances, including the increase in stylus drag which is known to occur with heavy groove modulations. Atop this platter is a hard polymer mat—a significant change in the Mk.IV from Oracle's older soft, sticky mat. This new "mat" is actually an integral part of the laminated platter, machined in-place to its finished form and not merely stuck on in final assembly. Also incorporated into the platter is Oracle's record-coupling system. The top of the spindle is threaded and a threaded clamp is provided which secures the record tightly to

2 A number of other Brooks Berdan ideas also appear in the most recent Oracles. Brooks has been working extensively on tweaking and modifying Oracles (and, to a lesser extent, other turntables) for a number of years, first at GNP, an audio retail outlet in Pasadena, CA, and most recently in his own shop, Brooks Berdan Ltd., in Monrovia, CA. Brooks probably knows more about Oracles, and how to modify and get the most out of their earlier (and later) models, than anyone other than Oracle's own designers.

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the platter—assisted by a slight upward dish- ing of the latter at its outer edge. A tapered washer is provided which may be used over the spindle under the record; in conjunction with the clamp, this helps force the record down against the platter. While this clamping system is less effective than a vacuum platter, it is also less complicated to implement. Perhaps that’s why it’s been used in various guises by a number of other turntable manufacturers. To the best of my knowledge, Oracle was the first to use it. With their new, dished mat, Oracle feels that the under-disc washer is not really necessary. I found that without the washer the degree to which the clamp was tightened was much more critical. Tighten it too much and the outside of the record would rise and lose contact with the disc. With the washer, this was far less likely.

The tonearm is mounted on a cantilevered outrigger of the subchassis. The mounting plate—which can be precut by Oracle for any tonearm (and I recommend letting them do so unless you’re skilled at machining aluminum)—is a two-piece clamshell affair which fits over the top and bottom of a large ring forming the outer portion of the cantilever. (Brooks Berdan, incidentally, recommends a small amount of damping—such as Mortite—at the junctions of the mounting-plate pieces and the subchassis—a mod I did not have the opportunity to try.) This arrangement afforded me no trouble when mounting either the Oracle SME 345 tonearm or the SME V.

But mounting the Graham tonearm was another matter. The Oracle mounting plate is designed so that the arm is first mounted on its top half; then the latter, arm in place, is fastened to the subchassis by running bolts through the top piece of the mounting plate, through the opening of the cantilever “ring,” and into tapped holes in the bottom half of the mounting plate, thus clamping the assembly firmly to the subchassis. But the base of the Graham tonearm obscures one of the holes in the top of the mounting plate required for this operation. You can’t mount the Graham tonearm to the mounting plate before you fasten the plate to the subchassis because one of the three bolts clamping the top of the plate to the bottom will then be unusable. And you can’t mount the Graham after fastening both mounting-plate halves to the subchassis because you can’t then gain access to the underside of the top half of the mounting plate to fasten the nuts to the screws holding the Graham in place.

Solution: contact Graham Engineering. Bob Graham modified Oracle’s SME mounting plate (which uses the same cutout as his arm) by providing additional threaded holes in the bottom of the plate to accept the arm mounting bolts. He also furnished the longer arm bolts needed to reach these threaded holes. Now both halves of the plate could be fastened to the subchassis first, following which the arm could be mounted on the top plate. (Oracle is now able to provide mounting plates suitable for the Graham arm.) I should also make one other note concerning the Graham arm on the Oracle. Those who like to tweak VTA for every recording will love the Graham’s calibrated scale, but may wish for a bit more available downward adjustment range in the arm on the Oracle. It’s possible to set most cartridges with their back ends just below the level point, but not by much.

While the Oracle’s detachable arm-mounting plates make arm-swapping relatively easy, the nature of the mounting plate and the way in which it’s fastened to the subchassis (round, in a round holder) means that precise and repeatable alignment of the arm is not simple. Rotating the mounting plate in its bracket even slightly while it is being set up will change the stylus to pivot-mounting distance—except in that rare case where the arm is mounted dead-center on the plate. Turntables which provide for rapid and precise alignment of the arm mounting base or plate on the turntable are better suited to frequent arm swaps than is the Oracle. For most users, this will not be an important consideration.

The Delphi Mk.IV has a new motor made in Germany for Oracle. Previous versions of the Delphi used a low-torque DC motor; the new motor is a high-torque, low-voltage AC design driven by an 18V DC external power supply. Internal circuitry itself—located on the turntable base-plate—generates the appropriate AC signal to drive the motor. The silence of the latter, aided by its housing, damper, and mounting sleeves, makes the Delphi Mk.IV the most environmentally quiet turntable I have ever encountered: quieter than any SOTA or VPI I’ve ever used. Not obviously quieter through the system, but quieter with respect to noise emanating directly from the motor and other moving parts of the system. This is an important
consideration if you have a small listening room and/or must sit (or choose to sit) quite close to the turntable.

The speed-control adjustments are located on the bottom front of the thick black plexiglass baseplate which forms the structural support for the turntable. They are very inconveniently located, as they are inaccessible when the turntable is mounted on a flat surface; the entire assembly must be pulled forward several inches, where it balances precariously over the front of the turntable stand as you fiddle with the inset, screwdriver-adjustable controls. The instructions indicate the presence of an additional speed control on the side of the front-and-center switch panel, but this control has apparently been deleted in the Mk.IV; at least it did not exist in our sample. In partial compensation, Oracle does provide a large, easy-to-read strobe disc.

The three suspension pillars of the Delphi Mk.IV are actually quite complex, spring-based assemblies with 13 different component parts. Suspension tuning is set at 3.5Hz. These assemblies have undergone continuous refinement since the initial Delphi. The Mk.IV has been revised to simplify setup (except for certain reviewers—see further on). The suspension is well damped with Sorbothane dampers; oscillations from floor movement die out quite rapidly.

While the ability of a turntable's suspension to isolate the record and tonearm from floorborne vibration will always depend on environmental factors which will vary from installation to installation, the Oracle did an excellent job in my situation. Seated atop a solid support (in this case an early-model Lead Balloon) on a reasonably solid suspended floor, it would only skip when subjected to violent jumping up and down in its immediate vicinity. The same rather extreme disturbances elsewhere in the room failed to rattle it; neither did normal foot traffic, including approaching it to change the record.

Other improvements to the Delphi in its Mk.IV guise include a new bearing and bearing mounting, and in-house machining of parts, claimed to improve fit and finish. Whatever your definition of excellent build quality, the Delphi Mk.IV has it. All parts are superbly made and put together, with but one exception: the trueness of the platter itself. The Delphi Mk.IV has been in my system for over ten months—the unusually lengthy time due to waiting for associated equipment which I wished to use with it, and compare it to. When I first received the unit, I noted no problems with warpage in the platter itself, and gave it little thought thereafter. Then, in the final stages of auditioning before submitting the review, I noted that, viewed on-edge, the platter displayed a very small degree of warpage. It was barely worth mentioning, and caused no sonic problems whatsoever that I could determine. But the Oracle is, after all, a rather expensive turntable, and this minor flaw cannot be ignored. Since, to the best of my knowledge, the platter was perfectly flat as received, I surmise (and it is only a surmise) that the heavy composite material which makes up much of the platter sagged slightly over time under its own weight.

A less significant problem is the tendency of the plexiglass baseboard to accumulate fine, almost invisible hairline scratches. These should polish out with a good plastic cleaner, though the one that I tried (Meguiar's Mirror Glaze 10 Professional Plastic Polish) did not remove them.

Owners of earlier versions of the Delphi should know that upgrades to Mk.IV status are available. They are not cheap—$795 with all of the recommended pieces except for the Turbo power supply, which will up the total cost to about $1245.

Setup
I've said it before but it bears repeating. Any dealer selling high-end turntables should be able to set up those turntables for his or her customers. The Delphi Mk.IV is no exception. Still, in the real world there will no doubt be situations where you, the user, will either perform the initial setup or wish to tweak a dealer's work. While the Oracle's setup instructions are reasonably complete (with photographs), it's no simple procedure if your talent in things mechanical barely extends to flipping your preamp's selector switch and adjusting the volume control. The most involved part of the setup involves the suspension springs, a mechanical operation which consists of preliminary adjustment of each spring, following which the subchassis is dropped into place (figuratively speaking, of course) and its level relative to the baseplate checked using a furnished gauge. It is then apparently possible to zero-in on the right settings of the springs without having to
remove the subchassis again—something yours truly didn't realize until he'd finished the entire setup by removing the entire subchassis to make each incremental adjustment! This was, it must be said, more than a bit tedious—and apparently unnecessary.

I only encountered three other problems in setup (in addition to mounting the Graham arm and my own creative method of setting the suspension springs), two of them minor, the other a royal pain. First, the pain. The drive-belt runs between the motor pulley and a ridge machined in the underside of the (one-piece) platter. You have to first put the belt around this ridge under the platter, then hold it free on one side while you insert the spindle shaft into the bearing; then, as you slide the spindle down, simultaneously slip the free end of the belt over the motor pulley without its other end slipping off the under-platter ridge. It's as difficult as it sounds, and I must have played around with it dozens of times before it finally held without falling off, either immediately or as soon as the motor was started. And care must be exercised to avoid transferring oil from the spindle shaft to the belt while performing this operation. In addition, if you don't get the belt on the right part of the pulley (which becomes hard to see just as you get to the point where you need to see it), the platter will rotate madly at what seems to be about 200rpm. And even after I thought I had the belt seated properly, it came off for no apparent reason a couple of months later. This time I got it back faster—I must have been getting good at it—and it has functioned normally for several months since that time.

The first of the less significant setup problems involved the sleeves that fit over the support pillars below the spring-loaded supports. If these are not adjusted to sit in a precisely vertical position, they'll rub against the subchassis, partially short-circuiting the suspension. It's an easy problem to solve, but if you hear scraping after setup as you move the subchassis up and down and everything else looks OK, you should check these lower sleeves for clearance. The second problem was a tendency for oil to leak out of (or perhaps overflow from) the bearing well during the first few weeks of service. The solution to this is to put something under the turntable if the surface on which it sits is one you don't want to christen with a sprinkling of oil.

**Oracle SME 345 tonearm**

Oracle also sent along a sample of their 345 tonearm to use with the Delphi Mk.IV. This is basically a special version of the SME 309, made specifically for Oracle. It has the detachable headshell of the 309, the bearings of the SME IV, and the arm lead from the SME V—thus the designation 345. It retails for $1595 in its standard, silver version, and $1795 in black and gold.

**Sound**

The Delphi Mk.IV has been in my system for a number of months now, and has been put to use with a wide range of associated equipment. More often than not, however, it's been connected to the Rowland Consonance preamplifier, the latter driving either the Rowland Model One (stereo) or Threshold SA/12e (monoblock) power amplifiers. The loudspeakers in question were, most often, the Apogee Stages. Similarly, interconnects, while varied, were usually Cardas Hexlink (balanced) from preamplifier to power amplifier. The lead from tonearm to preamp was, in all cases, the SME V tonearm lead. The latter was also used with the Graham tonearm in the system. Though the latter has its own tonearm plug and adapter box (for using your choice of interconnects), I chose to use the SME lead to minimize the variables when changing to the Graham arm from the SME.

All of the critical auditioning was done using the optional Turbo power supply. According to Oracle, the major difference between this and the standard supply is improved filtering in the more expensive unit to improve isolation from the power line. Toward the end of the evaluation process, I conducted comparisons between the two supplies; they were very close. The differences were definitely not night-and-day, and even with the standard supply I feel that my observations on the Oracle's sound would have been virtually the same. The longer I listened, though, the more I felt that the Turbo supply produced perhaps just a shade more liquid sound, with very subtly cleaner detail. But it was still clear that I was listening to the same turntable when I inserted the basic supply. My advice to potential purchasers is to audition both before deciding to go for the $450-extra Turbo.

My auditioning of the Delphi Mk.IV began with the Oracle SME 345 tonearm and the Dynavector XX-1L cartridge. The sound of this
combination would not surprise anyone who's read my review of the Dynavector (Vol. 14 No. 5), though the arm in that case was the SME V. The presentation was tight, focused, open, and detailed, yet without unnatural roughness or brightness. On good recordings, that is. Mike Garson's The Oxnard Sessions, Vol. 1 (Reference Recordings RR-37) definitely tended toward the sparkling and detailed—there was perhaps a very slight degree of warmth, but only enough to keep the presentation from being too analytical. On occasion, I felt that the top end was a bit smeared and perhaps slightly detached from the lower ranges—a dryness crept in which I couldn't totally ignore. Was it the arm, cartridge, or turntable? The resolution of that would have to come later. But it was not a significant problem on this recording. The overall quality on this and other good recordings continued to impress. Timbres were clear and unmuddied, reproduction of ambience was convincing, the soundstage naturally three-dimensional. The low end, while definitely tending to coolness rather than richness, was deep and tight, the midrange clean and dimensional, and the highs—with the qualification noted above—transparent. Liz Storey's Part of Fortune (RCA 3001-L-N), an unopened LP pressing I found at Recycled Records in Las Vegas during last winter's CES, turned out to be something of a sonic find, despite a horrendous edge warp. The clamping system of the Oracle did not completely eliminate the warp, but the arm and cartridge tracked it without groove jumping. A bit of warp-wow intruded, but otherwise the sound was tightly focused, vibrant, and percussive. The piano was closely miked but not to excess. OK, so this was a digital master. It nevertheless lacked any feeling of digititis, in fact exhibiting a degree of air more common with analog than digital recordings. As with most of the recordings I auditioned, the prevailing impression was of a pristine clarity with no muddle whatsoever.

On less than impeccable recordings, I heard just what you might expect. On James Taylor's Never Die Young (CBS FC 40851), JT's voice had a somewhat rough texture—but not harsh. Imaging remained first-rate. While I wouldn't call this recording's high end zingy or zippy, the balance was very definitely lean and tight. But on Alpha Blondy and the Wailers' Jerusalem (Sterns 1019, available from Linn Selekt Records), the highs were definitely tizzy, spiky, and exaggerated. The vocals were over-reverberant and sibilant. I'm strongly inclined to put a good part of the blame in both of these cases on the program material.

I've referred to my German pressing of Paul Simon's Hearts and Bones (Warner Brothers 92-39421-L) a number of times in previous reviews for good reason—the recording is excellent, and I also happen to like the music. (I don't know if US pressings are as good.) On the Oracle turntable/Oracle arm/Dynavector cartridge setup the voice was wonderfully palpable. The soundstage was precise, there was a convincing feeling of depth, and the spatial placement of the (overdubbed) voices was clearly defined. There was even a respectable, but not overdone, feeling of warmth with this recording. Only a trace of top-end brightness intruded.

Returning to arguably more naturally recorded material, A Feather on the Breath of God (Hyperion A66039, also from Linn Selekt Records) was beautifully focused and balanced. I felt that the sound did perhaps lack a bit of natural warmth, and had just a trace too much sibilance, but otherwise this recording (a digital master, it should be noted) was strikingly well reproduced. Depth, clarity, soundstaging, and inner detail were all first-rate. Nor did I find much to criticize in the direct-to-disc Confederation (Sheffield Lab-9). The presentation, as in most of the recordings noted above and others auditioned as well, was definitely on the light, detailed side rather than sweet or rich, and I did note a trace of dryness and fine grain to the very top end; otherwise, there was little to fault.

Next it was time to swap arms—replacing the Oracle/SME 345 with the SME V. This was actually after several months of listening to the Oracle arm—which should indicate that I certainly found the Delphi Mk IV with the Oracle arm to be a very satisfying combination. With the SME V, the overall presentation was, however, definitely upgraded by more than a step—not a dramatic improvement, but a more relaxed, natural presentation. The sound had a bit more warmth, and the top end was no less detailed, though better integrated with the whole. Less obvious, but no less welcome, were small improvements in depth and overall high-frequency balance. This improved even some marginal recordings; Jerusalem had a stronger, tighter bass, its high end was less relentless, and I noted an improved differentiation of inner
instrumental voices. The change was not pronounced enough to make me like the recording, but it was a noticeable improvement.

On L’art de La Flute de Pan (Arion ARN 36779), the highs, which with the Oracle arm had seemed to be somewhat off by themselves, were now somehow more believable—the breath sounds from the pipes now merely added natural character to the presentation. Overall, the SME V removed a trace of sharpness from the sound without in any way dulling it or reducing detail, while at the same time adding a welcome degree of warmth.

Replacing the Dynavector cartridge with the Benz-Micro MC-3 produced the same results I reported on in my review of the Dynavector (Vol.14 No.5). The Benz has a richer, fuller, more “tubey” sound than the Dynavector. This is both a plus and a minus. The MC-3’s more relaxed, less tightly wound presentation was relaxing and easy to listen to, yet it certainly did not lack detail. Its slight softening flattered some recordings, but its subtle way of making the most of what was in the grooves without calling attention to itself continued to be appealing. Yet there were times when I definitely missed the Dynavector’s attack, clarity, and, well, snap (to use an old JGH term which remains descriptive). Listening to both of these cartridges makes it clear why there are audiophiles with more than one cartridge—though I suspect fewer today than in the past. As I stated in my Dynavector review, that which works best for you will depend very much on the rest of your system.

But this is not, of course, a cartridge review. Still, I was beginning to home in on what appeared to be the sound of the Oracle, or more precisely, its relative lack of a “sound.” It seems to avoid any trace of excess warmth and fullness, generally coming across as quick, tight, and clean. But it does not lack for warmth when partnered with a cartridge/tonearm combination which tends in that direction; ie, the SME V with the MC-3. It was dead silent, and except for the episode with the belt, was totally reliable in use.

But determining the true sound character of a turntable can be an elusive search. It’s simply not possible to audition any turntable with an unlimited variety of arms and cartridges to establish a definite trend, and a turntable should, ideally, be considered as a system—with tonearm, arm, and cartridge perfectly matched and synergistic. At least that’s what JA keeps saying as he goes home each night to his Linn/Lingo, Ekos, and Troika. Linnies have it easy—the maker of their system has been refining the sound of the combination for years. That does not mean that it is necessarily the best there is, but it does mean that when you acquire such a system you will hear the turntable more or less as the manufacturer intends that you should—given decent setup.

But with almost any other turntable, a reviewer is really commenting on the sound of the turntable under review as partnered with his or her choice of arm and cartridge. The only approach has to be that of trying several different but limited combinations, then attempting the perilous leap from the particular to the general.

In any event, I felt I had a pretty good handle on the Delphi Mk.IV at this point—while remembering the realities observed in the previous paragraph. However, I still wanted to see how it compared with at least one other highly rated turntable. My first choice was the SOTA Cosmos, but unfortunately a new, Illinois-manufactured sample of that superb turntable had not yet arrived for an update to my Vol.13 No.7 review. The VPI HW19 Mk.IV with its new, heavier, TNT-like platter and updated line conditioner is directly price-competitive with the Oracle when the latter is used with its optional Turbo power supply; unfortunately, all the pieces of the VPI were not yet on hand for evaluation.

But when I glanced across the Stereophile listening room at DO’s equipment rack and espied the Australian Aura turntable with Graham tonearm in tow, I had an answer. A second Graham tonearm was in-house, awaiting my chance for a look-see-feel-hear. The Graham arm is a delight when it comes to changing cartridges; with one of them mounted on the Oracle, and the other on the Aura, it would be a simple matter to set up each cartridge to be used in separate Graham arm wands, tweak each cartridge in turn in each arm for tracking weight, azimuth, and VTA (overhang having been taken care of in mounting each cartridge in the wand), then switch back and forth between the turntables, using exactly the same cartridge and arm.

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3 A tiny handful of other manufacturers have attempted the same thing, but none, to my knowledge, so relentlessly over more than ten years.

4 Since it has both a new motor and a new owner and plant, an update of this unit would seem to be in order.
to make the comparison. Two SME V arm-cables were on hand, and one was used in each Graham arm. Certain assumptions had to be made to keep the timing of the comparison reasonable. First, that the arm cables, each made from the same-type van den Hul cable, but manufactured at different times, were sonically identical. Second, that the VTA, even though set with some care, was close enough to avoid sonic differences due to small disparities in level. And third, that both Graham tonearms—identical except for the color (silver on the Oracle, gold on the Aura) were sonically the same.

But first it was time to get a feel for the sound of the Oracle with the Graham arm in place. I elected to start with the Dynavector cartridge, since I was quite familiar with it, and since it was the cartridge which I had been using most heavily with the SME V on the Oracle. My initial impressions were mixed. The combination was very detailed, clean, and tracked like a champ. But it was more than a bit lean-sounding after the SME. I actually had to check to make certain that DO had not left the Apogee tweeter setting on “high” after his last session. No, they were set to normal. Was it merely a case of getting accustomed to the tighter, clearer midbass of the Graham after becoming used to the sound of the SME (which never, I must repeat, struck me as being unnaturally lush or full on the Oracle, especially with the Dynavector)? Or was it the Threshold S/550e amplifier which I had substituted into the system, sneaking an advanced listen for my long-delayed comparison of that amp with the same company’s big monoblocks? I do know that when I returned to the system after a couple weeks’ hiatus for a short vacation followed by summer CES, my reaction was a mite more favorable. Whether it was a case of a fading memory of the sound of the system with the SME V, or the substitution of the Threshold SA/12e amplifiers, or a more fortunate choice of program material, I don’t know—I suspect a mixture of the three (a more thorough comparison of the amplifiers is planned—stay tuned). But I do know that I was now more favorably impressed by the turntable/arm/cartridge combination. It remained open, detailed, and somewhat analytic in sound, from its tight low end to its sparkling top. I still would recommend caution when inserting this mix into a system already well endowed with either bright or clinical qualities, but I can’t deny its crystalline clarity.

There was another cartridge on hand, presently set up on DO’s Graham on the Aura turntable. I hesitated (for a half-second) to use it; the thought of alternating it between the two Graham arms, with the attendant potential risks (even with its stylus guard firmly in place), was daunting: it was the ca $4000 Koetsu Pro IV. But Koetsu’s reputation for rich-sounding yet irresistibly compelling cartridges was too much to resist, even if it did cost almost as much as the Graham arm and Oracle Delphi Mk.IV combined. I elected to use both the Koetsu and the Dynavector for my turntable comparisons, since they promised to be (and were) noticeably different in sound.

There was one additional difference in setup between the Oracle and the Aura turntables. Since two identical turntable stands were not available, the Aura was left on its Simply Physics Isostand and the Oracle was placed on an older Arcici Lead Balloon. The latter was slightly modified in setup. It was spiked to the floor and its lead bars were placed across its bottom supports for stability. On top, medium-sized Simply Physics Tonecones were screwed into its threaded inserts, points-up (by a pure coincidence the thread sizes were a match), a padded shelf from an Arcici Superstructure II was placed on the points, and the Oracle was set on top. (Most of the previous listening to the Oracle was with the latter on an Arcici Superstructure—a I, not a II—which seemed to work well, although the Superstructures are not specifically built as turntable stands.)

After determining that I preferred to load the Koetsu with the Rowland’s 185 ohm setting (finding both 60 ohm and 47k ohm loads either dryer, brighter, or both), the face-off was ready to begin. The combination of the Koetsu on the Oracle with the Graham arm proved to be stunning. It had a noticeably solid, substantial quality with a “thereness” to the midrange which could be striking on the right program material. But despite what was definitely a fuller sound than the Dynavector, it still displayed a significant degree of tight clarity through the low end and could in no way be classified (negatively) as sounding either lush or fat. Boiling Point (Toshiba Lp-95009), one of the sonically better of the old Toshiba direct-to-disc jazz recordings (and musically far better than toler-

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able as well), was detailed, without tizz or etching. The image was tight, its perspective very slightly forward, yet palpable rather than pushy. My notes refer to a slight warmth, yet quickly add that I wouldn’t make anything out of it except to note that the sound was very definitely not leaned-out. The saxophone’s blat and presence were startling, with a natural weight and fullness. The low end was deep and full, if perhaps less crisp and tight than that of the Dynavector. The overall sound on this and other recordings seemed to combine a balance of strengths: the bass as just noted, presence without excess forwardness, appropriate weight, and detailed yet unexaggerated highs.

Next the Koetsu was swapped into the Graham arm on the Aura turntable. Using a test record, the Aura’s speed was tweaked to match that of the Oracle, which had been set by means of Oracle’s strobe-disc. I should note here that the Oracle had slightly better speed stability as measured by the JVC test disc. A 1kHz signal varied by ± 0.1Hz on the Oracle (some of which was likely in the measuring system or the test record itself), while the Aura was ± 2.5Hz.

I noted with the Aura a slightly softer quality to the attacks, while at the same time the highs seemed slightly harder and less airy than they had with the Oracle. The low end was marginally warmer. Returning to the Oracle (flip-flopping back and forth between turntables took about a minute) revealed it to have a cooler, more lively, more see-through sound. It by no means lacked natural body, however. While I can understand that some would prefer the added fullness of the Aura (and the differences were by no means extreme), I definitely felt the Oracle’s balance to be the more accurate. On *Spanish Golden Age Music for Trumpet & Organ* (Nonesuch 71415-1), a superb recording of trumpet and Spanish organ (the latter having its own dramatic trumpet pipes) marred only by an occasional slight fuzz in the trumpet sound, the Aura sounded slightly deadened next to the Oracle. The latter’s high-frequency detailing was better-resolved; its reproduction of the organ’s high pipes’ reedy buzz would knock you out of your chair. In contrast, the Aura was a trace weightier—those same high pipes were backed by a somewhat more solid foundation from those further down—and slightly sweeter on top. But it sacrificed transparency to provide that advantage.

The Dynavector was next up, and when its turn finally came it was inserted first into the Aura, on the theory that the Aura’s contribution to the system’s balance (or at least what it appeared to be up to this point) would better match the Dynavector’s tendency to be a bit lean and analytical, especially in the Graham arm. I wasn’t wrong: Detailing was now counterbalanced by a pleasing—but not overdone—sense of body. Much switching back and forth indicated that the sound of the Graham/Dynavector on the Oracle was a trace thinner, yet with more detail and sparkle. The Aura was less forward and taut. The soundstage was somewhat bigger than with the Oracle, but the overall presentation was looser and less tightly controlled. I gradually came to prefer the sound of the Oracle here also, while noting that, on many less than well-balanced recordings, the Dynavector sounded more “pleasant” on the Aura. But on the very best recordings the Oracle had a liveliness (in the positive sense) which the Aura could not quite match. My notes on *Tropic Affair* (Reference Recordings RR-31) with the Aura/Graham/Dynavector combination make a passing reference to “elevator music,” and while that characterization definitely exaggerates the impression, it sounded determinedly more like a high-end recording, and system, with the Oracle.

The Aura is (or was—its US availability is apparently limited to remaining dealer stock, as it is no longer distributed by TARA Labs) a very good turntable and, at its last advertised price, considerably more expensive than the Oracle. Nevertheless, I preferred the latter.

**Conclusions**

Using a variety of arms and cartridges, my general impression of the sound of the Oracle Delphi Mk.IV is that it is detailed, tight, quick, and has excellent clarity with a definite tendency to resist sounding in any way veiled, thick, or heavy. Or perhaps I should say that it permits the best arm/cartridge combinations to sound this way. As I’ve already said, it’s very difficult to precisely pin down the a turntable’s “sound”—which is probably why a vocal contingent of the mass press insists that there is no such thing. But no matter how you look at it—either that the Oracle is an excellent-sounding turntable or that it does nothing to prevent a fine arm and cartridge from sounding first-rate—the conclusion has to be the same: The
Oracle Delphi Mk.IV is a winner. "Done," said the dentist, his tone indicating success. "Good," I answered in my best numb-tongued fashion, "How much?" "How about an Oracle, a Graham, and a Koetsu?" be countered. Dental work is getting out of control.

**AUDIO ALCHEMY DIGITAL DECODING ENGINE V1.0**

Robert Harley


No, the $399 price listed in the specification block isn’t a misprint. And yes, the Audio Alchemy Digital Decoding Engine v1.0 is indeed a full-function outboard digital processor. And since this is the August issue, not April, you can stop worrying that this review is some kind of joke.

The $399 Digital Decoding Engine is for real. But how can Audio Alchemy make an outboard D/A converter for about half the price of the next most inexpensive decoders (the PS Audio DigiLink and Melior Bitstream D/A)? Can it be any good? These were my first reactions to the DDE, and I’m sure many of you are asking these same questions.

First, however, some background on the company: Audio Alchemy is the name of a new line of digital products manufactured by the California-based LM Acoustics. The company’s other products include a Digital Transmission Interface ($299) that goes between a transport and processor; a two-piece CD transport ($699), the Clearstream digital coaxial cable ($49), and the Analog Decoding Engine ($199) that “conditions” the analog output from a D/A processor. Looking at their line, it is clear that Audio Alchemy is attempting to boldly go where no digital manufacturer has gone before—at least in price.

In addition to making the Audio Alchemy line, LM Acoustics designs and manufactures a variety of audio products for many companies. The Music and Sound DCC-1 that I reviewed in March, for example, was designed
and built by LM Acoustics. The company is currently working on several other, more ambitious digital products.

Does the Digital Decoding Engine bring a new level of affordability to digital processors, or is it a toy that can’t compete with established yet affordable performers like the PS Audio SuperLink and Meridian 203?

Let’s find out.

Technical description
The Digital Decoding Engine (DDE) is so small and light that many people do a double take when they find out it’s an outboard D/A converter. Easily held in the palm of the hand, the diminutive DDE isn’t what we’ve come to expect D/A converters to look like.

Despite its small size and low price, the DDE has the features of the full-sized (and priced) outboard decoders. Coaxial and optical inputs are provided (on RCA and Toslink jacks), with a front-panel selector switch. The front panel also includes an absolute polarity switch and three LEDs that indicate when the unit is locked to an incoming digital signal, and that the analog and digital power supplies are working.

The rear panel holds the previously mentioned RCA and Toslink input jacks, as well as a digital output for driving a DAT machine or future digital recorders having S/PDIF (Sony/Philips Digital Interface Format) digital inputs. Analog output is provided on two RCA jacks, which, like the digital input and output, are gold-plated. A mini-jack accepts ±12VDC from the outboard power supply, a 2" by 2½" by 1½" box.

An unusual feature of the DDE is the 1S Bus found on a rear-panel DIN connector. The 1S Bus (pronounced “I squared S”) provides access to the raw serial 16-bit digital audio data after it has been decoded from the incoming S/PDIF delivered by a CD transport just before the D/A converter. This allows digital signal processors to be connected to the DDE while keeping the signal in the digital domain. The 1S Bus can be thought of as an expansion slot in a personal computer: both provide a communication path between the device and the outside world. At Audio Alchemy’s CES booth, I saw a prototype Digital Signal Processing (DSP) box that connects to the DDE’s 1S Bus and is controlled by a personal computer, providing a variety of signal-processing functions including equalization and reverberation enhancement. The 1S bus also allows the user to plug in a newer, upgraded D/A converter to the DDE without the expense of replacing the entire input and demodulator stage, chassis, and other hardware. Don’t be surprised to see future products from Audio Alchemy that use the latest DACs, yet connect directly to the DDE.

Popping the Engine’s hood revealed a compact, efficient topology and layout. Despite the extraordinarily low price, the DDE’s designer didn’t take a cheap-as-possible approach—several design touches adding to the unit’s cost could very easily have been omitted.

The power supply, which consumes about 15% of the printed circuit board real estate, consists of four regulation stages: +8V and -8V stages supply the output op-amp, +5V supplies the input decoder and demodulator; and a second +5V regulation stage powers the Bitstream chip. Each stage is regulated by a three-pin regulator, and filtering is provided by two electrolytic caps, one 1000μF and one 470μF. This internal supply is driven by ±12V DC from the previously mentioned outboard unit, which contains a power transformer, two full-wave bridge rectifiers, and two 2200μF filter caps bypassed with 0.01μF caps. The choice of a 12V output from the power supply is deliberate in order to allow the DDE to be used in car stereo applications.

The chip set is the Philips SAA7274 S/PDIF receiver and decoder coupled with Philips’s SAA7323 Bitstream DAC/filter chip. The S/PDIF receiver circuit is unusual in that a Voltage Controlled Oscillator (VCO) supplies the reference Phase Lock Loop (PLL) frequency rather than the ubiquitous crystal clock generator. An additional chip next to the 7274 gets a reference voltage from the 7274 and outputs a frequency back to the decoder chip. This circuit’s job is to recover the clock imbedded in the incoming S/PDIF signal. This technique reportedly results in lower clock jitter than standard PLL implementations (several hundred picoseconds rather than 2–5 nanoseconds). In addition, the DDE will lock to any incoming sampling frequency between 40kHz and 50kHz, but won’t accept the 32kHz sampling frequency used in DAT’s extended play mode and Direct Broadcast Satellite (DBS). This circuit is a good example of my impression that the DDE wasn’t built strictly on price; the VCO technique added

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more parts and design time to the DDE, yet wasn’t essential to its operation.

The 7323 Bitstream chip incorporates the digital filter, Bitstream DAC, and analog output stage. Audio Alchemy has chosen to bypass one of the 7323’s analog stages in favor of a single Analog Devices AD746JN dual bi-FET op-amp, shared between left and right channels. (The first op-amp in the 7323 is part of the switched capacitor network and can’t be bypassed.) Again, replacing the 7323’s internal op-amp with the moderately expensive AD746JN reflects the attempt to make the DDE sonically competitive, not just price-competitive.

Output muting is accomplished by tying the front-panel lock indicator to the Bitstream chip, muting the output until the unit has locked to the incoming digital signal. De-emphasis is performed by the 7323 Bitstream chip in the analog domain with an internal resistor/capacitor pair.

All resistors are metal-film types, and capacitors are polystyrene and polypropylene. The very simple design is executed with a minimum of parts. Although I was surprised to learn that a company could build and sell a $400 D/A converter (especially an American-made product sold through normal retail channels), I was even more surprised after looking inside the Digital Decoding Engine. Despite its simplicity and economy of construction, it nevertheless looks like it should retail for more than $399. According to Audio Alchemy President Mark Schiffer, the DDE’s retail price is in line with standard industry pricing based on parts cost. The low actual profit (as opposed to profit percentage) is reportedly made up for by selling a lot of units.

Listening
I auditioned the Audio Alchemy DDE with my usual reference system: Hales System Two Signatures driven by VTL 225W Deluxe monoblock tube amplifiers, and Muse Model 18 active subwoofer. The preamp was either an Audio Research SP11 Mk.11 or the passive Electronic Visionary Systems Stepped Attenuator. 3’ runs of bi-wired AudioQuest Clear/Dragon connected the VTLs to the Hales, and interconnect was AudioQuest Lapis and Diamond. Other processors on hand for comparison included the Meridian 203 ($990) and PS Audio SuperLink ($1195). Both these processors offer an exceptional level of performance for their respective prices, yet are very different musically. A Wadia WT-3200 was the CD source during auditioning, driving the processors through Aural Symphonics Digital Standard interconnect. Levels were matched between processors to within 0.2dB.

My first impression upon hearing the Engine? Competent—even surprising—but not outstanding in relation to more expensive processors like the Meridian 203 and PS Audio SuperLink. Considering, however, that the DDE costs not even two and a half times less than the next cheapest processor to which it was compared, its performance was very impressive.

What the DDE gives you that is often missing from cheap CD players is detail, transparency, and clarity. In this regard, the DDE has more in common with the good outboard decoders than with low-priced CD players. Through the DDE, there wasn’t the opaqueness and detail-obscuring haze overlaying the music so often heard from inexpensive digital playback. The music had a vibrant immediacy and palpability rather than a congested, lifeless character. In addition, instrumental outlines were clearly defined, creating the impression of individual instruments in the soundstage. Many high-priced decoders don’t do this well in delineating image outlines, an important factor in rendering the illusion of musicians in the listening room.

Compared with the Meridian 203, the DDE had a more sharply focused rendering and greater resolution of instrumental outlines. The 203, however, offered a greater sense of the instruments being surrounded by air and space. This was more apparent on naturally miked recordings, giving the 203 a clear edge on classical music and most jazz. Through the DDE, the soundstage was vivid and sharply defined, but lacked the impression of instruments floating on air between the loudspeakers. Herbie Hancock’s piano on the excellent Jack DeJohnette album Parallel Realities (MCA MCAD-42313, Vol.13 No 9) had less air surrounding it and appeared more forward in the soundstage with the DDE than through the 203.2

In addition, the illusion of space and soundstage depth was easily superior through the 203. I felt the DDE’s presentation was too for-

1 I haven’t auditioned the $799 PS Audio DigiLink II, but plan a full review in the next few months.
2 It’s great to hear Herbie play acoustic piano again.
ward and lacking an ultimate feeling of size and space. The 203 threw a much more accurate rendering of hall acoustics and space. Julianne Baird, for example, on *The English Lute Song* (Dorian DOR-90109), was farther forward in the presentation, drier, and less enveloped in the gorgeous acoustic of the Troy Savings Bank Music Hall when reproduced by the DDE. However, the distinction between lute and voice was greater through the DDE. The *Stereophile* recording of Brahms's Piano Sonata in f, from the *Intermezzo* CD (STPH003-2) was particularly revealing of the DDE's limitations in reproducing space. The DDE made the room seem much smaller and didn't reveal the wealth of natural ambience on this recording. Through the 203, the soundstage suddenly expanded, with room reflections becoming clearly audible at the soundstage's edges.

Similarly, the DDE had a more forward rendering than the 203, but less resolution of inner detail and finely woven textures. The DDE seemed to present all its detail right up front, rather than in layers and layers of subtle gradations. In this regard, the 203's presentation was more relaxed, interesting, and musically involving. I preferred listening *into* the music to hear inner detail and nuance, rather than having lots of detail thrust forward. The DDE's forward and highly detailed character tended to make long listening sessions fatiguing. In short, the DDE's presentation of musical information was somewhat blunt and aggressive, the 203's refined and gentle.

One area where the DDE clearly bested the 203 was in conveying the energy and rhythmic drive of music. The DDE's bottom end had a punch and solidity that was particularly satisfying. In addition, there was a greater feeling of what Martin Colloms aptly describes as "pace." I found myself tapping my foot quite often when listening to the DDE, always a good sign. This is perhaps the result of the DDE's fuller, weightier bass presentation, something that made bass guitar lines seem to bounce more with the rhythm. Contributing to this impression was the DDE's more dynamic character. Snare and bass drum seemed more dynamic and punchy, adding to the feeling of drive and energy. Neither processor, however, was a match for the SuperLink in either dynamics or bass drive. I've yet to hear a 1-bit converter approach the bass tightness, authority, and dynamics of a good multi-bit-based processor, especially the outstanding SuperLink.

My main complaint about the DDE was the treble. It tended to be forward and hard, especially during peaks of high recorded signal levels. Cymbals were more prominent in the presentation than is natural, and the upper harmonics of high-frequency-rich instruments were overly emphasized. The delicacy and air in cymbals heard through the 203 were missing from the DDE's rendering. I've found that many 1-bit decoders tend to get hard as signal level increases; the DDE was no exception. Snare drum, with its high peak level and substantial high-frequency component, was particularly edgy. The snare-drum dynamics just mentioned were perhaps more the result of this harshness than of actual dynamic contrast; brittleness and edge give the impression of greater volume.

Instrumental textures, while detailed and vibrant, tended to be a little synthetic sounding. There wasn't that lush liquidity and warmth that conveys an instrument's true tonal shadings. Listen to Joe Henderson's unaccompanied sax that begins "Ask Me Now," from McCoy Tyner's new Chesky CD (*New York Reunion*, JD51). Through the DDE, it was somewhat sterile, lacking and body in the midrange, and a little edgy. By contrast, the 203 presented a much more believable rendering, with roundness, breath, and liquidity. The SuperLink also bested the DDE in ability to present natural timbres. In this regard, the DDE clearly sounded "digital" rather than more closely emulating good analog.

In remembering my experience with the identically priced Rotel RCD-855 CD player, I feel the DDE to be more detailed, and to have sharper soundstage focus and a more forward and vivid presentation than this popular CD player. The 855, however, was more laid-back, less fatiguing, and had better soundstage depth. Despite these factors, I would have to choose the DDE for its transparency, clarity, and soundstage delineation.

**Measurements**

The Digital Decoding Engine performed quite well on the bench. It didn't measure as well as some more expensive units, but nothing in the measurements would indicate its budget heritage.

Driving the DDE with data representing a positive-going impulse revealed it to be non-
inverting with the front-panel switch in the 0° position, and inverting in the 180° position. No DC was measured at the output jacks, but there was a very low level (2mV p-p) of high-frequency noise (350kHz) always present at the output. Output impedance was 220 ohms across the band, not a particularly low value, but low enough to drive most passive control units (provided the interconnect is of low capacitance).

The DDE's output level when decoding a full-scale, 1kHz sinewave was 2.46V, 1.8dB higher than the industry standard 2V output level. Frequency response, shown in fig.1, was flat, but with some passband ripple evident above 2kHz, a result of the 7323 Bitstream chip's linear-phase digital filter. De-emphasis error was negligible, with a very slight (0.1dB) positive error at 16kHz. This is well within the
specified error of ±0.25dB. Channel separation (fig.2) was fairly good, L–R measuring an excellent 98dB at 125Hz, but decreasing to 80dB at 16kHz. The R–L separation varied less with frequency, measuring 88dB at 125Hz and decreasing to 83dB at 16kHz. All these separation figures, however, are within Audio Alchemy’s published specs.

Looking next at the spectral content of the DDE when decoding a low-level (~90.31dB) 1kHz tone in fig.3, we can see a moderately high level of noise, and some second- and third-harmonic content. The amount of 60Hz noise was highly dependent on the grounding arrangement: this plot was the best obtained.

The linearity plots (the left channel, which was very slightly worse than the right, is shown in fig.4) reveal more error—slightly worse than claimed in the specs—than I’m accustomed to seeing from a Bitstream decoder. Although these plots aren’t poor, other Bitstream decoders I’ve measured have offered lower linearity error below ~80dB. However, this performance is still better than most inexpensive multi-bit decoders. Many digital processor manufacturers would be happy to trim their converters to this level of linearity performance.

A ~90.31dB, 1kHz dithered sinewave, captured by MLSSA, is shown in fig.5. The 1kHz signal is just apparent, but is overlaid with a fairly high level of audioband noise. Transformed to the frequency domain, the associated spectrum is shown in fig.6, which reveals a degree of second harmonic distortion present. Fig.7 is the DDE’s interpretation of a 1kHz, full-scale squarewave. The unclipped overshoot and Gibb’s Phenomenon ringing are typical of a Philips digital filter.

The DDE showed a low level of intermodulation products when decoding a full-scale combination of 19kHz and 20kHz tones, with no evidence of any 1kHz product and only very slight ‘spurs’ at 18 and 20kHz (fig.8). The cursor shows the level of the 24.1kHz (44.1kHz sampling ~20kHz signal) product, which is reasonably well suppressed. (The Japanese filters from NPC, Yamaha, etc., offer greater suppression of this product, but clip the peak ringing on full-level squarewaves.)

**Conclusion**

On the credit side of the ledger, the DDE is remarkably transparent, with a surprisingly well-focused soundstage. The DDE didn’t homogenize instrumental outlines, a trait so common in inexpensive digital playback. In addition, this diminutive unit had good bass drive and ability to convey the music’s rhythm. Finally, the DDE had lots of detail; I never felt I was missing a large part of the music, another characteristic of low-priced CD players.

On the debit side, I found the treble a bit hashy and forward, lacking the delicacy and nuance heard through the Meridian 203. Although the DDE’s soundstage was superbly defined laterally, it lacked the sense of depth and ability to surround instruments with the recorded acoustic. This gave the entire presentation a forward immediacy that could become fatiguing after a long session. In addition, instrumental textures were somewhat synthetic and lacking the liquidity and roundness heard through other (admittedly more expensive) processors.

Overall, I preferred the Meridian 203 on classical music and most acoustic jazz. With some electronic music in which soundstage depth and accurate tonal shadings are less important, the DDE, with its superior rhythmic drive and sharper soundstage focus, ran a much closer race. I should reiterate that not only is the Meridian 203 two and a half times the DDE’s price, it is, in my opinion, the best of the $1000 processors.

For music lovers on a budget, I can’t recommend the Audio Alchemy Digital Decoding Engine more highly. While it has some sonic shortcomings, it nevertheless offers a level of musical performance previously unheard of at this low price. In addition, it is well made, incorporates most of the bigger units’ features, has a five-year warranty, and is upgradable through the I²S bus when newer DACs become available.

For $399, therefore, the Audio Alchemy Digital Decoding Engine is a bargain. It’s no giant-killer, but if you own an inexpensive CD player with a digital output and have been wanting to upgrade to an outboard processor, the DDE might be just the ticket.
Krell KBL High-Level Preamplifier

Lewis Lipnick


About three weeks ago, while perusing the gear in a local audio retail establishment, I overheard a salesman, who could well have been selling used cars, giving a classic spiel to an obviously confused customer. "You see, sir, all preamplifiers basically sound alike, especially with line-level inputs. The only differences are in the number of features." He went on to tell his prey that spending big bucks for high-end products such as Krell or Mark Levinson (neither of which he sold) would be a big mistake. I choked back my automatic response of a certain bovine term, but thought it better to continue my fly-on-the-wall masquerade.

Unfortunately, this perception of "all line-level preamps basically sound alike" is not uncommon, and is further exacerbated by one particular mass-market audio magazine's claim that high-end audio products do nothing more than cost more money. Even I used to believe this crap, since my sole literary audio input originated from the same publication. I was quite happy in my ignorant bliss until the fateful day I set foot in that first high-end audio salon. Product names I'd never heard of before—Quad, IMF, Linn Sondek, et al—greeted my ears and eyes. But it was a preamplifier, an Audio Research SP-3, that really changed my life. It was so much better than my McIntosh C-26: clearer, more open, spacious, and a soundstage (a term I'd never heard prior to that day) that went on forever. That one product shed a whole new light for me on the importance of a good preamp.

Of course, in those pre-digital days, the phono preamp section was of utmost importance (as it still is for many audiophiles), but even the line-level stage of that SP-3 (which eventually became an SP-3A-I) offered a much more musical presentation of my open-reel tapes. With the advent of the CD, the design of high-level stages has become more critical, and has spawned a whole new industry dedicated to the "line-level preamp." The logical question to ask concerns the validity of passive line stages, which many believe to be superior to any active design. I don't agree that the passive route is the way to go, mainly because I haven't yet heard any passive device convincingly reproduce the dynamics present in live music.

So where does that leave me and the Krell KBL? An interesting question, principally because I haven't particularly liked any Krell preamplifier to date, and have been quite pleased.
with the Mark Levinson No.26 that I bought about two years ago. The KBL is undoubtedly the finest preamp ever to come from Krell. It's priced in the same league as the No.26 ($4500 for the Krell vs $4850/$5450 for the Levinson unbalanced/balanced), is a "line-level only" component which can be combined with a matching phono stage (Krell KPA vs Levinson No.25), and offers balanced operation (as does the No.26 with its optional input card). It can also be mated with another KBL for dual mono operation. Except for a few dissimilar features offered by each manufacturer (KBL has two balanced inputs, while the Levinson incorporates useful stereo/mono switching capabilities), and a cost differential of $950, these two units can be considered direct competitors within the high-end audio marketplace.

Technical highlights
As with everything else Krell’s Dan D’Agostino designs, the KBL is a visual and technical tour de force. The external power supply is fully discrete, double-regulated, and uses two 50VA-potted, board-mounted transformers. The circuitry is DC-coupled (as in all Krell components), and operates in pure class-A. Fully complementary, discrete circuitry for both positive and negative portions of the waveform are utilized, and the line-stage rails are fed by individual tracking regulators to maintain low rail-voltage offsets. According to the manufacturer, each output section of the KBL is actually a small class-A power amplifier capable of swing 65V peak-peak.

There are six inputs on the rear panel, two of which can be used for balanced or single-ended operation via XLR inputs. Two buffered tape loops are available, as well as two sets of outputs (one with XLR for balanced/single-ended use, one for single-ended only via female RCA jacks). The front panel is a study in simplicity and elegance. Four circular knobs—input selector, tape monitor selector, symmetry (balance) control, and volume—are positioned in pairs on either end, with two push switches and dedicated LEDs to indicate status (selectable gain 3dB or 9dB, and absolute polarity reversal). The Krell logo and a blue power LED are placed in the center. When two KBLs are configured for dual mono operation, the 11-detent balance control adjusts for differences in level between the non-inverted and inverted outputs from the two separate units. Two LEDs located on either side of the balance control are activated in dual mono operation (which can be accomplished by the consumer via internal switches), and will only light when channel imbalances occur. There is no AC power switch, since the KBL is designed to be left on indefinitely. Both internal and external fit and finish are gorgeous (as is typical of Krell products), and internal access is easily accomplished by removing six countersunk hex bolts on the top cover. All in all, a very attractive, extremely well-built piece of machinery.

Setup
Unlike the problems I experienced with the first Krell KSA-250 power amplifier review sample, installation of the KBL went without a hitch. Although I preferred to place the KBL atop the stereo cabinetry, Puffin the Pouncer (a very large domestic longhair cat) seemed to enjoy sleeping on the KBL; my visions of exploding preamps in the night forced a move to a lower, less cat-able location. Unlike many preamps that I have owned or auditioned, the KBL’s rear panel is very clearly labeled; connections can be easily accomplished with an angled dentist’s mirror. The “blind finger-touch and plug-in technique” can also be performed, because there’s lots of room between all inputs and outputs (unlike those damn female Camac receptacles crowded together at the rear of the Levinson No.26). Experimentation showed that the power supply is best located at least a foot away from the preamp module, and power cords can indeed improve sonic performance.

So far, of all four AC cables auditioned—original Belden supplied with the preamp, Distech Power Bridge II, Music and Sound cable, and Tiffany power cable—the Tiffany seems to do the best job. Overall sonic presentation with the Tiffany is more open and dynamic than the other three, and soundstage is definitely more natural. Dan D’Agostino has more than once made it perfectly clear to me that he doesn’t believe in sonic witchcraft (neither do I), and that fancy power cables don’t necessarily sound better, just different. This time, however, it really does sound much better. Placing three Sumiko Navcom Silencers underneath the KBL

1 There’s a funny story about the cat who liked to perch atop a certain person's Eagle 7 amplifier. One day, plagued by an indigestible hairball, the cat barfed into the amplifier, and the whole thing blew up, launching the unfortunate feline across the room.
(two in the rear, one in front center) also appears to significantly improve clarity and soundstage depth. It's interesting that these devices don't do very much for the Esoteric and Krell CD drives I've been auditioning, or my Levinson No.26 preamp.

Similar to other high-end preamps, the KBL takes a significant amount of time to reach sonic potential—in this case, four weeks. Listening during the first week was a waste of time. "Dull, cloudy, and covered" would be the best way to describe out-of-the-box performance. Over the next three weeks, frequency extension at both extremes began to expand, as well as soundstage dimensionality and dynamic impact. Although the manufacturer claims that serious listening can be done after a few days, my experience would suggest otherwise. Patience, I'm afraid, is a necessary ingredient with this product. (How many audiophiles do you know who can count patience among their virtues?)

My reference system currently consists of a Theta Pro Generation II D/A processor with balanced outputs, Mark Levinson No.26 line-level preamplifier, Krell KSA-250 and Mark Levinson No.23 power amplifiers, and B&W Matrix 800 speakers. A Levinson No.23.5 power amp arrived after the KBL, and was subsequently substituted for the No.23 (the 23.5 is much better than the 23), as well as a pair of Krell MDA-300 monoblocks (a truly phenomenal amplifier!). Several CD drives were used (Krell MD-1 and Esoteric P-10, P-500, and P-2), as well as two Krell D/A converters (SPB-64X and SPB-32X). Interconnects used were Madrigal HPC (balanced and single-ended), Krell Cogelco (balanced and single-ended), Straight Wire Maestro (balanced), AudioQuest Diamond (balanced), Magnan VI (balanced), Kimber KCAG (balanced and single-ended), and Purist Audio Design Maximus (balanced). Speaker cables to the B&W Matrix 800 speakers were 1) a combination of AudioQuest Clear and Sterling (quad-wired), 2) Straight Wire Maestro (bi-wired), and 3) Kimber 4AG (bi- and tri-wired).

**Sonic philosophies . . .**

In my review of the Krell KSA-250 power amplifier (January 1991, Vol.14 No.1), I came to the conclusion that, while the Levinson No.23 power amp could be sonically more engaging in some circumstances, the Krell bettered its competition in overall musical honesty. That same parallel can be drawn between the KBL and No.26 preamps. In absolute musical accuracy, the Krell clearly surpasses the Levinson on most counts. But the No.26 offers an alluring perspective that may well appeal to the listener who prefers highly vivid harmonic textures and impressive soundstage depth over an absolutely correct replica of the musical material. While the No.26 unquestionably gives a warmer, more richly colored sonic picture, the KBL supplies the listener with a more musically honest, but possibly less sonically exciting view of the performance. This does not imply, however, that one is necessarily "better" than the other. Rather, these differences between two very good products suggest a clear divergence of sonic philosophies which may or may not appeal to the individual listener. Yes, in my opinion, the Krell supplies more of what actually went on during the recording session. For a musician, this is of utmost importance. But the microphone does not interpret musical performances in the same manner as the human ear, and the Krell's deadpan reflection of this may prove to be unrewarding, even irritating to some people.

As with any exceptional audio product, two planes of discussion diverge re. the KBL's performance: purely sonic parameters and musical accuracy. Sonically, the KBL follows Krell's signature of smoothness, top-to-bottom coherence, clarity, and incredible dynamic punch. At first casual listen, this preamp does not appear to have as wide or deep a soundstage as the Levinson No.26. But first impressions are not necessarily valid, and extended audition of the KBL vs. the No.26 suggests that the No.26's deeper, wider perceived soundstage remains constant with all program material (similar to many tube products), placing a definite sonic stamp on every performance. The No.26 is also, subjectively, easier on the ears. There's a greater sense of space and ambience surrounding the
musicians, along with a softening of all instrumental and vocal attacks. The Krell, in comparison, appears to have an acoustically "drier" presentation of ambient space, better separating the instruments and voices from the surrounding acoustic. In some cases, with recordings erring on the side of extreme digititis, the Krell can sound bleached and a bit thin. But there's no doubt that the KBL is more of a sonic chameleon, changing more with each recording than the competing No.26. Soundstage dimensionality, forward vs distant overall perspective, and harmonic textures can change dramatically between different recordings, allowing the best to sound remarkably lifelike and leaving the worst practically unlistenable.

Dynamically, the KBL has more impact than the No.26, but the leaner harmonic presentation can make the midbass and lower midrange seem a bit lightweight. However, this is actually more realistic. It's very easy to be seduced by bigger-than-life midbass richness, but it just ain't that way in live performance. Too many audiophiles confuse electronically generated low frequencies from Fender bass and synthesizers with the lighter, more transparent characteristics of the lower strings in the symphony orchestra. Really deep, impactful bass, however, such as that produced by 32' and 64' organ pipes, symphonic bass drum, and various electronic musical instruments, is reproduced with much more weight and pitch through the KBL than through any preamp I've heard. In spite of this, the No.26 does provide a more appealing spacious, warm cushion of sound at lower volume levels, where the KBL tends to become unnaturally lean.

If you listen at realistically high playback levels, the Krell will deliver a more accurate rendition of dynamic contrasts and musical textures. If, however, the volume is restricted by system limitations or domestic considerations, the Krell may disappoint. The manufacturer claims that the KBL will provide better sonics in the high gain (9dB vs 3dB) position. I conditionally agree with their suggestion, although in this configuration, the high-output Theta Pro can sound a bit too bright and forward on aggressively recorded pop material. The amazing thing, however, is that the KBL's input never seems to overload, even with the high-output Theta.

System matching is another consideration that must be dealt with when shopping for any preamp. It should come as no surprise that the Krell and Levinson preamps work best with their respective power amps. While the KBL performs musical magic with the KSA-250 and KMA-300, it just doesn't do very well with the Levinson No.25 or 23.5. The latter are not happy marriages, creating sonic results characterized by a narrow, truncated soundstage and lack of detail. No matter what interconnects were tried, single-ended or balanced, the overall sound remained the same. This was a most curious situation, since I've heard the KBL sound absolutely fabulous with Jeff Rowland, Classè, and Jadis amplifiers, as well as my own Adcom GPA-555. I haven't yet had the opportunity to audition the KBL in dual mono configuration; perhaps this will solve the Krell/Levinson interface problems. The opposite combination (Levinson preamp into Krell amps) sounds quite a bit better, but the remarkable transparency of the Krell amplifiers distractingly illuminates the No.26's dynamic shortcomings and overly ripe midbass. There was also a noticeable increase in noise and hum with the No.26/KSA-250, or KMA-300, somewhat (though not completely) alleviated by floating the ground on the Krell amps.

Although the KBL's output impedance is very low (0.5 ohms!), which theoretically should lessen the sonic effects of different cables, it was definitely happier with specific interconnects. Magnan VI, Straight Wire Maestro, and especially those spectacular Purist Audio Design Maximus (aka "water wire"), appear to produce the best results. Even though the Maximus seems to take forever to break in (so far, 150 hours and still improving), it is spacious, dynamic, harmonically neutral, and above all transparent. This stuff may be hideously expensive, but it is worth the astronomical price. (In this case, you really do get what you pay for.) The Magnan VI is no slouch either, providing a more involving forward perspective but giving up significant soundstage dimensionality and dynamic weight to the Maximus. It should also be noted that the KBL sounds much better in balanced vs single-ended operation. Transient impact, dynamic range (particularly at the top end), soundstage dimensionality, and (surprisingly) harmonic integrity all benefit from balanced operation between preamp and power amp.

And now, the musical truth
Not everyone is looking for the real thing. If you
subscribe to the "boom & sizzle" philosophy of musical reproduction, or find the natural harmonic structures and dimensionality of live music boring, the Krell KBL will probably not be your cup of tea. But, as I stated earlier, this preamp will indeed let you know exactly what went on during the recording session, all the warts, pimples, and beauty. In this respect it's similar to the B&W Matrix 800 speaker: garbage in, garbage out. No added flavorings or artificial ingredients.

Andrew Litton, Music Director of the Bournemouth Symphony and a member of our musicians' listening group, immediately noticed this during an extended A/B comparison of the two preamps a few months ago. While he enjoyed the larger soundstage and harmonically warmer presentation of the No.26, he felt that the musical honesty of the KBL unquestionably reproduced his own recordings of Tchaikovsky Symphonies 1 and 2 (Bournemouth Symphony Orchestra, Virgin VC 7 91119-2) more accurately. He described the Levinson No.26 as "heavy and dark sounding," "covered," and "slightly compressed," while the Krell KBL was "transparent, immediate, dynamic, and just more honest." He also mentioned that the KBL uncovered more flaws in the performance than he would have liked to have heard, such as minor intonation problems in the woodwinds (bassoons in particular) that were glossed over by the other preamp. On the plus side, he marveled at the way the complex harmonics of massed strings were reproduced with the KBL, singling out the realistic timbres of the cello and double basses in the recording.4 Andrew also commented that the soundstage dimensionality was more natural, although less hyped, with the KBL. Size, placement, and sonic brilliance of the woodwind, brass, and percussion sections were more as he remembered, and the overall perspective of the orchestra was "incredibly realistic." Although Andrew didn't particularly like everything he heard, he made it very clear that this was closer to the real thing than he had ever thought possible.

Reproduction of piano was superb with the KBL, as evidenced by our own National Sym-

4 The sounds of the two lowest members of the orchestral string family (cello and double bass) are rarely reproduced with proper weight and tonal character. While the double bass produces a bigger low-frequency wave front than the cello, its sound is more nasal, often with less focus and core to the pitch. The KBL is the first preamp I've heard that really captures this important difference.

phony recording of the Tchaikovsky Piano Concerti 1 and 2 (Vladimir Feltman, Mstislav Rostropovich, Sony Classical SK 45756). Feltman's very distinctive style extracts both power and delicacy from the piano. His instrument for these sessions had a darker sound and more even scale than the typical American Steinway, something missed by the No.26 but clearly revealed by the KBL. The KBL does a remarkable job of reproducing Feltman's subtle nuances, as well as the sheer dynamic weight we produce in the National Symphony under Rostropovich's direction. Nevertheless, soundstage depth with the KBL was shallower than with the No.26, and there was a disturbing upper-midrange glare. Unfortunately, I feel the Krell to be telling the honest truth, because the stage of the Kennedy Center Concert Hall is not very deep, and there is indeed a very bad upper-midrange peak in the live sound that produces a raspy "honk" at any dynamic above a full orchestral forte.

The complex harmonic structures and dynamic contrasts indigenous to large pipe organs are rarely, if ever, reproduced faithfully. As an organ enthusiast, I go out of my way to find recordings of interesting organists and instruments. Of all the recent recordings of organ works, Jean Guillou's performance of his own transcription of Mussorgsky's Pictures at an Exhibition (Dorian DOR-9017) stands out as the most colorful and idiosyncratic interpretation currently available. Whether or not you agree with Guillou's liberal use of sonic spectacle to bring this piece to life, this is one impressive-sounding recording. I've heard it played on some pretty dismal systems, but it always manages to impress with dynamic impact and deep bass. I've played in the hall where this recording was produced (Zürich Tonhalle) several times with the National Symphony, and find the spatial perspective and tonal balance with the KBL to be more realistic than with the No.26. This is not a large hall (quite small, in fact; our orchestra barely fits onto the stage), with a very present, bright, clear sound that can become overly aggressive when pushed too far. The organ played in this recording is very large, and can sonically overload the hall's small internal dimensions (as evidenced in the loudest passages of "The Great Gate of Kiev"). In spite of this, the excellent transient response on the stage and heavy walls allows this very dynamic instrument to be played at high levels.
without losing clarity. And this was where the KBL told the honest truth. Every voice within
the complex textures of Guillou’s colorful reg-
istration came through with clarity and focus:
real deep bass that tickled my toes; visceral
impact that rattled windows and made the cat
scurry for cover.

But this realism came with a downside. M.
Guillou’s rhythmic unsteadiness was merciless-
lessly revealed with the addition of the KBL to
my system. Many of the obscure inner voices
(particularly in “Bydlo,” “The Hut of Baba
Yaga,” and “The Great Gate”) previously unheard
were now clearly out of sync with the overall
rhythmic flow, downgrading to the mundane
a previously exciting performance. A similar
scenario was uncovered in the very beginning
of the first-movement “Mars, the Bringer of
War” in Charles Dutoit’s performance of Holst’s
The Planets (Orchestre Symphonique de Mon-
treal, London/Decca 417 555-2, CD). I’d always
thought that the opening rhythmic figure wasn’t
quite together during the first few bars, but
couldn’t put my finger on the problem. Sure
enough, the KBL solved the mystery. Starting
at measure three, the col legno3 massed strings
are not at all together, detracting from an other-
wise excellent performance. And if the KBL’s
ruthless transparency, in this case, didn’t uncover
enough flaws, it did let me know from which
string sections (violins and violas) the problem
originated.

An even more spectacular display of the
KBL’s abilities to unravel complex musical lines
can be heard in a world-premiere recording of
Antoine Brumel’s Mass for Twelve Voices, with
Paul van Nevel and the Huelgas Ensemble on
Sony Classical “Vivarte” SK 46348 (reviewed in
this issue). This remarkable performance was
recorded in the very reverberant Chapel of the
Irish College in Leuven, Belgium, and is, with-
out a doubt, the finest job I’ve ever heard of
vocal music recorded in a church.6 The presenta-
tion was very spacious and expansive with
the No. 26, creating an illusion of a large cho-
ral group performing in a large space. Not so
with the KBL. Each vocal entrance was clearly
delineated, the size of the ensemble was smaller
(only 12 voices), and each vocal line could be
followed from beginning to end despite the
reverberant surroundings. The perspective was
closer with the KBL, each singer easily located
within the soundstage, making for a more inti-
mate and involving view of the performance.

The KBL did just as well on the pop side of
town, the dynamic impact of this preamp really
coming to life. The best demonstration I can
think of is contained in a CD you can’t buy in
this country (sorry). But this doesn’t mean that
there isn’t some other way to finagle a copy
from the source, which happens to be B&W
Loudspeakers in England. Besides building
loudspeakers, B&W is a sponsor of the Mon-
treux Jazz Festival, and produces recordings of
selected performances each year. In their sec-
ond Live at the Montreux Jazz Festival (B&W
Compact Disc BW 002), Simon Phillips, drum-
mer in Ray Russel’s A Table Near the Band,
takes a four-minute solo that will blow you out
of the room with realistic dynamics. This is
surely the most convincing recording of drums
1, or my percussionist colleagues in the NSO,
have heard. With the No. 26 and KSA-250,
Phillips’s playing was impressive but not terribly
dynamic or impactful. But with the KBL and
250, the sound opened up, pitches and colors
of individual drums and cymbals became
clearer, and I was moved from several yards
away to about 3’ in front of the drums (I know
what this sounds like, since I’ve been put in this
situation with NSO pops concerts more times
than I’d care to remember).

In a less bombastic mode, the recording of
Antiphone Blues (Arne Domnerson, sax; Gustaf
Sjökvist, organ; Proprius CD PRCD 7744), took
on a whole new perspective with the KBL.
Domnerson is a great sax player, but I never
knew just how much control he had over his
horn until this preamp came along. Rarely does
one hear a tenor sax player who can bend in-
tonation and change harmonic textures so suc-
cessfully, without losing that “funky” edge on
the sound. Ambience surrounding the sax was
somewhat lessened with the KBL, with an over-
all sonic view that was closer, albeit less spa-
cious and expansive. Is this better or worse? I
don’t know, since I wasn’t at the recording ses-
sion. In this case, however, I didn’t particularly

5 The term col legno refers to a technique in which the musi-
cian strikes the strings with the wooden part of the bow,
producing a tuned percussive effect. The musical flow dur-
ing the first 24 bars of “Mars” is dictated by the entire string
section (helped by the tympani, using wooden sticks) tapping
out the 5/4 rhythmic figure that gives this opening section of
The Planets its enormous driving energy.
6 Antoine Brumel (ca 1460–1520) was a highly respected Bur-
gundian composer of the Late Gothic style who created some
of the most interesting contrapuntal vocal works in the his-
tory of Western music. Even if you don’t particularly like early
music, this recording is a must-buy, if only to hear how beau-
tifully voices can be recorded.

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like the KBL's drier, less ambient sound.

This leads to the next question: Is the KBL really better because it retrieves so much more perceived information, or just different? Because listening to music is a very personal thing, and the art of musical reproduction is somewhat subjective, I can’t answer this for you. I’m looking for the most honest reproduction of the performance. But even I find myself sometimes yearning for a little deeper soundstage, or richer harmonic textures, than the KBL might deliver. In the final analysis, I suppose that musical realism should win out over euphonics, even though this medicine of truth doesn’t always taste as good as the sweet flavor of sonic colorations.

Shortcomings
If sonic “honesty” is what you’re looking for, there sure aren’t any shortcomings. It would be nice, however, to have a stereo/mono switching capability to test channel balance and phase coherence in recordings.

Practical considerations
Practical considerations in high-end audio? Why not? It isn’t necessary anymore to suffer the vagaries of garage-built products that blow up every five minutes to achieve the ultimate sound. Krell has certainly given practicality some serious thought by offering a product that can be easily upgraded by the consumer without incurring additional cost (other than the second KBL). In spite of this, $4500 is not peanuts; you should carefully consider your priorities before shelling out the bucks. If you view purchase of the KBL as the first building block in an all-Krell, full-differential system, this is actually a good buy. But besides the Krell KBL and Levinson No.26 (and more expensive and improved No.26S), there are some other superb preamps, notably from Classé Audio and Jadis, that make beautiful music. Also, don’t forget those two wonderful preamps from Jeff Rowland (the Consonance and Consummate) that offer both balanced operation and infrared remote control. Now, just to add a little fly to the ointment, I understand that Krell is also working on a remote-control preamp...

Conclusions
I feel the KBL belongs at the top of Stereophile’s Class A. As did Krell’s KSA-250 power amp, I feel the KBL to redefine the term “neutrality.” Dynamic and transparent, this preamp is faithful to the musical material, revealing a recording’s best and worst aspects. However, system matching with this preamp is very important, as it did not work well with all power amplifiers (notably the Mark Levinson Nos.23 and 23.5). For that reason, I suggest that you audition this preamp with equipment similar to your own, if possible, before taking the plunge. This is definitely not the preamp for the audiophile more interested in sonic spectacle than musical honesty. Such honesty comes at a price, however, which may be too much for some listeners. Even I, who place musical accuracy above all else, sometimes find such merciless transparency distracting. But if you consider live music your ultimate reference, and want to hear your recordings without any added colorations or editorialization, the Krell KBL is the best of the best.

DR. JEKYLL & MR. TRIODE:
THE VTL COMPACT 160 MONOBLOCK
Corey Greenberg


When I reviewed VTL’s 25W Tiny Triodes (April 1991), I found them to be incredibly fun little suckers to play with, but got frustrated with their inability to drive my Spicas to reasonable levels with most of my recordings. I loved what I was hearing, but there wasn’t nearly enough of it! As it turns out, JA was listening; not just to my plea, but also to the new VTL Compact 160 monoblocks in preparation for a full review. However, while all this

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was going on, David Manley decided that the power-supply voltages in the 160 weren’t beefy enough to exploit his new KT90 output tubes; back the amps went for a transformerectomy.

“Hello, VTL; May I help you?”

“Ah yes, this is John Atkinson of Stereophile calling...”

“I can’t hear you; sounds like there’s a handkerchief over the receiver.”

“Oh, sorry...uh, it’s this bloody cold I have, sod it all...”

“And what’s with your accent? You sound Hungarian! Is this really JA?”

“Right-o, bird! I’ve decided to have a new reviewer of mine handle the Compact 160s when they’re finished, so send them to Austin, Texas...”

“You’re Corey Greenberg, aren’t you?”

“No! Now listen, I’m a very busy man, so I don’t want you calling me back here at the magazine to confirm this. I really am calling from Santa Fe...hey look! A pastel coyote wearing a banjada just walked by!”

“Okay, John; we’ll have those amps shipped to Corey right away. Oh, by the way—all the girls here in the office were wondering...is CG gay?”

“WHAAAT?! NO!! I’m—be’s as straight as they come! Wh—what makes y’all—I mean, you—think that?!”

“Ha ha ha! Oh, nothing! Well, bye-bye, John! Ha ha ha!”

“WAIT A MINUTE! What makes you th—”

[click]

The end of the world is here; spare some change?

My pal Steve Melkisethian runs Savage, Maryland’s Angela Instruments, and I had him on the phone last week when he went into his Chicken Little impression; seems he was commissioned by TAS to write a piece on the current state of tubes, and what he found was not pleasant. “It’s all gonna be over in a few years, the whole tube thing,” he said. “All the good plants are closing, and pretty soon there won’t be any decent tubes for audio...things are moving very quickly.”

Steve’s right; things are moving very quickly. Many high-end audio tubes just aren’t being manufactured anymore; witness the long-discontinued British M-O Valve Company KT88, considered by many to be the best-sounding output tube ever made. Today’s Chinese KT88 is actually more a mutant 6550 than a true M-O clone, and even then it’s got a deserved reputation for early failure. Both Philips and GE have closed down production of the 6550, again leaving the inferior Chinese version as the only currently manufactured replacement. EL34s and 6L6GCs, too. Why else do you think most tube amp manufacturers are designing their latest gear around seldom-used tubes

1 (301) 725-0451, Box 2043, Savage, MD 20763, Five bucks’ll get yug the wildest catalog around of vintage tube hi-fi gear, electric guitars, photos of naked ladies, and old Fender and Marshall amps...everything a boy could ever need. The hilarious descriptions and promotion of weird, funky gear as high art make the Angela catalog a must-have; any place that can sell me both a Fender bass and a Dynaco Stereo 70 gets my solid support!
like the 300B? Because they’re bored? Scared is more like it.

VTL’s David Manley is one manufacturer who won’t take things laying down when it comes to tubes for his amplifiers; when the American 6550s he used in many of his larger amplifiers, like JGH’s favored Deluxe 300s, looked in danger of extinction, he approached all the surviving tube factories about designing a new super tube; one that would be available, reliable, and sound great. Along with Yugoslavian tube manufacturer EI’s designer Blago Bukumira, Manley has introduced his very own Big Bertha, the brand new KT90 output pentode. Patterned after the early Telefunken EL156 pentode used in vintage Neumann cutting amps, the KT90 is said to be one mighty valve, able to take much higher plate and screen voltages than the Chinese tubes; David Manley claims that while the ’90 is rated for 850 VDC plate voltage, in actual use it can take a kilovolt! VTL currently supplies these tubes to other manufacturers designing their own KT90-based amplifiers, Jadis for example, and replacements are available from VTL dealers or direct from Chino.

Visually, the amps look much the same as the others in VTL’s Compact line, with a slim black and chrome chassis and those U-shaped “un-handles” everyone uses as handles anyway. As with most of the VTL amplifiers, the input signal is taken via a 12AT7 connected with both halves in parallel for the input stage, then on to a 12BH7 for the phase inverter/driver stage. Premium Wima film caps and metal-film resistors populate the circuit board, while the B+ supply is smoothed by 1000μF of capacitance.

Overall, I found the Compact 160’s internal construction to be very good, although there are still components tack-soldered on top of printed circuit traces instead of through-hole soldered. I also found that much of the solder flux around many of the joints had been scraped off; I hope this is typical of production, and not just a “reviewer’s courtesy.” Surprisingly, the quartet of KT90s in the review samples are mounted with their bright red inked “VTL KT90” labels facing the rear; I would’ve thought that, of all people, David Manley would mount these tubes to show off his logo! On the back are the gold-plated 5-way binding posts and a rhodium-plated RCA input jack, along with a captive 3-conductor 16ga AC line cord.

It’s on the front of the amp, however, where the real fun’s at: the pentode/triode switch! David Manley says that from the outset of its design, the KT90 was intended to be used as both a pentode and a triode. And that’s exciting news, because as I said in my Tiny Triode review, there are triode freaks silently walking among us who won’t listen to anything else; after hearing both the Tiny Triodes and the Compact 160s, I fear I may be turning into one.

Alright—you: up against the wall

No, I’m not Daryl Gates. I was just telling the Muse Model 18 active subwoofer that its services weren’t going to be needed for this review; I can’t very well judge an amp from 75Hz up only, can I?

The playback system included the Well-Tempered Record Player fitted with either an AudioQuest 4041 or the Sumiko Blue Point, this taken to an Audio Research SP-14 and “hotrodded” via its rec-out jacks to Aunt Corey’s Homemade Buffered Passive Preamp.3 CDs were played on my modified Philips CD-50. Interconnects were Straight Wire Maestro, and the Compact 160s were connected to my Spica Angeluses with 1’ lengths of VTL cable. A pair of NHT 2.3s was also on hand for comparison, as their bass extension is considerably better than the Spicas, and helpful in evaluating the bass of the VTLs in the absence of the Muse subwoofer. All line-level components and the Well-Tempered Record Player were plugged into an Audio Express NoiseTrapper Plus AC line conditioner. The VTL amps were supported on my shag carpet by hardcover books; the left amp rested on a copy of Tom Wheeler’s American Guitars, the right amp on Dr. Seuss’s Horton Hears A Who.

Sound

When I first listened to the Compact 160s, I was kind of underwhelmed. They just didn’t grab

2 Fender just reissued their classic 4-10 Bassman guitar amplifier, and when I went down to the local music store to check it out, it sounded horrid; turns out one of the Chinese 6L6s that came in the amp was dead. I asked the salesmen if he knew that his amp was busted, and he just shrugged, “Ever since Fender switched to Chinese tubes, all their amps come in with at least one dead tube.” I went home and got a pair of Russian Sovtek KT66/5981s, returned to the store, and slapped them into the Bassman; he was astounded at how much better it sounded.

3 DIY article to come soon. Honest.
me the way the Tiny Triodes had, or the earlier generation of VTL amps like the Compact 100s. If I could sum up the "old" VTL sound, it would be "fast and exciting"; exceedingly quick transients with just a hint of added brightness that actually complemented many systems/rooms. When solid-state amps are bright, they're usually real fatiguing over the long haul, but the VTLs were bright in kind of a pleasing way, and they immediately stood out in side-by-side comparisons with other models. The Compact 160s, on the other hand, don't have this brightness; if anything, their highs are somewhat restrained in direct comparison to most other amps I've heard. Also, the dynamic capability of these amps is lower than I would've expected from a tube amp rated for 160W; I ran out of steam a couple of times with both the Spicas and the NHTs, but then I like my music a wee bit loud at times. As in all the time. The VTLs don't lose their heads like most solid-state amps when they red-line, they just start sounding a lot more forward as their tubes and output transformers start saturating.

The more I listened to the Compact 160s, though, the more I liked them. Rather than grumble me by the cofones like the Tiny Triodes, they just blew me kisses from across the room. Extended listening proved the new VTLs to be more neutral than their forebears, with a softer but still detailed high end. If a cymbal crash was there, the VTLs reproduced it in all its doped-brass glory. Jug Ammon's tenor (Groovin' With Jug, Capitol/Pacific Jazz CDP 7 92930 2) came through with all of its squeals and overtones happily intact. But bright I wouldn't call the VTLs.

The midrange, long an area in which VTL amps have excelled, is really special: fast, transparent, holographic, it made vocals like the Cowboy Junkies' Margo Timmins (The Trinity Session, RCA 8568-2-R) sound as real and lifelike as I've heard in my living room. Depth and soundstaging, too, are excellent. The Compact 160s throw up a wide, spacious soundfield that all but commands you to close your eyes and submit. During the course of the review, I made a cassette dub of some of my original music for a friend; the song, Eden, is a multi-tracked instrumental with a lot of guitars, some forward and some backward, moving all across the landscape. Listening to this recording with the VTLs was like listening to a brand-new mix; there were depth and subtlety I wasn't even aware of before!4 The psychedelic title cut of my Austin homeboy Eric Johnson's Ab Via Musicom (Capitol CI-90517) swirled, sparkled, and neighed like a horse all over my room; suffice it to say, the 160s give good space.

Hey Batter Hey Batter Hey Batter Hey Batter Switch!

Hell, I'll just save you the suspense: I dug the VTL Compact 160s the most in triode mode. The dynamic headroom lowered considerably, the gain was reduced, and the KT90s probably won't last as long, but the triode mode was so seductive I couldn't help myself. Every time I auditioned the pentode-switched amps, my monkey bone kept whispering, "But imagine how this would sound in triode mode!" Set up for triode operation, the Compact 160s are clean and clear, as devoid of grain and hardness as any amps I've heard.

Now just because I preferred the triode mode, that doesn't mean the pentode mode is lousy; far from it. Even though the amp didn't quite sound as loud as its claimed 160W, the pentode mode did offer quite a bit of additional headroom in comparison to triode operation, which I'd guess put out no more than around 60W before clipping. Still, the triode mode was the more vivid and alive. Vocals, especially, were much more fleshed-out, with more of a sense of weight. AudioQuest's stunning recording of bluesman Robert Lucas (Usin' Man Blues, AudioQuest AQ-CD1007) perfectly demonstrated the difference between the Compact 160's character in pentode and triode modes: with the amps set for pentode operation, everything the recording had to offer was right there, laid out in all of its detail. But switching over to triode brought Lucas's guitar and vocals into even sharper focus, with spurious resonances on his steel-body National gaining more clarity and prominence. On the cuts with a full band of acoustic stringed instruments, the triode was the

4 The monitor system in the studio I recorded Eden as wasn't remotely in the same league as the VTL/Spica combo.
5 I still can't believe this recording ever really happened; Kari Alexander sets up his superbad EAR miles and tubed 1st Shader open-reel machine, the whole thing's wired with Lapis for chrisstakes, and what does he point this whole wonderful recording system at? A guy playing Delta blues on a steel-body National! I mean, this is absurd! Stuff like this isn't supposed to take place; it's too perfect. I can't stand most modern blues recordings, but this guy Lucas can really play. And his singing is very appropriate; none of that Amos'n'Andy whiteboy shuck like George Thorogood.

All Robert Johnson got for his soul was some poisoned whiskey and the legacy of yuppies listening to his CDs in their Beamers; what did Lucas sell to get this amazing recording?!

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better mode in fully delineating the image outlines; it was just plain more exciting to listen to! One area of weakness both modes seem to share is an overly ripe midbass. This was immediately noticeable on both the Angeluses and the NHT 2.3s; male vocals became slightly fuller than normal, lending them a sense of bloat in stark contrast to the neutrality of the midrange and the highs. And as far as ultra-low bass goes, the VTLS are better than most tube amps I've heard in control and weight, but aren't in the same league as good solid-state amplifiers. The Muse Model One Hundred I reviewed in Vol.14 No.4 had much better definition and control throughout the low bass; even the much less expensive Adcom GFA-555 II had substantially tighter and more powerful bass than the Compact 160s. Gee... if only there was a way to harness the bass control of good solid-state design with the crystal-clear midrange and highs of the triode-mode VTLS...

Won't you come back, Muse Bailey?

Aw, c'mon! It was sitting right there! I had to try it! As I said in my July turntable roundup, the Muse Model 18 subwoofer has been absolutely killer in my system, giving the Spicas bass and dynamic capability across the board they never dreamed of. Inside this huge black bass mwh-cbeen is a Muse 225W MOSFET amplifier driving twin slot-loaded 10" woofers below 75Hz; the promise of the Muse and the VTL Compact 160s was too great to ignore, so after I'd listened to the VTLS solo, I hooked up my preamp's outputs to the Muse and ran its high-pass line-level outputs to the VTLS/Spicas.

And The Gods Made Love.

It's all there. Once I had the Muse aligned spatially with the Spicas, it simply ceased to exist; the VTLS just suddenly had several octaves more bass, along with the extreme tightness and power of good solid-state. The upper-bass emphasis was reduced as well, though still marginally audible on some vocals. But the coolest thing was the transition point, where solid-state handed off the baton to the tubes: there wasn't any! I mean, I listened for that sucker, and I just couldn't pick it out. The tight, muscular bass just effortlessly moved up into the triode-clear upper-bass/midrange as if the two amps were simply one awesome, all-encompassing unit that had it all. The audio "holy grail" of a true hybrid was before me, and I was gulping its sweet nectar like a wild pig!

Relieved of the hassles of the sub-75Hz workload, the Compact 160s sailed through music even more dramatically. Yes, I realize that I'm not supposed to be able to aid and abet an amplifier under review by making its life easier with a monstrous powered subwoofer, but life's too short for supposed-to's; the name of the game here is Making The Musicians Jump Out Of Those Wooden Things With The Grille Cloths, and the VTL/Muse combo is a real winner. Here's a way to look at it: consider the VTL Compact 160/Muse Model 18 subwoofer combo a pair of tube amplifiers that will dramatically extend the bass and dynamic-range capabilities of almost any speaker on the market; at a combined price of $5500, less than either Stereophile's Class-A-ranked Air Tight ATM-2 or Prodigy 150 OTL tube amps, I think this combo is a giant-killer.

Conclusion

Taken on their own, the VTL Compact 160 monoblocks are highly musical amplifiers, offering extreme ease and clarity throughout the midrange and high end. There's a total lack of fatigue with the 160s, especially in their triode mode, that makes extended listening an almost sensual pleasure. Sure, I wish they'd had more juice, but then I always wish that of most everything and everyone I encounter. For $3000/pair, the VTL Compact 160s offer excellent value, and if they'll play your music loud enough to suit you, I strongly recommend them.

JA measures the brutes

Unlike the EL34-equipped Compact 100s that I favorably reviewed a couple of years back (Vol.11 No.11), the Compact 160s have this front-panel switch to switch between pentode and triode modes. Nice for the listener; awkward for the reviewer who therefore has to measure every aspect of performance twice. I'll try to concentrate on the differences between the two modes, but bear with me if the words "pentode mode" and "triode mode" pop up rather frequently.

Looking first at output impedance, the 160 is a typical classic tube design in that it doesn't...
much act as a voltage source. In triode mode, the output impedance ranged from 1.5/1.7 ohms at 20Hz to 1.4/1.6 ohms at 1kHz, and 1.35/1.55 ohms at 20kHz (measurements respond to serial numbers '306/305, respectively). These figures suggest that there will be some modification of the loudspeaker’s response depending on the manner with which the load changes with frequency. In pentode mode, the amplifier’s output impedance was even higher: I measured 2.15/2.4 ohms at 20Hz, 2.05/2.3 ohms at 1kHz, and 2.0/2.2 ohms at 20kHz. This higher source impedance in pentode mode will restrict the voltage swing into lower-impedance loads, which means that the Compact 160 will actually appear more powerful into these impedances in triode mode.

The Compact 160’s input impedance was 75k ohms, with a voltage gain (into 8 ohms) of 29.8dB (pentode) or 26.7dB (triode). The amp is polarity-correct—non-inverting—and the unweighted S/N ratio (ref. 1W/8 ohms) was good at 64dB/66.5dB (305/306, respectively). Sensitivity was reasonably high (together with the high input impedance making these amps suitable for use with a passive control unit), though a little lower than previous VTL amps. In either mode, just over 1V was required to drive the amp to a 3% THD clipping point.

I used a 3% THD point because the manner in which the amplifier’s distortion changes with level means that the normal 1% THD point doesn’t always correspond with the onset of clip. Fig.1, for example, plots output power in triode mode for S/N ‘305 against THD+noise for 8, 4, and 2 ohm loads, with fig.2 showing the behavior of the same amp in pentode mode into 8 and 4 ohm loads. At the actual clip point, where the distortion curves in figs.1 and 2 develop a knee, the waveform appeared both to triangulate somewhat as well as become squared off, with the pentode mode developing a twin-horned appearance due to leading- and trailing-edge overshoot. But the listener will be reaching for the volume control well below this point. Though distortion levels are respectively low at low powers into 8 ohms in either mode, they rise smoothly both with increasing power and with decreasing load impedance. This behavior probably explains why CG didn’t feel the 160s to sound as powerful as he expected; their dynamic limit will be below the actual clipping point and will depend both on the type of music and on the speaker load the amplifiers are asked to drive. Fig.3 shows the modulus of impedance of CG’s preferred Spica Angelus: it rarely drops below 8 ohms apart from a minimum of 5.2 ohms around a musically undemanding 8kHz. I conjectured in my Vol.11 No.2 review that the Angelus should work well even with highish-output-impedance tube amplifiers, and that appears to be the case here. Regarding the interaction between the 160 and CG’s preferred Spica Angelus, its highish output impedance results in a variation of ±0.6dB (triode) and ±1dB (pentode) across the audio band (fig.4).

The actual output powers at the 3% THD point for S/N ‘306 into 8 and 4 ohms were 130W (21.1dBW) and 100W (17.2dBW), pentode mode, and 95W (19.8dBW) and 105W (17.2dBW), triode mode. The 2-ohm power was restricted by the higher intrinsic distortion—just 31W (8.9dBW) being available in triode mode for 3% THD. Surprisingly, however, the amplifier would drive the 2 ohm load without fuses popping. Nevertheless, the Compact 160 shouldn’t be asked to drive speakers that drop much below 8 ohms, in my opinion.

S/N ‘305 offered higher levels of distortion than ‘306, which meant that its maximum output power was less promising: again into 8, 4, and 2 ohm loads, the pentode mode gave 127W (21dBW), 50W (14dBW), and 11.5W (4.6dBW); the triode mode gave 95W (19.8dBW), 72W (15.6dBW), and 17.5W (6.4dBW), respectively. This amplifier’s output bias was set a little lower than ‘306, at an average of 25mA triode/27mA pentode compared with 29mA/30.2mA, which might—I say might—correspond with the higher THD. If so, this would suggest that both the 160 and perhaps the KT90 tubes are more sensitive than usual to slight changes in bias.

VTL says in The Vacuum Tube Logic Book that...

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7 I note with interest recent articles in The Absolute Sound and Stereo Review implying that this response-modifying interaction between the loudspeaker and the amplifier’s output impedance has hitherto been overlooked. Overlooked it may have been in those two publications, but I remember discussing it in Hi-Fi News & Record Review more than 10 years ago, and it has been examined regularly in individual Stereophile reviews. My January 1991 report on the Avalon Eclipse loudspeaker, for example, went into the subject in some detail. One point should be noted regarding E. Brad Meyer’s article on this subject in the June ’91 Stereo Review: where he implied that all audible amplifier differences are due to this effect. If this is even partly true, why then did Stereo Review’s early-1987 blind listening tests produce a null result? One amplifier in that test, the NYU UTL, had a much higher output impedance than the others, so the fact that it didn’t identify suggests that the entire test procedure and conditions were not conducive to good aural discrimination. I don’t know why I should be surprised by this, however. People in general tend not to find what they are not looking for. —JA

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the bias current can be increased to double and triple the factory-set figure, meaning that the amplifier's output stage operates nearer to class-A, but they warn that this increase is "to no sonic benefit" and do not recommend it. Nevertheless, it might be worth asking your VTL dealer to up the 160's bias current a little in order to squeeze as much headroom out of the amplifier as is possible.

I next looked at the way in which the 160's distortion changed with frequency at a nominal 2.83V output level into 8, 4, and 2 ohms. Fig. 5 shows the results in pentode mode, fig 6 those in triode mode. Note again that one amplifier (305) offered higher levels than the other, which was respectably well-behaved across the audio band into 8 and 4 ohm loads. At low levels into 8 ohms, the distortion appeared to be mainly the innocuous second harmonic, as shown by fig 7, the lower trace of which shows the distortion and noise waveform with the fundamental notched out. The presence of second harmonic is surprising in a push-pull design, suggesting that the push

**Fig. 1** VTL 160 S/N 305, triode mode. Distortion vs output power into 8 ohms (bottom), 4 ohms (middle), and 2 ohms (top)

**Fig. 2** VTL 160 S/N 305, pentode mode. Distortion vs output power into 8 ohms (bottom) and 4 ohms (top)

**Fig. 3** Spica Angelus, modulus of impedance (2 ohms/vertical div.)

**Fig. 4** VTL 160. Effect of output impedance on response of Spica Angelus loudspeaker; pentode mode (dashed), triode mode (solid) (2dB/vertical div.)

**Fig. 5** VTL 160. Pentode mode. THD+Noise vs frequency at 1W into 8 ohms, 2W into 4 ohms, and 4W into 2 ohms (S/N 305 dashed)

**Fig. 6** VTL 160, triode mode, THD+Noise vs frequency at 1W into 8 ohms, 2W into 4 ohms, and 4W into 2 ohms (S/N 305 dashed)
and pull sides of the output stage are a little out of balance. Into lower impedances, higher even and odd harmonics appear, as can be seen by fig.8 (pentode and triode modes were almost identical in their behavior here) and fig.9, the latter showing regularly decreasing levels of low-order harmonics imposed on a 50Hz fundamental at a reasonably high output power into 4 ohms, this typical of a classic tube design.

These distortion measurements suggest that while the VTL offers higher levels of distortion than a solid-state design at output powers of more than 30W or so, particularly into low-impedance loads, it does so relatively gracefully, the result being mainly the production of musically natural low-order harmonics. Levels of intermodulation distortion were a little higher than I would have liked to see, however. Fig.10 shows the audio-band spectrum of spurious produced when the amplifier—in this case, the worse-measuring '305—was asked to
drive a 1:1 mix of 19 and 20kHz tones at a level equivalent to 40W into 4 ohms in pentode mode. The 1kHz difference product appears at -40dB, 1%, as do the second-order 18kHz and 20kHz products. Again, this probably correlates with the Compact 160's somewhat limited power delivery compared with what one might expect from an amplifier labeled "160."

I found the small-signal frequency response surprising in that it differed in the two modes, as can be seen from fig.11. While the amplifier was respectfully flat across the audio band in triode mode (note also the excellent low-frequency extension), dropping to -3dB around 55kHz, a 2-3dB ultrasonic peak appeared in pentode mode just above 60kHz, suggesting an intrinsic, if damped, instability at this frequency. This can be seen in the manner in which the 160s handled squarewaves. Fig.12 shows a low-level 10kHz squarewave as reproduced by the amp in pentode mode; note the ringing on the leading edges. Though this is much better damped in triode mode (fig.13), there is still a degree of leading-edge overshoot present.

The VTL 160's measured performance is typically tube: high output impedance, relatively graceful overload, with the production of musically natural harmonics as the output voltage and current increase, with the dynamic limit probably set by the production of audible intermodulation products rather than by the hard clip point. It also seems to be both better behaved and better able to drive awkward speaker loads in triode mode. But to a larger extent than even other tube amplifiers, the Compact 160's overall behavior will depend on the loudspeaker with which it is to be used. Auditioning with the purchaser's own speakers is therefore essential. —John Atkinson

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**ACOUSTAT SPECTRA 1100 LOUDSPEAKER**

Guy Lemcoe

Two-way loudspeaker with 8" dynamic woofer in a sealed cabinet, and 48" electrostatic midrange/tweeter. Crossover frequency: 250Hz. Frequency response: 30Hz–19kHz, ±3dB. Minimum recommended power: 75W. Impedance: 6 ohms nominal, 2 ohms minimum. Sensitivity: 88dB (400Hz, 1W into 8 ohms equivalent at 1m). Dimensions: 67.5" H by 16" W by 16.75" D. Weight: unspecified, but estimated 65–75 lbs each. Prices: $1599/pair, $1699/pair in charcoal or light-gray sock & black oak base. Approximate number of dealers: 100. Serial numbers tested: 36100061 Right, 36100062 Left. Manufacturer: Acoustat, Rockford Corporation, 613 South Rockford Drive, Tempe, AZ 85281. Tel: (602) 967-3565. Fax: (602) 967-3058.

Acoustat Model Twos have been my reference loudspeakers for almost five years. I remember, on first hearing them in a high-end store in Illinois, how they let the music through in a way new and important to me. I knew I must own them! They seemed, despite their imposing appearance, to step aside when the music came on. The effect was akin to having a door opened onto the performance. One became privy to intimate details captured in recordings which are rarely heard outside the concert hall. Not veil, but flannel sheets were lifted from the sound! If one fused around enough with placement, the Twos truly disappeared into the soundfield—music came from in front of, to the sides of, between, and behind them as if they weren't there. Focusing them like a fine camera lens on the listening chair created a "sweet spot" which, when I sat therein, raised within me a sense of awe usually associated with things magical. You know when you entered this space, for it was different from that surrounding it. The musical presentation assumed an almost holographic palpability.

The magic had its price, though. Standing up eliminated the highs. Turning my head collapsed the soundstage. I was forced to sit immobile, facing straight ahead, lest the sensation disappear. I became a selfish listener with these speakers, requiring severe prodding or intimidation to give up the sweet spot. These were not the speakers of choice for critical group listening, or late-night cuddling with a loved one. Nevertheless, they were excellent conduits for the passage of information to this music lover, and still serve, without fuss, as fine reviewer's tools.

Those who value a carefully assembled hi-fi
system for the degree of musical involvement it provides will be glad to know Acoustat is alive and well and still making loudspeakers (their electrostatic panels still carry an unprecedented lifetime warranty). James C. Strickland, Acoustat's chief engineer for the past 20 years and the man responsible for development of the new Spectra series of hybrid and full-range models, and Andy Szabo, Director of Engineering (also an avid model railroader) beamed with pride at the Spectras displayed in Acoustat's hospitality suite in Las Vegas last January. Tom Norton's glowing Vol 15 No. 2 review of the Spectra 11s was a year old and arrangements were being made to have the 1100s, sitting mute in a room somewhere in Stereophile's office compound, brought to my apartment for audition.

The thought of living with another pair of heavy speakers about the same height as myself (setting them up, you literally waltz across the floor with them, as you would a woman in a dance hall) was a bit scary considering the modest size of my living quarters, but I bravely accepted the assignment. I wanted to hear these babies. Would these hybrids be an improvement over my beloved Model Twos? Would I hear a lack of integration between the dynamic woofer and the electrostatic panel (as I do with the hybrid Martin-Logan Sequel 11s)? Would I experience true bass response (which I do not with the Sequels or my Model Twos)? Would they be as persnickety regarding room and head placement? Would they, above all else, provide me the same degree of involvement in the music, and for the same amount of time, as I was accustomed to? The questions poured forth as voluminously as hail falls in our brief Southwestern summer thunderstorms as I helped Danny Sandoval carry the 1100s, casket-like, up the stairs to my apartment.

**Description & Listening Conditions**

I see little need to repeat Tom Norton's detailed account of the history and principles of electrostatic loudspeakers in his review of the Spectra 11s (February 1990), or Dick Olsher's review of the Spectra 22s (October 1989). For those readers interested in such details, I refer you to those articles.

The Spectra 1100s share the same "hybrid" design as the less expensive 11s: re; they combine an 8" acoustically suspended woofer with
a single, variable-width electrostat. They differ from the 11s in that the bass driver (sourced in-house) uses a stiffer, higher-quality felted cone material with an improved butyl rubber surround. The magnet is also larger, weighing 23oz compared with the 11's 14.4oz. Different woofer-enclosure material (medium-density fiberboard on the 1100s compared to particleboard on the 11s) is said to contribute to their improved bass performance.

Other differences include a three-position, high-frequency contour switch (located on the back of the interface chassis) to adjust the speaker's top-octave response. With this switch in the "high" position, response is down 3dB at 19kHz. The other settings each cause an attenuation of about 2dB at that same frequency. There is no "correct" setting, as each listener will have his/her own preference. For most of my listening evaluation, I left the switch in the medium position. I found the "high" position gave a livelier sound to some recordings, especially if they had a tendency to sound held back. The "low" position relaxed the sound a bit (a quality which benefited many pop recordings).

Whereas the Spectra 11s had a single pair of 5-way binding posts, thus precluding bi-wiring or bi-amping, the Spectra 1100s have two sets of 5-ways, facilitating such configurations. I didn't particularly like the posts being recessed as they were, though. My fingers, which some have said resemble bananas, had difficulty maneuvering especially stiff and bulky speaker cable, such as TARA Labs' Temporal Continuum, onto the posts. Things can get really crowded back there when you bi-wire/bi-amp.

Removable spiked feet are provided to couple the speakers firmly to the floor. Do not attempt to move these speakers around with the spikes attached! Not only will you stand a good chance of destroying your carpet, you might bend or pull out the fittings the spikes screw into. Position the speakers, then attach the spikes and level 'em up. Incidentally, I ended up using the spikes supplied with the Spica Angeluses instead of those included with the Acoustats. The Spica spikes were longer and heavier, giving the speakers a solid coupling to the floor, despite my 1½"-thick carpet and pad. Unlike my Model Twos, which sound best tilted back slightly, the Spectras should stand straight up.

Other differences between the 11s and 1100s are largely cosmetic, including hand-rubbed, solid wood accent trim with a brass inlay surrounding the electrostatic array. Choices of dark oak or high-gloss painted black wood veneers, beige, black, or silvery-grey grille cloths, are also available. My pair of 1100s looked quite attractive in dark oak veneer and trim. The beige grille cloth made the speakers less imposing in my off-white room. Finally, the 1100s are 1" wider and 4.5" shorter than the 11s. The woofer box is 2" deeper.

My system remains basically unchanged from that described in my review of the Ensemble B-50 Tiger in the May 1991 issue (Vol.14 No.5). The manifold in the ET arm has been replaced with one specially designed to complement the higher pressure of the Wisa air pump. A Monster Genesis 2000 cartridge has replaced the 1000. Navcom "pucks" have replaced the springs in the VPI. These upgrades and changes to my analog front end have noticeably improved its ability to provide authoritative and captivating sound. When I play CDs (and I must honestly say that as I continue to improve my analog source, I play them less often for enjoyment), I use the CAL Terce MK.III. TARA Labs' Temporal Continuum interconnect carries the signal from phono and CD to either the Ensemble B-50 integrated amp or the Counterpoint SA-5000 preamp. I discovered the Spectras were quite sensitive to the amplification source, so I tried several power amps in addition to the Ensemble B-50. They included Quicksilver monoblocks, a pair of Rowland Model Ones (bridged and bi-wired), and a Muse Model One Hundred (bi-wired). AudioQuest Lapis Hyperlitz carries the preamp signal to the amps.

Several brands of speaker cable were used in the course of this review, including Ensemble Hotline, TARA Labs' Temporal Continuum and Space & Time, Linn, and 4AG Kimber. Such was the revealing nature of these speakers that the selection of cable for use with them became a sort of mini-review. They "liked" certain cable better than others; I ended up using the Linn cable with the Ensemble B-50 and Kimber 4AG with the component amps. The speakers were placed just over 3' from the rear wall and 18" from the side walls. My listening seat was 8½' from the speakers, which were toed-in slightly, a little more than was the case with the Model Twos. I was pleased to discover that the "window" for the sweet spot was not as narrow.
with the 1100s as with the Model Twos; I was able to listen without remaining cataleptic.

Several of the new, flat Room Tunes were arranged around the room, with Echo Tunes placed at intervals along the wall (at ceiling height) and Corner Tunes placed, spider-web fashion, in the room's upper corners. At one point in my preparations, it looked like the Spectras had given birth to sextuplets. The use of these products helped measurably in controlling slap-echo and standing waves. They also enhanced the dimensionality, especially front-to-back layering, of the performance soundstage. Once the speakers are plugged in, a break-in period of at least 20 hours is recommended by Acoustat. I concur, but would recommend serious listening be postponed until at least the 50-hour mark has passed. You'll notice more efficiency, better dynamics, and increased dimensionality after this break-in period.

Listening impressions

This section could be titled "A Speaker in Search of an Amp." I discovered, during the time I spent with the Spectras, that they were quite "picky" regarding the choice of amp. To me this is not a bad thing, as I've found that the better a component is, the more sensitive it is to ancillary equipment. Part of the thrill of the high end is discovering that combination of components which enables a system to truly "sing" in a musical way. Careful system matching is a must with gear at this level.

It didn't take too long to realize that low-powered amplifiers were not complimentary to the Acousats, the speakers' low-end response and dynamic capabilities suffering when not fed properly. For example, my initial listening was with Quicksilver monoblocks placed between the Spectras, sitting on custom-made bases from Paul Amato.1 With the Quicksivers powered up, I fed the Tercet a recent CD purchase, Kodály's Sonata for Solo Cello, Op.8, performed by the Spanish virtuoso Luis Claret (Harmonia Mundi HMC 901325).2 Upon hearing the first notes, I realized what it was that compelled me to cling to the Quicksilver/Acoustat partnership for so long. These amps where made to reproduce cello! And that instrument sounded oh-so-good on the Spectras. The slight thinness I heard in the solid-state amps disappeared, replaced by an overwhelmingly liquid, rich, euphonic sound. The cello's timbre was captured beautifully, the instrument singing sweetly in the upper registers and "growling" appropriately in the lower ones. Fine details of the performance were retrieved effortlessly and were well integrated into the presentation. There was an excellent sense of "air" surrounding the soloist, his image slightly recessed but well focused between the speakers. My listening notes say, "This would be hard to beat. As convincing and involving as I've heard." I felt a sense of déjà vu. These speakers sounded like my Model Twos but with a bit more finesse.

Next up was 'Abide with Me/Blue Monk' from Richard Stoltzman's soothing album, Begin Sweet World (RCA RCD1-7124). Eddie Gomez's bass is well recorded here; it should sound dynamic and authoritative. You should get a good feel for the size of the instrument and its ability to move large amounts of air, especially when Gomez begins to dig in. This cut made me realize the Spectras needed something else in the way of power. The Quicksivers simply did not convey the heft of the string bass convincingly through the Spectras. To confirm my impressions of a mismatch between speaker and amp, I reached for John Hiatt's Slow Turning LP (A&M SP 5206). At 1:30 into the song "Icy Blue Heart," drummer Ken Blevins gives his bass drum a good whack. This musical exclamation mark should sit you straight up in your chair as you look around for a subwoofer. Its impact should briefly dominate the left side of the soundstage with a presence felt as well as heard. The Quicksilver/Spectra duo produced a "thunk" instead of a "wallop." "Not acceptable," said I as I began to disconnect the amps.

Daunted by the prospect of losing the Quick-

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1 I was sent a pair of bases for the Quicksivers by Paul Amato of Dayton, NV, just outside of Carson City. Paul is a hi-fi buff and music lover who does woodworking when not attending to his Pakistani business. He builds isolation bases for Cary Audio Design amplifiers (seen in Las Vegas this past Winter) and other products on a custom-order basis. The bases he sent me are finished in solid oak and look great under the Quicksivers. The amp, with the rubber feet removed, sits in a frame suspended from a floor-spliced subbase made of alder (a material which Paul says is acoustically "dead"). Such isolation provides a firm coupling of the amp to the floor (or whatever else they're placed on). With my Quicksivers nestled in, I noticed an immediate improvement in bass performance. Pitch definition was better, woofly low bass was "sheared," and extension seemed deeper. Soundstaging benefited also, with better focus on instruments and voices and a perceptible increase in width, height, and depth. Music took on a more three-dimensional aspect. I highly recommend these bases for Quick- 

2 I've sought, for years, a performance of this work which approaches Janos Stark's 1958 recording (Angel 15627), now almost impossible to find at any price. I finally have.
silvers’ midrange liquidity and overall ease of listening, I reached into my amp stable for my current reference, the Ensemble B-50. As expected, the Ensemble improved the general character of the sound. Bass was tighter, with more body and authority. The mids remained liquid, with a bit more “there” there, and the highs sparkled. Detail retrieval was excellent and well integrated into the soundscape. The soundstage widened and depth extended well beyond my rear wall.

But I still felt I was not getting the full measure of these speakers. Music sounded good, real good, and I was becoming involved in the performances, but I sensed something missing. I felt it was time to pull out the big guns and began setting up the Rowlands. It may seem ludicrous to audition $1599 speakers with $6000 worth of amplification, but I felt I should feed the Spectras the best signal I could.

The Spectras were pleased at this change in diet. The difference was not subtle; I knew at last I was headed in the right direction. Have you ever walked down a hotel hallway and heard music coming from someplace up ahead? A lounge, perhaps? Approaching the source of the music, you identify a piano, bass, and drums, yet from your perspective the sound is homogenized and more reminiscent of organized noise. As you continue walking, you pass an entrance to a lounge and, at precisely that moment, you suddenly become awash in sound. You’ve found the source and it’s real! The music now has a presence and integrity that you didn’t hear as you approached it. If you walk on, the effect passes, but if you linger a while it might lure you in.

The Rowlands had this effect on me; I was lured into the music to a degree I hadn’t expected. The industrial noises at the beginning of “Mrs. Soffel,” from Mark Isham’s magnificent Film Music (WH-1041), immediately set the tone for what was to follow. A wall of sound appeared in my room, seemingly detached from the loudspeakers. Depth extended well beyond the rear wall, the far corners of the soundstage well delineated. Lyle Mays’s piano floated above the string orchestra on its own cushion of air, within a different ambient field. The Acoustics were quite revealing in exposing the fact that this was a studio recording. The soundstage was created, as an artist would a painting, on an electronic “canvas” by the engineer and producer. The effect is stunning, and unlike anything you would hear in the concert hall. The music here is a study in texture, a quality the Spectras convey magnificently. The sound was seamless, from the sustained notes of the double basses to the upper registers of the solo piano. When Isham’s penny-whistle enters, it’s captured with an ease and freedom from grain which relaxed every muscle in my body. On my Twos, I sometimes tensed up in anticipation of this passage. The 1100s were exceptional in their ability to capture the distinct timbres of the cellos and basses while maintaining the totally different sound of the piano and whistle. The end of the piece places the high whistle over synth-bass ostinato. The low bass here positively throbbed on the Spectras. The pulse of the note was well defined and could be felt in my listening room, where I was not used to hearing bass of this quality or intensity. The midrange was not slighted, either. It was positively “romantic” on this piece of music. (I attribute this in large part to the Rowlands which, in certain systems, sound more tubelike than many tubed amps I’ve heard.)

Good electrostatic loudspeakers are known for their midrange warmth, definition, and speed. The Spectras continue this tradition, chamber music being especially enjoyable. As I fed more CDs to the Tercet and clamped LP after LP onto the VPI, I was continually impressed with the sounds coming from the far end of my room. The sound was not “spectacular” in any way (which might disappoint some listeners who turn to hi-fi for aural Rolfing). Instead, the listener is “massaged” gently but firmly, relaxed and soothed. While listening, I felt compelled to give in to the music, accepting it, letting its message through.

The rhythm of music is conveyed well on the Spectras. The bass particularly did not lag behind the beat. Music was articulated extremely well, making it easy to follow the “tune.” Voice was reproduced with uncanny presence on the Spectras. Lou Reed and John Cale, for example, on Songs For Drella (Sire/Warner Bros. 26140-1), were in the room with me on “Open House” and “Style It Takes.” Their voices were rich and dimensional, with no sense of nasality or hollowness. The lyrics, easily understood (no smearing here), emanated from the mouths of flesh-and-blood humans. Chet Baker’s voice (a difficult instrument to capture well, especially when miked as closely as this), on Let’s Get Lost (Novus/RCA 3054-2-N), lost the col-

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orations I've heard on lesser speakers. The poignant nature of his voice was achingly conveyed. The Spectras passed the "Chet Test" with flying colors.

But are six grands' worth of amplifier necessary to make these speakers perform? I don't think so. Enter the Muse Model One Hundred. You read about this amp in Corey Greenberg's review in April (Vol. 14 No. 4). After living with this amp for a while, I concur 100% with Corey's assessment. I think it's an exceptional amp for the money, and its compatibility with the Acoustats gives new meaning to the word "symbiotic." No surprise, since I understand the Muse goes through final subjective listening tests driving electrostatic loudspeakers. I felt perfectly comfortable with the sound I heard from the hi-wired Spectras. Soundstaging was glorious, with instruments well placed on the stage.

Outlines of performers were brought into sharp focus, separation between them well preserved even when the going got tough—ie, densely orchestrated. I felt no deprivation at the frequency extremes, low bass, in particular, knocking my socks off on certain music on those occasions I felt I needed a "jolt." In fact, I felt the Muse upstaged the Rowlands in this area. The combination of the Muse and the Spectra 1100s seemed to be a marriage made in heaven. They presented a finely detailed, involving recreation of a musical event. If the duo lacked anything, it was that last degree of finesse I heard with the Rowlands, which made the presentation slightly less "polite." It was nonetheless pleasing, providing me with some of the best sound I've heard in my room.

Conclusion

I spent a long time with these speakers, for as soon as I heard them (even as they were breaking in), I knew I liked them. They reminded me of my Model Twos, speakers which are as comfortable as two-year-old Rockports. The Spectra 1100s, in addition to their seductive sound (euphoric without being bland) and "reach out and touch me" palpability of image, reinstated true low bass into my consciousness. What the Model Twos always lacked, in my opinion, was authoritative bass—bass which you felt and sensed was rearranging the air molecules in your room. The kind of visceral bass which kicks in 30 seconds into Front Line Assembly's "Provision" (WAXCDS 9145), for example. The Spectras captured the low bass and hung onto it with the assurance of Vise-Grips. To say I was impressed is an understatement. I felt as if, at last, I could have my cake and eat it too!

As my listening sessions continued, I came to realize the 1100s did not possess that final degree of transparency I heard with the Model Twos. At first this was disturbing, but the more I listened, the less important this difference seemed. Once I adapted to the sound of the Spectras, I became (and remained) unaware of their relative weakness in this area. What the Spectras get right—and only a handful of speakers I've heard do—is recreate a performance of music in a plausible space with proper rendering of width, height, and depth. On the 1100s, recording venues assumed personalities which only the deaf would not appreciate. Differences in recording techniques became obvious, even when those techniques varied within a song. (As often happens in today's popular music, where tunes are assembled in editing suites from many often disparate sources. An excellent example of this is found on Daniel Lanois' stunning Acadie, Opal/Warner Bros. 9 25969-1, reviewed in Vol. 13 No. 1.)

A speaker must have more than good bass and soundstaging ability to be taken seriously in the high-end arena, though. It must create the illusion in the listener that he/she is experiencing a real event. Music's texture, however varied, must be captured so that emotions are aroused and imagination stimulated. The rhythm of music, however subtle, must be felt to affirm its vital, organic nature. Music's dynamics, however complex, must be articulated to awaken and stir the soul. If a loudspeaker fails to communicate these qualities (described by others in many different ways), it has lessened its capacity to involve the listener and diminished its attractiveness to the high-end community. The Spectras also get the various instrumental timbres right. The "sparkle" of the treble keys on well-recorded piano, the "growl" of bowed string bass or cello, are captured magnificently. The various personalities of instruments were etched into my consciousness with a precision which caused me to write down statements such as "Yeah! That really sounds like a violin." or "Yeah! That really sounds like a trumpet."

I'm happy to report that, to my ears, the Acoustat Spectra 1100s are very attractive loudspeakers and deserve to receive a warm wel-
come among music lovers. Yes, they have their faults (as do all things human-made), but their overwhelming musicality more than compensates. Tom Norton referred to the Spectra 11s as being 'one of the most unfailingly 'musical' loudspeakers [he had had in his] listening room.' Well, Tom, wait 'til you have a listen to the Spectra 1100s! With carefully chosen electronics and speaker cable, I would place the Acoustat Spectra 1100s in Class B of 'Recommended Components.' By ignoring the sensitivity of these speakers to sloppy setup and indiscriminate selection of power amp and cable, the Class B recommendation will most surely be compromised. These speakers require care and nurturing if they are to sing. But if they receive both, the result will be heard clearly in the listener's ears.

JA adds a batcha measurements

The measured sensitivity (for an octave-wide band centered at 1kHz) was on the low side, being some 6dB below the Snell Type K dynamic speaker at 84dB/W/m. Impedance-wise (Fig 1), the Spectra 1100 offers no surprises. The sealed-box woofer is tuned to a low 27Hz, while the twin curves in the treble show the effect of the changing the HF contour switch from 'Low' to 'High,' the latter dropping the impedance to an amplifier-punishing 1.1 ohms at 20kHz. The upper bass impedance minimum is a still-demanding 3.6 ohms at 200Hz. Coupled with the low sensitivity, this implies that Spectra 1100 owners should avoid wimpy solid-state receivers, classy tube amplifiers, and the like. (Yes, I know GI tried Quicksilver monos, but a) he isn't a party animal like me, and b) the Quicksilver's output transformer can source a bit of current)

Fig. 2 shows the speaker's impulse response at 1m on an axis midway up the ESL panel. This shows a degree of treble ringing, but is otherwise clean. Looking at the individual impulse responses of the panel and woofer (not shown) reveals that the latter is connected in inverse polarity, implying a second-order crossover. Fig. 3 confirms this by showing the 12dB/octave rolloff slopes featured by the quasi-anechoic response of the ESL panel at 1m and the nearfield response of the woofer (this measured with the microphone capsule almost touching the drive-unit's dustcap). The matching of the two curves in Fig. 3 can only be approximate; they suggest, however, a crossover point of 300Hz or so.

Note the generally smooth, flat nature of the mids and highs, broken only by a suggestion of raggedness in the presence region and a
slight degree of boost in the bottom half of the top octave. The extreme top also rolls off a little early. (This measurement was taken with the HF Contour switch set at its “Medium” position.) Fig. 4 shows the effect of the Contour switch in its extreme positions (±3dB at 20kHz), normalized to its Medium effect (ignore the comb-filter effects in the lower trace, which are due to a measurement anomaly). The “High” position gives the flattest measured top octave, but whether that is subjectively desirable will depend on the ancillary components, the size of the listening room, and the degree of the room’s acoustic treatment.

Measured in my listening room, the Acoustats gave a somewhat less flat response (fig. 5) than I had anticipated from fig. 3. In particular, the woofer region is elevated by 6dB or so compared with the general level of the panel, while this panel’s overall smooth response is broken by a degree of presence-region boost and an early top-octave rolloff. (Again, this measurement was made with the Contour control set to “Medium.”) I suspect that what’s happening here is that in my relatively small room (approximately 21’ by 16’), the omnidirectional woofer better matches the room than the bidirectional ESL panel. In a larger room, the outputs of the two drivers would integrate better. (I remember Rockford’s listening room at their Tempe, AZ facility being about three times the size of mine.) Subjectively, this probably contributes to GL’s positive feelings about the Spectra 1100’s low frequencies; what is not shown in fig. 5 is the fact that the bass quality is excellent, with no trace of boom.

Interestingly, I didn’t always hear the presence-region boost as added brightness, though it was distinctly audible with pink noise. Instead, the main effect was that the midrange seemed laid-back compared with the bass and low treble, which would aid the excellent sense of depth that GL noted with these speakers. The

![Fig.5](image)

**Fig.5** Acoustat Spectra 1100, spatially averaged, 1/3-octave in-room response (HF Contour set to “Medium”)
depessed top octave with the Contour control set to Medium was audible, however, leading to a definite lack of air to the 1100's sound. The "High" Contour setting alleviated this to some extent, but I suspect that the 1100's panel has limited horizontal dispersion which, in a relatively dead room like mine, will exaggerate the problem. This is confirmed by fig.6, which shows the manner in which the speaker's output falls off 7.5°, 15°, and 30° to the outside edge of the panel's midpoint, these responses again normalized to the central response (which therefore appears as a straight line). Note that the hinge point—where the response starts to become increasingly directional with frequency—appears to be between 2 and 3kHz. The maximally wide dispersion in this frequency region probably explains why the in-room balance (fig.5) has an excess of energy here. Again, as with the 1100's bass, the exact treble balance will be very dependent on the listening room's size and acoustics.

Finally, the "waterfall" plot (fig.7) shows how the 1100's frequency response decays with time. (This graph should ideally reproduce as an elevated straight line at time zero, looming above a flat sea of lines at -24dB.) A number of ridges associated with resonances can be seen starting about 12db down from the initial level. (Ignore the ridge at 16kHz, which is due to the system's computer monitor.) The cursor is positioned at a particularly strong mode at 2750Hz; though others are present, these didn't appear to be particularly objectionable subjectively. Perhaps they just contribute to the generally live-sounding nature of the speaker's mid-treble.

Not emphasized by GL is the fact that these speakers are no wimpy audiophile electrostats: they kick butt! After I'd finished measuring the review pair in my room, I put on some Stevie Winwood for light relief, the Acoustats being driven by the Goldmund Mimesis 8 that I'm currently reviewing. The 1100's bass may be exaggerated in level, but it's tight as a nut and it goes low—this from an 8" woofer! (It is not irrelevant that the Spectra 1100's design places the woofer in close proximity to the floor, where it will be given a helping hand by boundary coupling.) Coupled with the generally clean nature of the speaker's mids, this tempted me to wind up the level—and I did. Ultimately, I had the amp well into clip—it was giving out a measured 34V RMS, equivalent to some 195W into the Spectra's 6 ohm impedance—on "Valerie," with an unweighted spl at the measured position of 108dB, but apart from some low-frequency fuzz and some obviously clipping-related treble congestion, the music communicated most effectively—although doesn't it seem telling that there is no synth equivalent of the air guitar? (Dropping the spl to 104dB eliminated the nasties, leaving the sound loud and clean.) "I'm the same boy I used to be!" But the smell of burning shellac coming from the speakers' crossover boxes suggested that those wanting to do some serious partying with the Acoustats should probably invest in a bigger amplifier than the nominally 125Wpc Goldmund.

—John Atkinson

**CANNED MUSIC 3**

Bill Sommerwerck reviews headphones from JVC, Koss, Nakamichi, Pickering, Signet, Stanton, and Sony

In March, I reviewed headphones from AKG, Beyerdynamic, Denon, and Stax, while in July I auditioned a pair of cordless cans from Beyerdynamic. As the introduction to the March review contained all the details of the test set-up and records used to audition the headphones, readers should refer to it for the background before embarking on this concluding part of my headphone odyssey.

**JVC HA-D990 Digital Reference:**

$150

One is inclined to cast a cynical eye at products labeled "Professional" or "Digital Reference." If the product is good, its quality should speak for itself, without hyperbole.

So the JVC HA-D990 isn't any good, right? Wrong. It's extremely good—good enough to get a recommendation at the bottom of Class C.

The HA-D990's colorations err roughly in the opposite direction of the other headphones in
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JVC HA-D990 Digital Reference headphones

this category. Brass instruments tend toward brightness, without actually becoming hard. Sibilants are slightly exaggerated and strings sometimes a bit rough. The piano in the DG Berman/Giulini Liszt Piano Concertos recording sounded a bit brash and wiry (arguably appropriate for Liszt!).

Although this error would normally be a mild liability, it actually enhanced the other good qualities of these 'phones. Their sound is beautifully clear and transparent (especially when compared with other dynamic models) and never becomes "etched" or clinically analytical. (The HA-D990 was one of the few 'phones to clearly reveal the musicians moving around on the Bainbridge Rachmaninoff cello disc.) One is constantly aware of a tremendous sense of openness and space, without it ever detracting from the music. Soldat displayed an especially strong sense of the room in which the recording was made.

The HA-D990 does not lack warmth or bass impact, though. My notes indicate that the opening drum of Star Trek produced a noteworthy thud. They also say I found "The Entry of the Gods into Valhalla" "fun, thrilling."

Some listeners will find the HA-D990 especially appealing because it is both circumaural and closed-backed. (The Beyerdynamic 990s are open-backed.) Although the HA-D990 does not seal tightly to the head, its isolation was nevertheless quite good. It is unusually light and comfortable for fully sealed headphones. It is also unusual in lacking the midrange and midbass colorations that afflict so many other closed-back headphones. The HA-D990 strikes me as an exceptionally good choice for monitoring live recordings.

The HA-D990 was one of the most difficult headphones in this group to audition, because I constantly found myself wanting to enjoy the music, rather than analyze the sound. What else can I say? Highly recommended.

Eyeglass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance.

Koss PRO/450: $175

It doesn't take a lengthy examination to see why Koss is willing to guarantee the PRO/450 for life.1 The metal part of the headband is an aluminum stamping almost 3mm thick! The band is actually screwed to the earcups. The PRO/450 won't survive a direct explosion, but it will almost surely survive Rover.

The PRO/450 is the only model in this review with interchangeable cabling. You can select a coiled or straight cord, both of which are supplied. The connector uses a simple friction fit, which is probably a good idea: if the cable is yanked hard, the connector will simply pull free, rather than the cable tearing off.

At first listen, I thought the PRO/450 might be a Recommended Component. The tonal balance was good, with only a slight tendency to hard brass and breathy sibilants. The sound, though, lacked openness. Ambience reproduction varied among recordings, but the PRO/450 tended to obscure the ambience. At the climaxes of Pictures, the sound was not as easy or effortless as it was with most other headphones. The two audiophile ringer recordings—L'Après-midi d'un Dinosaur, Hyperion CDH 88035, and the Bainbridge Rachmaninoff Cello Sonata—were not reproduced well, tending toward heavy and obscured bass. Only with

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1 Koss must be complimented on their lifetime warranty. It doesn't matter what happens to the headphone, or whose fault it was. They'll fix or replace it, free, as long as you own the headphone. The Koss ad demonstrates their warranty with a picture of Fido making a quick repast of a pair of Koss headphones (and they don't even have a leather headband!). Koss says the warranty applies "from now on," which vaguer suggests currently-owned headphones are also covered. However, it appears they aren't.

Second compliment—Koss clearly states "limited lifetime warranty." None of this "full lifetime limited warranty" crapola. "Good doggy, Koss!"

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the rather bright sound of Palestrina (DG 427 417-2) did the PRO/450's sound find a pleasing match.

The PRO/450 was one of only two headphones in this group that induced listening fatigue. It was simply not as clean as the other 'phones (including the other Koss models).

I'm afraid I didn't much like the earpads, either. I have to admit that I've never cared for the plastic ear cushions on Koss headphones. The vinyl is stiffer than the materials used on most other headphones; it doesn't conform readily to the ear or head. Nor is it porous; my ears start sweating about 10 minutes after putting on the 'phones. However, the cushions on the PRO/4 series (the PRO/450 is not a PRO/4 model) are big, and their large surface area tends to mitigate these problems. Other Koss models use a smaller cushion. The shape is such that it tends to "squoonch" rather than conform to your ear. I found the pads on all the Koss models reviewed here to be less than ideally comfortable. (This is, of course, a highly subjective reaction.)

The PRO/450s do not have enough assets to offset their liabilities; I would give them a long, hard listen before purchase. There are less expensive headphones that are more comfortable and sound better. I can't recommend these.

Eyeglass compatibility: Fair. Eyeglasses can be removed and replaced with somewhat higher-than-average resistance.

**Koss Pro 99: $100**

The Koss PRO 99 is similar in construction to the PRO/450, but is not as bulky. The upper headband is also metal (though not so thick) and is similarly attached to the earcups with screws. The earpads are smaller than those of the PRO/450, and though plastic, are more comfortable. However, I still had trouble finding a comfortable listening position for the pads.

As received, the headband appeared to be misaligned. The left earcup did not fit properly, causing a loss of bass and some anomalous midrange colorations. Though there was nothing visually wrong, the headphones felt wrong. I kept twisting the headband until the left channel fit and sounded the same as the right. (With a strong metal headband, you can imagine just how much twisting was needed! Kudos to Koss for such a sturdy product.)

The PRO 99 nearly made it into Class D of "Recommended Components." It was a touch bright and showed a trace of "honk," but neither of these failings ever seemed objectionable. Strings and winds occasionally sounded dark or "hooded," but again, these were not serious problems. Ambience retrieval was about average—not strongly displayed, but not suppressed, either. *Star Trek* had good bass impact, and the glass harmonica was plainly audible.

So what's the problem? The Koss PRO 75...
(reviewed just a bit further on) has all the good qualities of the PRO 99 (including the full-ear seal), yet it has less honk and is less spuriously bright. And it costs $25 less. Therefore I can't recommend the PRO 99.

Eyeglass compatibility: Fair. Eyeglasses can be removed and replaced with somewhat higher-than-average resistance.

**Koss TNT 88: $90**

The TNT 88 shares the same industrial-strength metal headband of the other Koss headphones reviewed here. A second "vinyl leather" band distributes the weight evenly across your head. And it's not much weight; the TNT 88 is one of the lightest headsets in this review.

The driver cups both tilt and pivot, which should make for an unusually comfortable fit. This advantage is partially vitiated by the earpads, however. They aren't quite large enough to fully surround your ears, nor small enough to lay evenly on the pinna. I had to adjust the headband and cups "just so" for a comfortable fit. Once I found the right position, though, the earcups remained comfortable, even after extended listening.

As with the Denon 'phones reviewed in March, the TNT 88 uses titanium drivers. Titanium has a high ratio of stiffness to weight, so one would expect good transient response and a minimum of mechanical coloration. Unfortunately, the TNT 88 does not deliver on these expectations.

The Equale Brass (Bacchanales, Nimbus NI 5004) were decidedly "quacky." The Ella Fitzgerald recording (*The Irving Berlin Songbook*, Verve 829 531-2) was slightly nasal, hollow, and bright. Background noise in *Dinosaur* took on a noticeably boxy quality, and the piano tone was hard—though the recording did show good balance and detail. Tape hiss in the Solti *Das Rheingold* was exaggerated, and strings sounded boxy and honky.

The strings on the Liszt recording were hollow and lacked harmonic weight. *Pictures* revealed a "thin" upper-midrange, and lacked almost all the realism this recording is capable of. The Rachmaninoff cello recording was too "gutty"-sounding; the overall sound image was jumbled and confused. The *Tempest* revealed tinny brass and honky strings. The sound of *Palestrina* was colored, indifferent, and uninvolving.

In short, the TNT 88 is a highly colored, unnatural-sounding headphone. It would be difficult to recommend even if it cost substantially less.

Eyeglass compatibility: Fair. Eyeglasses can be removed and replaced with somewhat higher-than-average resistance.

**Koss Pro 75: $75**

Yet another entry in Koss's "even Godzilla couldn't break these" product line, the PRO 75 is a classic example of a product that has obvious imperfections but is nevertheless a pleasure to listen to.

The PRO 75 is cosmetically almost identical to the PRO 99, except it's black (rather than dark chocolate), with a stainless-steel (instead of black) headband. Its fit is almost identical to the 99's, which means that some listeners may not find it ideally comfortable.

Any description of its sound quality is mostly a catalog of negatives. Brass is honky and sometimes takes on a fine-grained rasp. Oboe is muffled, and the upper midrange is occasionally thin, edgy, and lacking harmonic texture. Ambience varies all over the place, from somewhat suppressed to obviously exaggerated. (However, the PRO 75 seems better than aver-

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2 Isn't it odd how the only two headphones with titanium drivers were also the only two with "quacky" brass? This is surprising, since titanium isn't particularly ductile (At. az. ar. Get it?)
age in displaying a recording's ambience.)

But I said mostly negatives. The problem is that this negative description doesn't really describe the PRO 75. It's really fun to listen to, despite these errors. As with several other 'phones in this review, I found myself getting caught up in the music. The sound is clean and induces no listening fatigue. The PRO 75 is actually better-sounding than the PRO 99, its nominal brand-mate. (See the PRO 99 review.)

The PRO 75 is recommended in Class D, especially if you want a light, sturdy headphone with good acoustical isolation. Since the PRO 75 has some mild colorations, and the earpads may not be comfortable for all listeners, it is especially important that you audition and wear them before purchase.

Eyeglass compatibility: Fair. Eyeglasses can be removed and replaced with somewhat higher-than-average resistance.

**Koss Pro/4 AAA Plus: $70**

In the late '60s and early '70s, one of the rites of passage for any young audiophile occurred the day he moved up from his first pair of cheap 'n cheesy headphones to a pair of Koss PRO/4s. The PRO/4 (with its distinctive screw post for a boom mike) was the first in the line. The current designation suggests that this is the fifth variation on the theme—a theme which has hardly varied in 25 years.

The PRO/4 seems to have been the first American headphone with drivers specifically designed for headphone use. (Previous headphones used transistor radio speakers or even dynamic microphone capsules!) The earpads were large vinyl pillows filled with silicone fluid. They conformed to your ears, at the price of occasionally evoking sweat. The fluid has been replaced with foam, and the new pads no longer resemble bagels. They are cup-shaped, rather like a moon crater, with steeply sloping sides. They fit much better (on my ears, at least). The PRO/4 AAA Plus is a comfortable, sturdy headphone.

The sound, however, is disappointing. It can best be described as somewhat heavy on the bottom end, combined with top-end dullness and hardness. The Equale Brass were bright and slightly nasal. Ella Fitzgerald's voice was a bit boxy, her backup brass brash. On this recording, transients generally sounded hard. The woman's voice on the first band of the Opus 3 *Depth of Image* disc lacked coherency and focus. The woodwinds in *Soldat* were honky and somewhat boxy.

The Liszt recording, which can sound startlingly lifelike on the best 'phones, was reduced to a dark, boxy murk. *Pictures* was similarly

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3 Ella sure comes up for her share of alliterate Bs, doesn't she?
dark, with honky horns. The Rachmaninoff cello recording was leaden-sounding and lacked definition. The Reference RecordingsTempest and the Nimbus "Scottish" symphony revealed nasal horns and woodwinds (respectively), along with a suppression of ambience in the latter, Ambisonic recording. Star Trek was just as bad, with a dull glass harmonica. Palestrina lacked any sense of excitement or involvement.

The PRO/4 AAA Plus is a comfortable, sturdy headphone with good isolation and attractive cosmetics. Its discounted price of around $40 is appealing, but its sound isn’t. If nostalgia for the "good old days" of American hi-fi tempts you to buy a pair, I urge caution and careful listening. I can’t recommend them.

Eyeglass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance.

**Nakamichi SP-7: $100**

One assumes anything from Nakamichi will be above-average. The SP-7 did not disappoint—especially considering the modest price.

My listening notes reveal a chronicle of the things the SP-7 does not do wrong. It isn’t unnaturally bright. It doesn’t exaggerate tape hiss. It isn’t dark or muffled; high-frequency detail is good. Strings, brass, and woodwinds are natural-sounding, without vowel colorations. Ambience is neither exaggerated nor suppressed, and it generally "relates" well to direct sounds.

The SP-7 has few weaknesses—and few strengths. It’s a good product because it does hardly anything wrong. Its errors are mostly subtractive—principally a "blanding" of the sound—which keeps it out of Class C. It is, however, at the top of Class D—arguably the best headphone in that group.

Although above-average in sound, the SP-7 is below average in fit. The earcups are fixed on the outer headband (they do not slide, and tip/pivot only slightly); you raise or lower the inner cloth band to adjust it to your head. Although other headphones (such as the Signet EP-700) are constructed the same way, the SP-7’s small earcups and light headband tension keep it from perching as stably as most other phones do. One the other hand, this lack of flexibility makes the SP-7 unusually easy to pick up and put on; they’re about as unfiddly as you can get.

Although the SP-7 does not match the sound quality of any Class C headphone (it’s too bland), it is one of those rare under-$100 headphones that is basically neutral and essentially honest. If you have no more than $100 to spend, you should give it serious consideration.

Eyeglass compatibility: Fair. Resistance is not high, but the eyeglass temples tend to displace the earcups (which don’t sit firmly on your ears).

**Pickering CD-5: $80**

The CD-5 looks as if were designed for the Jolly Green Giant. It’s big—big earcups, big earpads, wide (and springy) headband. The only thing small about it is the cord. It’s unusually short (even for a coiled cord), especially since the coiling suggests it was designed for household or studio equipment, not personal stereos.

The earcups are mounted in ball-and-socket joints that allow them to tip and swivel. The drivers are also unusual. About 2" across, they look like scaled-up versions of dynamic microphone capsules; sort of bagel-shaped, with ribbing added for stiffness. The headband exerts perhaps too much force (though it’s not uncomfortable, you’re very much aware you’re wear-
ing headphones), but the CD-5 does stay snugly in place, with no tendency to slip or slide.

The CD-5 is a classic example of why you must audition headphones with a wide variety of program material. It's a highly colored headphone, yet Das Rheingold (a classic analog recording) hardly revealed the colorations.

Alas, the other recordings did. The Equale Brass was honky and dark. Ella Fitzgerald's voice was furry. My notes for Dinosaur say "Horribly hollow. Yuck!" The notes for the rest of the recordings are a litany of bad sound: "Dark; hollow; colored; hooded strings; muffled violins; nasal brass; bass-heavy mess." (The last comment is for the Rachmaninoff cello recording.) Star Trek is summed up in one word: "Phooey!"

There are much-less-colored headphones for the same price. Not recommended.

Eyeglass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance.

**Signet EP-700: $150**

The Signet EP-700 is of the "professional big-earpad" school of design, and it's as comfortable as it looks. The double headband makes a smooth fit across the cranium, and the padded cloth cushions sit firmly against the ears without squashing anything. The plastic headband seems sturdier than most non-metal headbands.

The sound quality was disappointing, though. The Equale Brass were brash and woodwinds slightly honky. Instrumental timbre was altered to the extent that the pitch seemed too high and the tempo too fast! A similar upward shift of pitch occurred with Ella Fitzgerald's voice.

The EP-700 exaggerated the tape hiss of older recordings. The panpipes on the Opus 3 disc overemphasized the initial "chiff." Vocal sibilants were slightly exaggerated and detached from the related words.

The strings of the Liszt were dark and unnatural sounding; the overall sound of Pictures was dark and hooded. Ditto for The Tempest. The Rachmaninoff cello disc sounded too dark and hollow, with an exaggerated sense of the room's rather hollow-sounding acoustic. Star Trek didn't sound particularly clean (this isn't an exceptionally clean recording to begin with), and the sound of Palestrina was flat and uninvolving.

The EP-700 consistently sounded more artificial and mechanical than the better headphones in this review. It rendered ambience better than most but not as well as the best. Not one of the recordings had colorations that offset the errors of the EP-700—and that's saying a lot, because these recordings were picked (in part) to represent a wide range of recording styles and qualities.

In short, a very disappointing headphone
from a company that has given us many fine products in the past. Not recommended.

Eye-glass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance.

**Sony MDR-E484: $80**
The MDR-E484 is the top of Sony's line of "earbud" products, in the Fontopia series. And not just any earbuds, but turbo earbuds. A tiny tube (less than the diameter of a straw) extends from each housing. It's supposed to enhance and extend the bass. And that's not all. The MDR-E484's diaphragms are diamond-plated. (With amorphous diamond, to be exact.) Although the diamond is supposed to enhance the brilliance of the sound, it might also damp resonances. (It was recently discovered that instrument varnishes from the 17th and 18th centuries contained ground gemstones, possibly for the same reason. See the AKG K-1000 review.)

The E484s come in a "fishing reel" case. When you've finished listening, you drop the buds into two wells, snap the lid shut, then put your index finger into a convenient dimple and spin the cover. The cord winds up into the case, which can then be tossed into your pocket.

Like all earbuds, the E484s are simply pressed into the ear and held in place by friction; there is no headband. Sony supplies foam "booties" to pull over the buds. They provide a firmer grip and keep earwax out of the driver. (As all foam pads, these will eventually disintegrate, but Sony supplies no spares. Sheesh. What do they cost to manufacture, $0?)

I admit (with some embarrassment) that I could only listen to these for five or ten minutes at a time. The right unit was comfortable, but the left really gouged my ear, and no amount of repositioning fixed the problem. (It would be more correct to say that my left ear would not tolerate one of Sony's earbuds. Let's put the blame where it's due.)

The sound was not bad. Brass was a bit nasal, but transparency and cleanliness were above average for a Class D headphone. The midrange was virtually grain-free, which is also unusual for Class D. Ambience was fairly well reproduced, but the image lacked the crispness and precision that better headphones provide.

The E484's sound was significantly altered by changing the drivers' penetration of the ear-canal. Shoving them in firmly produced a "pop" sound: mildly bass-heavy with a forward midrange and slightly aggressive upper-mids. Allowing them to rest more gently in the ears brought a more "classical" perspective: more tonally neutral, and lighter in texture. Chacun à son goût. Of course, if they don't sit the same way in each ear, the frequency response will be unbalanced and the image lopsided.

The E484s would not be my first choice among Class D headphones. However, the sound is okay (even above the norm for this group, in some respects), and they fit conveniently and safely in your pocket. If you want an ultra-compact set of earphones for your personal stereo, the Sony MDR-E484 is an excellent choice. Check to be sure they're comfortable, or get return privileges.

Eye-glass compatibility: does not apply.

**Sony MDR-V6: $100**
These sturdy headphones came highly recommended by Rich Knoph (a co-worker at Microsoft) and John Sunier (of the "Audiophile Audition" syndicated FM program). Rich lent me a pair to review, and they're now in regular rotation with my stereo.

The MDR-V6 is less bass-heavy than the E484, with a more balanced soundstage. The drivers' sound penetration is less aggressive than the E484's, and the E484's AKG-K-1000 case is much more convenient for the V6. I didn't notice any earwax buildup that would require cleaning.

**Footnotes:**

4 "Amorphous diamond" is a technical contradiction in terms, since carbon cannot simultaneously be amorphous and diamond. In this case, "amorphous" means the surface is an aggregate of thousands of tiny diamond crystals, not a single layer of gemstone.

5 My Left Ear—A noted audio reviewer suffers the tortures of the damned when he learns his left ear is 0.5 dB less sensitive above 15 kHz than his right.

6 John Sunier is also the best source for binaural recordings, and those intended give full surround-sound when played back over headphones. To obtain a listing contact The Binaural Source, Box 1727, Ross, CA 94957. Fax: (415) 457-9052.
dark sound will partly compensate for the V6's slight brightness.

Eyeglass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance.

Sony MDR-CD333: $100
The MDR-CD333 is a junior version of the MDR-CD999. Its sound can be summed up in two words: inoffensive and indifferent.

My notes show a pattern of dark, heavy sound from almost all recordings. Brass is consistently dark, with varying degrees of honkiness and hollowness added to brass, woodwinds, and strings. Ella Fitzgerald's voice was colored and slightly "woolly." The best evaluation I could muster for several recordings was "so-so."

If you're wondering why this review is so short, it's because the MDR-CD333 is so bland. When the sound is as consistently uninvolving as it is with this product, there's little else to say. It's unfortunate, because the MDR-CD333 is comfortable, well-made, and good-looking—but I can't recommend it.

Eyeglass compatibility: Fair. Eyeglasses can be removed and replaced with somewhat higher-than-average resistance.

Sony MDR-CD999: $250
The MDR-CD999 is the top of Sony's "Digital Monitor" line. The drivers are angled inward.
Stereophile, August 1991

Sony MDR-CD999 headphones

slightly (à la the Signet TK-44) and can pivot. This allows the drivers to sit parallel to almost any head, evenly spreading out the earpad’s pressure. The headband is plastic but sturdy. Although highly flexible, it tended to bump into the top of my head; this is a case where a double headband might have been more comfortable.

If you read subjective reviews (both in this and other magazines) you’ve probably noticed that a “failure to communicate” is a common cause of indifferent or even bad reviews. The manufacturer never tells the reviewer his design or marketing goals for the product. The reviewer slams the product because he thinks it’s supposed to perform xyz when it’s really supposed to do pdq. (He might still dislike it even if he knew that pdq was its intended purpose, but at least he’d be criticizing it for the right reason.)

The MDR-CD999 is a case in point. About halfway through this review, Marc Finer, Sony’s public-relations consultant, called me to check on the status of my review of Sony’s TAE-1000, their ambience-synthesizer/Dolby-surround decoder/preamplifier. (The review’s way behind schedule. What else is new?) Without his asking, I started griping about Sony headphones.

“You know, Marc, most of them are pretty good. It’s just that so many models have this elevated bass response that I can’t recommend them. If you’d flatten out the response, I could probably recommend more of them.”

“But they’re supposed to be that way. Our customers want headphones with enhanced bass.”

“You’re kidding me.”

“Not at all. Many of our products are used by professional recording engineers, who seem to find Sony headphones useful in telling them what they want to know about their recordings.”

Do you now understand why reviewers slowly go mad? The Beyerdynamic DT990 Pro is explicitly described as having enhanced bass for professional users; the Sony MDR-CD999’s instruction manual says nothing about it. A reviewer’s reaction to an intentional coloration is obviously going to differ from his reaction to the same coloration when it seems the result of ineptitude.

I have no reason to think Marc Finer isn’t correct about this (we’ve known each other since I reviewed the PCM-F1 eight years ago, and our relations have always been friendly and blunt), and Sony is hardly the only company that doesn’t tell the reviewer or customer what’s going on. So I decided to review the MDR-CD999 as I did the Beyerdynamic DT990 Pro—the enhanced bass is intentional.

The MDR-CD999’s sound leans toward a very full bass, along with a dark (but not muffled) top end, and suppressed ambience. Past this description, it’s difficult to exactly define the sound. More than any other headphone in this survey, its sound changed from day to day.

For my first audition, my notes include such adjectives as “dark,” “mellow,” “lacking sparkle,” “unlively,” for virtually every disc. The Sony lacked the air and subtle presentation of detail of the Beyerdynamic DT990. There was, however, strong compensation in the Sony’s immediate, natural-sounding midrange.

The two audiophile ringers came off poorly. I noted the Rachmaninoff cello piece as “too fat, too heavy, too dark—otherwise natural but lacking ambience.” Dinosaur became a “hollow, murky mess.”

I must also note that during this first, long listening session, the consistent darkness of the sound eventually became irritating. This is a highly subjective observation, and I doubt that all (or even most) listeners would react this way—especially with listening sessions of a half hour or less.

8 This problem isn’t limited to consumer electronics. In the August 1990 Popular Photography, Minolta chides PP for not mentioning that one of their cameras was the first to have predictive autofocus. PP’s response? The feature wasn’t mentioned anywhere in the literature or the instruction manual!
A second audition revealed a different sound character. Although the basic sound had not changed, the top end was considerably more lively and articulate. Although the Sony still lacked the resolution of detail that the Beyer-dynamic DT990 offered, it was, on the other hand, far more forgiving of roughness or "nasties" in the recording.

The Sony MDR-CD999 has the rich, dark, liquid sound that many listeners prefer. (The classic example of this sound is the original Stax Sigma headphones, whose treble was so rolled-off that the Sony is positively shrill by comparison.) Despite the slight darkening, the 999 lacks the bland, flat character that mars so many other headphones. It's recommended—caveat auditor—as a bottom-of-Class C component.

Eyeglass compatibility: Fair. Eyeglasses can be removed and replaced with somewhat higher-than-average resistance.

**Stanton SRS-265: $135**

These large, professional-looking headphones have a double headband resting lightly and comfortably on the head. The earcups have a unique mounting—they're attached to the frame with elastic cords! This makes the cups free-floating and self-centering, allowing them to adjust well to most ears and heads.

As with most headphones in this review, the SRS-265 added varying degrees of "honk" or nasality to brass and woodwinds, along with a bit of gratuitous brightness. String sounds were occasionally hooded and "woody." Ambience was well presented, sometimes (as with the "Scottish" symphony) becoming excessive. Transparency was judged above average for a dynamic headphone costing less than $150.

Despite their good qualities, I can't recommend the SRS-265s. The description of their colorations does not fully indicate how severe the colorations are. The SRS-265 is simply too colored to be unconditionally recommended, especially at this price point. (If it cost about half as much, I might have recommended it in Class D.) You might like these, but I recommend you audition carefully and buy with extreme caution.

Eyeglass compatibility: Good. Eyeglasses can be removed and replaced with only moderate resistance.

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**Lindsay-Geyer Highly Magnetic Interconnect**

The Lindsay-Geyer interconnects (Vol. 14 No. 2) continue to occupy center stage in my reference system. My opinion of the sound of these cables has not changed. They continue to impress me mightily in the areas of textural purity, treble smoothness, and image definition. The purpose of this short note is to relate some further thoughts concerning David Lindsay's cable hypothesis.

Lindsay correctly describes the skin effect in terms of the propagation of two signal components along and within the wire. The primary signal travels along the periphery of the wire close to the speed of light depending on the particular dielectric used for insulation. The transverse component sinks into the wire at a leisurely speed and is retarded in phase and intensity as it penetrates deeper and deeper into the wire. Lindsay hypothesizes that the transverse signal emerges from the wire, at which time it continues to propagate down the wire. It is this sort of "echo," he argues, that contributes to transient smearing and distortion by nonmagnetic cable. The *modus oper-

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1 Other audiophiles seem to concur that the L-G interconnect is extremely smooth-sounding. See this month's "Letters."—JA
**andi** of magnetic cable is based on ensuring that the wire diameter is equivalent to a large number of skin depths so that the emergent signal is greatly reduced in intensity.

This hypothesis predicts a large echo for ordinary wire; an echo, as JA has argued, that should be readily measurable. It is important to note that the fact that the cable sounds the way it does is not at issue here. Rather, it is the *reason* for its sonic excellence that is thrown into question by measurements. JA's inability, under carefully controlled conditions, to measure the sort of delayed pulses predicted by Lindsay (Vol.14 No.6, p.215) prompted me to take a closer look at Lindsay's hypothesis. The problem is this: Why should the transverse signal emerge from the wire? Is there any reason here to believe that it actually crosses the cable/dielectric boundary?

The answer that I arrived at was that the transverse signal does *not* emerge from the wire. Instead it continues to circulate within the conductor until it is dissipated ohmically—that is, by heating of the conductor. Why this happens can be appreciated by considering two different approaches.

First, to solve the problem rigorously one would have to solve Maxwell's equations for the specific geometry of the wire/dielectric interface. This is a difficult calculation, which I, for one, do not have the stomach for. But the clear indication from framing the problem in this way is that because of the considerable impedance mismatch at the interface, essentially all of the transverse signal will be reflected back into the wire.

Another way to look at this is to invoke antenna theory. To ask the transverse signal to *leave* the wire is equivalent to having it radiate out of the wire. The wire would, in effect, be acting as an antenna. It is well known that the radiation resistance of a conductor at audio frequencies is negligible. It is only at radio frequencies that substantial energy can be radiated by a conductor. Assuming the conductor to be a loop antenna, I calculated that at 1kHz, the radiated signal will be at least 160dB down from the main signal. Such amplitudes are, to my mind, clearly in the "don't matter" category.

Thus, Lindsay's hypothesis for why his cable sounds the way it does would appear not to hold water. If Lindsay were right, ordinary copper cable would not work as well as it does.

—Dick Olsher

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Cosi fan tutte (an untranslatable phrase, the closest approximation to which is "women are like that" or "they're all the same") was Mozart's third collaboration with the writer Lorenzo da Ponte, following Le nozze di Figaro and Don Giovanni. It is, arguably, their greatest joint effort; it is, most assuredly, their most complex. The plot may be simple, but its emotional scope stops it from ever being fluffy.

While all three operas are about sex, Cosi is the most blatant, but that's not the issue—its meaning and intention are. How, exactly, is this seemingly straightforward, this-could-never-happen-in-real-life story to be taken? Are the sisters sincere? Is the conniving of the three men appealing on any level? Is this the story of catastrophic male bonding? Is the point that while it may be true that "cosi fan tutte," a more urgent point is that men are pretty dumb and are their own worst enemies? (Alfonso says, in the first trio, "How crazy it is to search for the evil which will make us unhappy when we find it!") Do the lovers return to their original fiancées or stay with their newfound loves? And given the fact that the opera's action takes place in one day, isn't this story laced with real cynicism? Or is it just an unambiguous comedy—an "opera buffa"—as the score calls it?

What we do know is that the heavy approach alone isn't effective and neither is the slapstick/frivolous. The opera is so perfectly crafted, the balance so fragile, that just when we know what it's about, some doubt enters and certainty slips away. Any producer, conductor, or singer who tries to convince us otherwise is selling the piece short.

There is practically nothing in either Mozart's letters or da Ponte's memoirs about the composition of Cosi, but we do know the following: In August 1789, in the heat of composition, Mozart was embarrassed by his wife's behavior in Baden, where she had gone to take the waters and apparently a bit more: "I do wish you would sometimes not make yourself so cheap...," he wrote. "Remember that you yourself once admitted to me that you are inclined to comply too easily. You know the consequences of that." Hardly the words of a man in a good mood, especially while working on an opera about women's fickleness. But Mozart was, as ever, capable of transcending anything in his personal life in his music—there's nothing ironic or bitter about the "Save sia il vento" trio (even Don Alfonso contains himself, and waits for the sisters to leave before launching into a cynical diatribe), or the second-act serenade with winds ("Secondate, aurette amiche"), or the two duets for the "new" couples. Perhaps the composer was also able to recall his premarital dalliance with his wife's sister in order to see the whole picture. Virgil Thomson has said that Mozart was invoking "an enlightened and philosophic toleration of human weakness," and this seems right on the money. And da Ponte? He was spinning a good, if double-barrelled yarn; besides that, the first
Fiordiligi was his mistress and he wanted a showpiece for her.

The overture is eye-opening—without words, it defines all the ambiguities. It opens with two abrupt chords from the whole orchestra and is followed immediately by a lovely, brief solo for oboe—the instrument which is, later, invariably associated with Don Alfonso's skepticism. Then the five-note phrase to which the men sing the words "così fan tutte" in Act II (after they acknowledge they've lost the bet) is heard, and a lively presto follows, in which the wind instruments sound, for all the world, as if they're gossiping—and having a grand old time of it. The five-note phrase interrupts again as a reminder of the "punchline" before the energy of the presto is allowed to bring the four-or-so-minute overture to a close, underlining again that this is a comedy, and that we must never lose track of that fact. Così becomes easier to relate to as an "opera buffa" when one bears in mind what a real comedy is: a commentary on human nature.

One recording needs to be set aside for discussion, and that is Arnold Östman's 1984 performance with the Drottningholm Court Theatre. This period-instrument reading is probably closest to what Mozart himself heard, and it is an absolute revelation. Tempi are fast, and the orchestra is made up of about 30 players (all the other recordings use, I'd guess, about twice that), which allows the textures to emerge with great transparency. The recitatives flow quickly and naturally. Sentimentality is absent, due both to the lean instrumental and vocal approach as well as to the interpretation. This works, except at moments ("Soave sia il vento" and "Fra gli amlessi," in particular) which should be knocked down beautiful, where the chill, northern wind is inappropriate on the Bay of Naples. But one gets the feeling that this is interpretational rather than endemically musical. (Pitch, incidentally, is about a quarter-tone under current concert pitch, at A = 433.)

The performances are very good: The sisters are marvelously audacious and well-differentiated, the officers dynamic and bold (Gösta Winbergh's Ferrando shines), and Alfonso and Despina are all-knowing and sassy, respectively. Georgine Resick refuses to whine in her two disguises as the latter, but is funny in another way—a most welcome touch. As an ensemble piece, this set is a real winner. This should under no circumstances be anyone's first Così—it's too perverse and will spoil the listener for any other impression—but it's a must in any collection.

On the other hand, we have Erich Leinsdorf's frolicsome if sickening performance on RCA, which is whatever the opposite of "authentic" is: too big, too brassy, over-embellished (catastrophically at times, such as by Despina in the Act I finale), and too broad. The performances are chock-full of sitcom schtick: Price and Troyanos sound like Lucy and Ethel (or Laverne and Shirley), Raskin's Despina never stops laughing manically, and the men's giggling and audible winking and sneering are a chore to sit through. The young Troyanos sings wonderfully, but Price's plunges into chest voice are nauseating, and she sings the cadenza to "Come scoglio" staccato instead of legato—it sounds terrible. The men are better. Recitatives are unrealistically slow and deliberate, and are underlined by a prominent harpsichord, which intrudes. Avoid this one—it's genuinely vulgar.

Fritz Busch's 56-year-old set from Glyndebourne, just reissued on EMI, features acceptable sound for its time, and the conductor's approach is warm and grows comfortably out of the text; nothing is forced. But the cast is inconsistent. Neither Ina Souez nor Luise Helletsgruber is a selling point, the former sounding too old and the latter simply not singing very well, and Irene Eisinger is an unimpressive Despina. Heddle Nash's Ferrando is suave and intelligent, and Willi Domgraf-Fassbender's Guglielmo captures ideally both the playful (Act I) and bitter (Act II) sides of the character. John Brownlee's Alfonso is so subtle as to lack charisma. More troublesome are the cuts: four arias are gone, and there are internal slashings in both finales and "Fra gli amlessi." This recording is far from crucial.

Herbert von Karajan's finest Mozart performance on discs is his Così, from 1954. This is an exquisite, intimately scaled rendering, full of affection, and magnificently sung. Recitatives are pared down and an aria or two are cut, but all the elements are here: This is a warm-hearted, lesson-learning comedy. The singing is fabulous, with the young Schwarzkopf ideal. Merriman a gentler-than-most Dorabella, and Lisa Otto a sharp Despina. Simonneau and Panerai are peerless as the friends, and Bruscentini whispers at everyone (including us) in a nicely conspiratorial manner. Walter Legge's mono production is super, and the Philharmonia
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plays gently and wisely. Karajan never pushes it—it just happens, effortlessly. This one is a must.

In 1962, the wonderful Karl Böhm entered the recording studio for another Walter Legge production and the results are memorable. His is, all around, the most graceful performance available, with great warmth and understanding, and gorgeously sung. Schwarzkopf is not quite as fresh as earlier, but just as interesting. Ludwig is a big-voiced Dorabella (she's wildly manic in her first aria), Kraus the picture of class, if a bit underplayed, Taddei with a real smile on his voice in Act I, which goes fast as the events in Act II unfold. Berry is a smooth-as-silk Alfonso. The recording itself is special—the dreamlike "Secondate" is genuinely at a distance, and there's plenty of space, atmosphere, and orchestral delineation. The overview, however, is pretty serious (the overture is the slowest—indeed, most ponderous—on discs), and there's not enough fun here. But each characterization is vivid and valid; this is an important reading, beautifully played.

Solti's performance, on reduced-price London, has different problems. It's sure to keep your interest, but it's almost entirely devoid of charm. These people are on a rampage; all the emotions are heightened. Lorengar is a sensual Fiordiligi but her vocalism is unsteady, Berganza is lovely, the officers are far too maniac (although Krause sings the role handsomely), and Bacquier is a very snide Alfonso. Beribié is a revolting Despina and makes you hate the sisters for keeping her around. This one's too rough-trade to do Mozart justice; feeling beat-up at the end of Cosi is bad news.

A truly glorious set is Colin Davis's. It's the most honest performance, covering all the bases, with no axe to grind, and is naturally paced. Caballé is a ravishing surprise. Her Fiordiligi, in addition to being the most terrifically, outgoingly sung, is a real beauty. Baker is a gentle, easily swayed Dorabella, and Cotrubas is no cutesy-pie Despina, but a really smart lady. Ganzarolli is, sad, a crude Guglielmo, and Gedda is a tad beyond his vocal prime, but they still please. Van Allen's Alfonso is cynical without being nasty. There's never an unnatural move or exaggeration here; it's a genuine, generous look at human nature. Another must-have.

Riccardo Muti's is taken from live performances at the Salzburg festival, and it's very exciting. Marshall is an incensed Fiordiligi, lacking only some heft at the bottom of her voice. Baltsa is a fiery, spontaneous Dorabella (comparing her to Baker, above, makes one realize how many ways this character can be played), and her duet with Guglielmo is the most sensual I've ever heard. She's even strong in the way she gives in. Araiza is passionate and a perfect match for Fiordiligi. ("Fragli amiplessi" is taken very slowly—it's a real seduction and it's impossible, after it, to doubt Ferrando's sincerity.) Morris sounds a bit old for Guglielmo, but his rabid anger in Act II is convincing. Van Dam is wily, keeping his distance. Battle is the weak link here—not vocally, of course—too cool, too upper-class. Not everyone sings squarely on pitch, there are stage noises, and the acoustic is odd at times, but it's all very lively and has real presence as a performance. Muti is intelligent but lacks warmth—the hard-nosed approach is a bit too much in evidence here. But still, for sheer excitement, it's worth hearing.

The Bernard Haitink recording, based on a Glyndeboume production, is so well-mannered that it's all white bread with mayo. There's not a bad performance to be found here, but the whole polite affair lacks spine; I find it excruciatingly dull. Yes, the characters are animated, but it's all operatically cool, and impossible to get involved in. Other critics, by the way, love just this detached, "perfect" quality, but it bores me silly—like looking at a beautifully painted blank wall.

James Levine has never been my favorite Mozart conductor and he does little here to change my feelings. What I do like is that he and the Vienna players hook in to the Mediterranean warmth and nice breezes in their orchestral sound, and, for the most part, so does his cast. The problem is that it's faceless—I can't actually remember any of the performances the moment the show's over. Dame Kiri is dreary, singing prettily, but with no notion of her character's emotional weight, and Ann Murray, a fine singer, is similarly forgettable. Hampson's voice is staggeringly beautiful; he alone is the set's real success, while Hans Peter Blochwitz remains an overrated singer with a shallow sound. Furlanetto isn't bad as Alfonso, but his sound is woolly. Marie McLaughlin is impressive but broad. The recitatives with pianoforte and basso continuo are interesting. This is the slowest Cosi available, and feels like

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it. But that orchestral sound is gorgeous, and so right for the setting!

Sir Neville Marriner’s recent recording is a winner, albeit with a rather dark outlook. The key is José van Dam’s most cynical Alfonso—this guy is not user friendly—and he changes his whole tone when he’s alone or with Despina—a real nasty trickster. Marriner makes it work by painting the other characters as equally strong. The boys are cocky and too sure of the women from the start, needing to learn a lesson; Mattila, though not singing perfectly, is a real person in a real predicament which she is more than up to handling, and von

**Synopsis**

The action takes place in Naples, at the end of the 18th century, over the course of one day.

The curtain rises on a café; it is early morning. Ferrando and Guglielmo, two young officers and close companions, are arguing with Don Alfonso, an older, philosophical, some might say cynical, friend. Ferrando claims that his fiancée, Dorabella, is faithful; Guglielmo claims the same for his own fiancée, Fiordiligi, Dorabella’s sister. Alfonso states that, like all women, they can be untrue, and the three make a bet: Alfonso claims they will be the men they won’t. They have ‘til the end of the day, and the officers must do as Alfonso tells them.

Scene ii opens in a garden on the bay of Naples. The sisters are singing of their love for their fiancés. Alfonso enters with bad news—the men have been called to war. The men enter (“Sento o Dio”) and the lovers sing sad farewells, after which the sisters and Alfonso wish them a safe journey (“Soave sia il vento”).

Scene iii takes place in the sisters’ boudoir, where Despina, their maid, complains that her job is all drudgery; she only gets to smell the hot chocolate the girls drink. The sisters enter, overcome with grief. They tell Despina what has happened and she advises them to find new lovers. The girls express their outrage and leave. Alfonso enters and offers Despina money to help him win the girls over to the two ‘Albanians’; he’s about to bring in. She agrees, and does not recognize Ferrando and Guglielmo, disguised as Albanians, when they enter (“Alla bela Despinae”). The sisters return and are furious at the thought of having two strange men in their house, but Alfonso assures them that he knows them. The men try to woo the women, but they refuse—Fiordiligi very dramatically comparing herself to an unmoving stone (“Come scoglio”)—and go into the garden. The officers are pleased, but Alfonso reminds them that the bet is still on.

In scene iv, in the garden, the sisters are discussing how sad their lives are without Ferrando and Guglielmo when the ‘Albanians’ enter, claiming to have taken poison. Despina and Alfonso go for a doctor and the girls take pity on the men. Despina, disguised as a doctor, ‘cures’ the ‘Albanians’ with a magnet and some talk about Dr. Mesmer, and they immediately ask the sisters for a kiss. This enrages the sisters as the curtain falls.
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Otter is a stunner with real energy (she's more arrogant than mischievous in "prendero quel brunettino"). Szmytka is the perfect co-conspirator to van Dam. The recording is atmospheric, the continuo clever but unobtrusive. Both love duets are sexy and meaningful. We know these characters by the end, and we like them. This is a pearl of a set.

I can't say anything even close to that about the new Barenboim Cosi. His tempi and dynamic approach are so erratic that it seems as if he's dealing with the opera number by number rather than as a whole. The "Sento, o Dio" quintet is perversely slow, while Dorabella's "Smanie implacabili" is breakneck fast. Occasionally recitatives are so lethargic that all reality goes out the window, and both finales stop and start incomprehensively.

The real successes are Bartoli and Kurt Streit: she alert to the text and pleasing to the ear, he graceful yet manly. Cuberli is too light, vocally, for Fioridigli. Rodgers and Tomlinson are impressive at times; more often, they're forgettable. Furlanetto is miscast as Guglielmo. He's a bass and the role is composed high enough to make him stretch unappealingly. This is not a likeable set, for all its strengths.

Cosi has always caused trouble. Even if we take for granted that mate-swapping was all the operatic rage in 18th-century Vienna (in 1770 an opera by Haydn on the subject appeared; in 1785, one by Salieri), and that it was rumored that the Emperor himself chose the subject, this work is special. Mozart found the libretto "frivolous and degrading" (although he approved of the opera's subtitle: "The School for Lovers"), and Beethoven was so shocked by its immorality that he composed Fidelio, a poem to conjugal love and fidelity, as an antidote. The music was presented for years (up to 1909 in Dresden!) with different, less offensive libretti, and it was the last of Mozart's great works to gain popularity in this century. (Its ambiguity and immorality were apparently too disturbing for the 19th.) But as usual with Mozart, as Ferrucio Busoni as written, "Together with the puzzle, he gives you the solution," and in this enlightened, more permissive time, there's nothing to stop us from getting everything out of Cosi that it has to give.

This is a list of available recordings, all three CDs each and all discussed above. Singers are listed in the following order: Fioridigli

Fritz Busch conducts; Ina Souze, Luise Helletzgruber, Irene Fischer, Heddie Nash, Willi Domgraf-Fassbaender, John Brownlee; Glyndebourne Festival Orchestra & Chorus
Pearl GEMM CDS 9106. ADD, mono (1955)
EMI CDBH-65864
Herbert von Karajan conducts; Elisabeth Schwarzkopf, Nan Merriman, Lisa Otto, Leopold Simoneau, Rolando Panerii, Sesto Bruscantini; Philharmonia Orchestra & Chorus
Angel CDH-69655. ADD, mono (1954)

Karl Böhm conducts; Elisabeth Schwarzkopf, Christa Ludwig, Hanny Steffek, Alfred Kraus, Giuseppe Taddei, Walter Berry; Philharmonia Orchestra & Chorus
Angel CDMC-69350. ADD (1962)

Erich Leinsdorf conducts; Leonore Price, Tatiana Troyanos, Judith Raskin, George Shirley, Sherrill Milnes, Ezio Flagello; New Philharmonia Orchestra, Ambrosian Opera Chorus
RCA 6677-2. RG. ADD (1967)

Sir Georg Solti conducts; Pilar Lorengar, Teresa Berganza, Jane Berbiel, Ryland Davies, Tom Krause, Gabriel Bacquier; London Philharmonic Orchestra; Chorus of the Royal Opera House, Covent Garden London 430 101-2. ADD (1975)

(Riccardo Muti conducts; Margaret Marshall, Agnes Baltsa, Kathleen Battle, Francisco Araiza, James Morris, José van Dam: Vienna Philharmonic, Vienna State Opera Chorus
Angel CMS 7 69580 2. DDD. (1982)

Arnold Ostman conducts; Rachel Yakar, Alicia Nafè, Georgine Resick, Gösta Winbergh, Tom Krause, Carlos Feller; Orchestra & Chorus of the Drottningholm Court Theatre

Bernard Haitink conducts; Carol Vaness, Delores Ziegler, Lillian Watson, John Aler, Dale Duesing, Claudio Desderi; London Philharmonic Orchestra, Glyndebourne Chorus
Angel CDS 7 47727 8. DDD (1986)

James Levine conducts; Kiri te Kanawa, Anne Murray, Marie McLaughlin, Hans Peter Blochwitz, Thomas Hampson, Ferruccio Furlanetto; Vienna Philharmonic, Vienna State Opera Chorus
DG 423 897-2. DDD (1988)

Sir Neville Marriner conducts; Karita Mattila, Anne Sofie von Otter; Elblieta Szmytka, Francisco Araiza, Thomas Allen, José van Dam; Academy of St. Martin in the Fields
Philips 422 381-2. DDD (1988-89)

Daniel Barenboim conducts; Leila Cuberli, Cecilia Bartoli, Joan Rodgers, Kurt Streit, Ferruccio Furlanetto, John Tomlinson, Berlin Philharmonic, RIAS Kammerchor
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Delos is shaping up as the Mercury of the '90s. During its Golden Age (the Fine/Cozart period), Mercury was one of the few record companies championing American symphonic composers. They weren't quite the first to do this, however. During the 1940s, when idealism ran rampant among classical record companies, American composers were considered an essential part of the recorded repertoire. Even then, while classical recordings from RCA Victor and Columbia may have been subsidized by sales of pop records, both firms took immense pride in their classical divisions, which strove for eclecticism as well as popularity. Along with the mandatory crowd-pleasers from Bach, Beethoven, Mozart, and the Russian romantics, their libraries were liberally laced with offerings from Aaron Copland, David Diamond, Howard Hanson, Deems Taylor, Virgil Thomson, Randall Thompson, and the Charleses Griffes and Ives, as well as lesser-known Europeans like Bill Walton, Jack Ibert, Vince D'Indy, and Frank Poulenc. All were well represented on 78s.

With the LP revolution came decisions about which composers would be re-released on LP, and some of the stalwarts were retired then and there. By the time Mercury Classics started getting off the ground in the '50s, the only record company paying any attention to American composers writing for the full orchestra was the Louisville Recording Society, which seemed more interested in promoting avant-garde 12-toners and aleatorics than the old-fashioned 8-tone school. Mercury almost single-handedly saved the day. Since that company's demise back in the mid-'60s, musical America's alleged taste has become more and more conservative, as reflected by a growing unwillingness of audiences to listen to (or buy recordings of) anything that is not a genuine, fully accredited, yuppie-approved Classical Masterpiece. With their recent program of re-releases, Mercury Classics would have been the only current

1 Having been associated with Delos International since 1979, currently being its Director of Recording, Mr. Eargle's career over the last quarter-century has included work with JBL, RCA, and Mercury Records, a term as President of the Audio Engineering Society, and he has authored several definitive books on audio engineering, including Sound Recording (1976), The Microphone Handbook (1982), and the Handbook of Recording Engineering (1986). He also edited the Stereophonic Techniques anthology for the AES (reviewed in Vol.9 No.7).
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source of many recordings of these perhaps less-than-towering composers. Except for Delos.

During the past year, Delos has championed the kinds of composers Mercury was into, and as far as I'm concerned, the recorded music scene is immensely enriched as a result. It's not just that I happen to like the early-1900s American symphonists, it's that I passionately believe every classical music listener needs to hear a lot of perhaps not-toweringly-great music in order to better appreciate the toweringly great. I'm not passing judgment on these less-fashionable composers or their works, merely pointing out that much of this music is far better than mediocre and deserves an open-minded listen (and several re-listens), even though it may not be currently fashionable. After all, if others don't know what you do in private in your bedroom, they need not know what you listen to in your music room. Guilt has no place in sex or in music listening. And who the hell needs another recording of The Four Seasons or Eine Kleine Nachtmusik?

This is why, after just reading the list of selections on this 22-track sampler, I was primed to react positively to it. Mostly, I did. Herewith, then, Engineer's Choice, track by track:

Shostakovich: Symphony 10, Sacierzo (orchestra). Shostakovich's music is like good stinky cheese: you love it or you hate it. I love it. This recording has the appropriate weighty balance, but the orchestra sounds a bit small for the work. This requires at least 110 players, but it sounds more like 85. Eargle describes the performance as "electrifying," and with that I concur. But I do wish the hall was bigger; "blooming" can't take the place of spaciousness.

Schiff: Gimpel the Fool, "Jester's Song and Mazel Tov" (chamber orchestra). Saucy, insouciant, jazzy music, recorded with an appropriate Row H perspective. There's pinpoint imaging across the entire stage, and an ambient surrounding that is almost perfect, being neither dry nor swimming. The recording is punctuated by occasional gratuitous thuds, like someone dropping grapefruits backstage.

Taylor: Through the Looking Glass, "Looking Glass Insects" (orchestra with piano). Popular during the late '40s, this was recorded by Mercury and the Eastman orchestra, but I never heard it and it isn't yet out on CD. Some of it is reminiscent of early Stravinsky, the rest not. The humorous bits are almost uniquely characteristic of American music of the period, and sadly absent from most contemporary "serious" writing. (Who remembers Don Gillis?)

Grofé: Grand Canyon Suite, "Sunset" (orchestra). Gorgeous sound, and a very promising performance, to judge from this 5-minute excerpt.

Copland: Billy the Kid, "Gunfight" (orchestra). This has a great bass drum sound on it—not as knock-your-socks-off prominent as Telarc's infamous thudder, but much more in proper proportion, and very taut and detailed, with real head sound. This may also be a magnificent reading of this not-quite orchestral chestnut. Superb soundstaging.

Hanson: Symphony 6, movements iii & iv (orchestra). Eargle has the soundstage down pat on this one too. Interestingly, though the first Delos sampler (The Symphonic Soundstage: The Art and Science of Recording the Orchestra, reviewed in Vol.12 No.4) featured the word "stage" in its title, it was not very uniform in this area, sometimes having a vaguer center area than sides. All of the orchestral recordings on this sampler are solid all the way across, with the instruments occupying (as they should) the space almost out to the speakers but not quite, allowing the ambience to range through and beyond the speakers. This, by the way, is a staggering piece of music, strongly reminiscent in places of the composer's Russian contemporary Shostakovich, but it's nonetheless definitely Eastman-school American. (Hanson wasn't a student there; he was its director. Coincidentally, Eargle also taught at Eastman.)

Grieg: Piano Concerto, Adagio. My God, what a gorgeous sound this makes! No, it's not prettier than real, it's just as lushly rich as real, which can bring tears to your eyes or geese to your bumps, depending. This sounds like a superb performance, too. Bella Davidovich's piano is not audibly spotlighted, which means it's where it belongs and has the proper layering perspective relative to the orchestra. The complete DE 3091 is another Delos I'm going to buy if they won't give me a copy of it.

Vaughan Williams: Wassail Song (chorus). Sounds like a delightful performance, marred only by the fact that the Roger Wagner Chorale forces its tone during fortissimos, causing a rough, strained sound. I don't feel the center imaging is quite as good as Mr. Eargle claims.

Poulenc: Fleurs (soprano with piano). Mainly a close-in recording, this is perfect for its subject. Arlene Auger produces a beautiful, completely unmimicked sound, despite some questionable miking.

Popper: Menuetto (cello and piano). Despite the presence of Janos Starker, this is the least satisfying recording of the lot, to my mind. It reveals little of the cello's body resonance, the instrument sounding more like a large viola.

Haydn: Symphony 51, Finale (orchestra). Not my favorite music, but the recording stays gratifyingly out of its way.

Bennett: Suite for Skip and Sadie, "Good
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Morning” (piano duet). From this very short excerpt, the work should be as popular as Fauré's *Dolly* suite. A charming, animated performance from Richard Rodney Bennett and Carol Rosenberger that captures the jazzy flavor of the work, combined with a nice, inconspicuous recording that merely serves as a transparent vehicle for the music. The piano is John Eargle's own Bösendorfer 9' grand.

Tchaikovsky: Piano Trio, Variations 1 and 3 (piano, violin, cello). Again, an appropriately close-in sound, but I fault it for the same reason I did the Popper: the cello (Jeffrey Solow this time) lacks body.

Albert: *Treestone*, “Tristopher Tristian” (song with chamber orchestra). I say it's 12-tone, and I say the hell with it.

Rachmaninoff: Prelude in g (piano). Featuring the sound of a “Horowitzian” Steinway played by John Browning and captured with an ORTF technique (spaced, crossed cardoids), this is a magnificent piano recording, period. A dammnice rendition, too.

Rorem: *A Quaker Reader*, movements iv & viii (pipe organ). Almost the farthest thing possible from Dorian Records' *catbèdræla engloutie par reverb*, this is a tidy but (to my ears) convincing evocation of the sound of a real organ in a real, albeit smallish, space. This excerpt is low-key and low-powered, and the spaced-omni recording serves the music rather than the other way around. (Eargle points out that this technique's inevitable imaging impression is of no import with the organ, instead serving to better relate the instrument to its acoustical setting, the Wiedemann Hall at Wichita State University, KS.)

Piston: Symphony 6, *Scberzo* (orchestra). How hum, another magnificent recording, with what may be yet another excellent performance.

Bartók: *The Miraculous Mandarin*, excerpts (chorus and orchestra). This ugly, disquieting, gorgeous music is as hypnotically attractive as a highway accident.

Diamond: Symphony 2, *Allegro vigoroso* (orchestra). A very idiomatic, American-sounding piece, even though no one seems able to define what it is that makes a piece sound "American." (I've read that even Aaron Copland couldn't explain it, except to say that something either sounded American or it didn't. Thanks a heap!) How one's tastes change. When I first heard this symphony eons ago, at a live performance, I hated it for its choppiness and lack of any flowing melodic lines. This time 'round, I liked it enough to want to hear more, but I'm not sure this performance has the power I remember from that first hearing. On the other hand, I'm not sure it doesn't.

Respighi: *Roman Festivals*, excerpts (orchestra). Fat, rich, and almost as cruelly violent as *The Rite of Spring*, *RF* is an inspired evocation of the bloated opulence and barbarism of Rome at its decadent height, and this recording does it justice. The best recording of this that I've heard, though the performance doesn't have quite the fire of the old Maazel London, which sounded best on Mobile Fidelity's UltraDisc LP release. (I've often wondered why Maazel's Telarc recordings have never had the spirit he was able to muster for other labels.)

Falla: *Nights in the Gardens of Spain* (piano and orchestra). Oboy, does this have fierce competition. The Haskil/Markевич (Philips 415 443) is the most highly regarded, but I still have a special affection for the Zuk/Baitz recording on Varese Sarabande (VCD 47210), which includes the soprano voice it was originally scored for. Without questioning Delos's sound on this, I get the impression that the performance is only very good, not magical. Carol Rosenberger plays a Bösendorfer Imperial Grand in London's St. John's, Smith Square.

Ravel: *Daphnis and Chloe*, final scene (orchestra). Koussevitsky's recording is still hailed as one of the best readings of the *Suite* ever recorded. This may well be in the same league, although the excerpt on this disc sounds too hellforpell rushed for my taste.

Recording levels on this sampler are perfectly balanced from selection to selection. This does not mean the levels are matched, as (for example) they are on *Stereophile*'s Test CD, where spoken voice is as loud as fortissimo pipe organ. What it means is that small-scale works, such as the Poulenc song, are much quieter than the symphonic selections. Relative levels are about as they would be from good seats at live performances. Also, I was constantly struck by the freshness and vitality of these performances, which (it must be said) is in sharp contrast to many of Telarc's CDs.

There is an amazing consistency of sound throughout this sampler. Not that the recordings sound the same; they don't. But one sign of a virtuoso recording engineer is the ability to get, not just a good sound, but the right sound for a musical work in a wide variety of

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2 Excepting his Tchaikovsky 4, wouldn't you agree, JGH?—JA

3 Others as well as JGH have expressed dismay that the track-to-track levels on *Stereophile*'s Test CD are so musically disparate. The reason is that I wanted to use the maximum 16-bit digital resolution for each track, the waveform occupying as much of the digital "dynamic range window" as possible. If levels had been balanced track-to-track, so that solo voice, for example, was some 20dB down in average level from a choir-and-organ climax, the former would have had to have been transferred to digital with less than 15-bit resolution. I did not regard this as a satisfactory compromise, given that with a test CD it is quite likely that the listener will set the playback level higher than musically appropriate and thus reveal quantization artifacts.—JA
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Stereophile, August 1991
performing spaces. Although purist philosophy might dictate otherwise, there is no such thing as the ideal microphone setup, because different kinds of music demand different kinds of recordings. Small-scale works intended to be heard in a small, intimate space (with, perhaps, an audience of 20) demand a dry but somewhat warm sound; big, romantic symphonic works require spaciousness and enough feeling of distance for the instruments to blend; more modern works sound most right with a drier and closer sound that better reveals the inner workings of the score. If there was any doubt about Mr. Eargle's credentials prior to this sampler (there was), they have been largely dispelled. But, as fine as is Delos's stable of orchestras and conductors, I find it one of the bitter disappointments of the American recording scene that someone like Eargle will never get a chance to unleash his skills on any of the nation's first-string orchestras, like the Philadelphia, Boston, or Chicago ensembles, which continue to be nailed down by the now thoroughly corrupted and discredited major record companies.

I don't always agree completely with JE's approach to recording. (The mike technique and layout of singers and instrumentalists for each track are fully explained in the liner notes.) After all, Mercury was able to get more than satisfactory sound with a basic three-omni mike setup and no woodwind spots or "house mikes." (Eargle claims the conductors demand the woodwind spotting. I counter that, as recording director, he should have the last word on the matter, and should remind the conductors that they do not hear what the audience hears, and that recordings are made for audiences, not conductors.) But I must confess nonetheless that, of all the recording engineers working today, Eargle's approach is as close to the way I would be doing things (if I were in fact still doing things) as anyone I know of. Couple this with the fact that Delos's taste in repertoire parallels a great deal of mine, and you end up with a label that would be earning regular kudos from me in the pages of this magazine if they put me on their freebies list. (Address available from the Stereophile main office.)

Parting shot: Delos gives really good notes. Their booklets actually discuss the music and the conductor, and throw in some mention of the recording for good measure. Typically, their notes are about 25% lengthier than what you used to get on the back of most classical LP sleeves, which is a hell of a lot better than most CDs offer. This is even more evidence that Delos cares more for the buyer than most.
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Lutz Kirchhof, the first lutenist to play Bach’s Lute Suites in their original keys and tunings, kicks off Sony’s new Vivarte series. See Les Berkley’s survey on p. 207.

**Classical**

**COPLAND: Piano Music**
Four Dance Episodes from Rodeo (arr. Copland), Four Piano Blues, Piano Variations, Old American Songs
(arr. Marks)
Alan Marks, piano
Nimbus NI 5267 (CD only), DDD. TT: 66:45

Alan Marks’s excellent rhythmic sense, a first-rate technique, and even, where required, a sense of humor make these exceptionally flavorful performances. In addition to the rugged, older-style Copland of the Piano Variations, plus the four charming Blues, the American-born but German-based pianist presents two sets of transcriptions: the Rodeo Episodes (all these foregoing have also been recorded by James Tocco on Pro Arte) and Marks’s own keyboard setting of the nine Old American Songs. Of course it helps if one knows what the texts are all about, but I was quite astonished at the effectiveness of such a favorite as “I Bought Me a Cat” in this version without voice. The pianist’s skillful and colorful way with all this music has been captured somewhat distantly but not ineffectively.

—Igor Kipnis

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Images, Books I & II; D’un cabier d’esquisses; L’Isle joyeuse; Arabesques 1 & 2; Hommage à Haydn; Rêverie; Page d’album; Berceuse béroïque
Zoltán Kocsis, piano
Philips 422 404-2 (CD only), Onno Scholtze, Stan Taal, engs.; Wilhelm Hellwig, prod. DDD. TT: 62:12

DEBUSSY
Pour le piano; Children’s Corner, Estampes; La plus que lente; Arabesques 1 & 2; Page d’album; L’Isle joyeuse
Jean-Bernard Pommier, piano
Virgin Classics VC 7 90847-2 (CD only), Mark Vigars, eng.; Tim Handley, prod. DDD. TT: 61:14

These discs represent two valid approaches to Debussy’s keyboard music, and, because the duplication between them only extends to a little over 13 minutes, I would not hesitate to recommend both. Kocsis, positively Lisztian in his brilliance, presents the composer sensitively but without cotton gloves; his clear-eyed approach is essentially extravert, large-scale in the virtuosic works yet suitably hazy where
required, highly colorful, and exceptionally subtle and wide-ranging in dynamics. This is truly impressive playing, supplemented by absolutely gorgeous piano reproduction, some of the most beautiful I’ve heard on CD. If once in a while the tone turns slightly hard in *forte* passages, this appears to be due not to the ravishing sonics but rather the performer or the instrument itself. But the basic piano sound is outstanding.

Pommier provides a more traditional, more objective Debussy, rhythmically straighter and less urgent. The focus is different, even rather laid-back. In one of the duplicated pieces, the brilliant *L'Isle joyeuse*, the French pianist summons up a greater degree of sensuousness and atmosphere, though he is no less virtuosic. If sometimes, as in *Soirée dans Grenade* from *Estampes*, he sounds overly deliberate, his second *Arabesque* has the advantage of greater playfulness than Kocsis. Although he is not as tonally alluring as the Hungarian pianist, he avoids the latter’s few moments of tonal hardness. Virgin Classics’ reproduction does extremely well by Pommier, presenting highly satisfactory sonics.

—Igor Kipnis

**LUKAS FOSS: Ode for Orchestra, Song of Songs, With Music Strong**

Carolann Page, soprano; Milwaukee Symphony & Chorus, Lukas Foss

Koss Classics 1004 (CD only). Larry Rock, eng.; Michael J. Koss, prod. DDD. TT: 68:32

By any measure, the career of Lukas Foss as pianist, composer, and conductor has been a distinguished one. As a champion of modern and avant garde scores it has—not surprisingly—met with some controversy as well, most notably during his directorship of the Buffalo Philharmonic from 1963 to '70 when he provided doses of the contemporary to audiences who did not always feel they needed it. From 1981 to '86 Foss held the artistic reins of the Milwaukee Symphony, and it was as the ensemble’s music director laureate that he recorded this sampling of his works in 1989 for Koss Classics, a relatively new subsidiary of the Milwaukee-based Koss Corporation best known for its headphones.

These three pieces are among Foss’s more conservative, mainstream efforts and span over four decades of his creative life, beginning with the *Ode for Orchestra*. Originally written at the conclusion of World War II as *Ode To Those Who Will Not Return*, this performance is of the retitled 1958 revision which potently retains the character of an elegy to the fallen. A steady, dirge-like pace governs much of the often ominous musical unfolding which at times sounds like Shostakovich, the Stravinsky of the *Symphony of Psalms*, and—by way of rhythmic figures, melodic inflection, and orchestration—the late Carlos Chavez. But there are also clear touches of originality from the then 22-year-old composer (the keening *glissandi* in the trombones are particularly telling examples) in music that makes a strong impression.

The *Song of Songs* (1946) is conceived for soprano soloist and expanded orchestra. Each of its four sections utilizes text from the *Song of Solomon*, here set to music that is highly evocative in mood and sure-handed in construction. The opening, joyous exultation (“Awake, O north wind...”) is followed by a jaunty and thoroughly charming aria that intriguingly fuses the feeling of a Renaissance dance with a lyricism reminiscent of Menotti at his best. The final segment is even more intensely lyrical, ending abruptly on a D-major triad that, despite its sense of repose, seems curiously unresolved.

*With Music Strong*, completed in 1988, is the album’s most recent inclusion and, for me, its only disappointment. Composed on commission from the Milwaukee Symphony to commemorate the 30th anniversary of its chorus, Foss decided to use an earlier work (*Quintets for Orchestra* of 1979) as a prelude to his setting of lines excerpted from eight of Walt Whitman’s poems. While I find the *Quintets* portion fascinating in its dark-hued, slow-moving minimalism, the choral material seldom fulfills the promise of Whitman’s pithy lines. Despite the use of full orchestra and double chorus, the result is often more monotonously repetitive than celebratory. The high performance level throughout the CD serves as a reminder—if one is still needed—of how much first-rate music making goes on outside the environs of the Big Five. Koss’s engineering places you very near the stage; from that vantage point, the illusion of a live performance is generally quite convincing.

—Gordon Emerson

**HOLST: The Planets**

James Levine, Chicago Symphony

DG 423 730-2 (CD only). Gregor Zielinski, eng.; Christopher Adler, prod. DDD. TT: 49:27

With enough *Planets* out there for several solar systems, anyone contemplating another must be convinced that they will reveal aspects of the music which have heretofore remained hidden; that followers of the orchestra and its key players will have to hear how they play it; and the audio production must be of reference quality.

Musically, a great deal seems to have been taken for granted. We know Levine to be a quick study with no technical problems. Per-
haps his natural gifts, combined with the CSO's ongoing status as a virtuoso orchestra, were the source of some inadvertent hubris. In any event, it takes more than brute strength from the brass section to put this piece across. Unfortunately, it seems when they're not tearing sheets, they're sleepwalking.

Productionwise, it says Orchestra Hall, but it sounds like bad Medina Temple (could it be the Temple of Doom?), and a bad, glaring, digital one at that. Moreover, there's an unsettling overglaze of unreal afterglow, similar to some recent CSO recordings on Chandos. Taped only a year after the splendid Bernstein/Shostakovich, it's a bitter letdown on purely sonic grounds. The Bernstein, incidentally, was taped live with a full audience. Planets was taped 'studio' with the hall empty and the orchestra spread out. But more importantly, it was recorded by an entirely different crew; apparently far less gifted in the craft than Hans Weber and his associates from the Bernstein.

I don't like to nitpick mistakes. Even in this age of technical perfectionism, an occasional clinker will get through, and I wouldn't have it any other way. But in "Saturn," just as the climax ebbs away, one may hear not one, but two near misses on the tubular chime. This can happen to anyone, but it may well be the most ludicrous-sounding mistake in all of music, and it's up to both the conductor and the producer to see that a new release by major artists on a major label does not contain ludicrous sounds.

If you have the Previn/LSO Planets in the original British EMI vinyl issue of 1974, you're to be envied. However, EMI's CD version is a perfectly satisfactory alternative. Dutoit/Montreal on Decca/London is an excellently full digital account, and has all the intelligence, taste, and required sonic attributes that Levine/CSO/DG lack. But for me, the mother of all recorded Planets performances remains, I grant you, a maverick choice: the BSO under William Steinberg, recorded by DG in 1968,1 reissued in 1987 on CD in DG's midpriced Galleria line. The BSO's peculiar stylistic character was not entirely suited to Planets, but Steinberg drew it out of them any way. Not quite state-of-the-art sonics, but far more engaging and listenable than the Levine. It does have the Symphony Hall sound, and you haven't heard Planets until you've heard this one. Currently out of print, but well worth looking for where cutouts are sold, on CD or vinyl original, which survived as such until 1985.

---Richard Schneider

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1 Peculiarly enough for an Englishman, this was the first Planets I bought back in the late '60s, though my allegiance now lies with Boult's 1979 ADD performance (EMI Studio CDM 7 69045 2), even though I do have the 1974 Previn LP.

---JA

KABALEVSKY: Cello Concerto 2

PROKOFIEV: Solo Cello Sonata, Cello Concertino

Steven Isserlis, cello; Andrew Litton, London Philharmonic

Virgin VC7 90811-2 (CD only). Mark Vigars, eng.; Andrew Keener, prod. DDD. TT: 55:30

PROKOFIEV: Sonata for Cello & Piano, Op.119


Lynn Harrell, cello; Vladimir Ashkenazy, piano

London 421 774-2 (CD only). Stanley Goodall, eng.; Michael Haas, prod. DDD. TT: 50:50

Steven Isserlis was delighted to be given the opportunity by Virgin to make this disc of rarely heard Russian cello pieces. They are all works that are close to his heart, pieces that he advocates in concert too, if given the chance by more enterprising impresarios. His affection for them certainly shows.

The Concertino and the Sonata for solo cello were among seven works that remained unfinished at the time of Prokofiev's death in 1953. However, Rostropovich had collaborated closely with the composer while work on the former piece was in progress, and the great cellist felt that he had adequate inside information to flesh out the bare structural plan of the Finale. It was Kabalevsky who then orchestrated the complete work. Isserlis has made a few further alterations, ones which he feels render the work closer to Prokofiev's description of it as a "delicate little Concertino"; Isserlis's friend, the Finnish composer and pianist Olli Mustonen, has added a new cadenza. Altogether, the result is beautiful, reminiscent of Prokofiev's ballets, although Elgarian in the breadth of its melody in the Andante.

The solo Sonata, in its premiere recording here, was completed by Vladimir Blok. That is to say, Blok completed the only movement to have been started in a projected four-movement sonata. Under the spell of Isserlis's unparalleled powers of communication, it is easy to imagine yourself in a work of orchestral color, so convincing is the variety of voice and attack he brings to it.

Although Kabalevsky's Concerto 2 of 1964 is haunted by the lingering perfume of Prokofiev's Concertino, and smacks more than a little of Shostakovich in the brooding melancholy of its opening sostenuto and the juxtaposition of its wide-flung emotions, it too has an enticing, individual flavor that both Isserlis and Litton obviously relish. But then, all performances on this disc are superb and the Vigars/Keener recording team are generally as hot as ever—though I found the opening of the Concertino just a little opaque.

Harrell and Ashkenazy bring to their disc of Russian repertoire that easy, almost laid-back facility that comes with years of friendship and
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close collaboration. Perhaps there is less concern in discovering the heart of the composer's muse here, but an innate sense of line and structure carries the works through. In fact, I have not heard better recorded performances of these sonatas, and the intimacy of their recording has the best interests of the listener at heart.

—Barbara Jahn

LALO: Symphonie Espagnole, Violin Concerto
Augustin Dumay, violin; Orchestre du Capitole de Toulouse, Michel Plisson
EMI CDC 7 49833 2 (CD only). Daniel Michel, eng.; Etienne Collard, prod. DDD. TT: 58:31

Lalo's Symphonie Espagnole and Concerto in D for Cello and Orchestra are recorded fairly frequently. The unjustly neglected violin concerto is not. Composed in 1873, it was first performed a year later by the legendary Spanish virtuoso Pablo de Sarasate. Notwithstanding its early success, this recording, so far as I'm able to ascertain, is only the second ever produced. Why the legions of violin superstars and their recording companies have chosen to disregard such an eminently worthy, attractive piece is a puzzle.

Although tailored to Sarasate's reputedly fabulous technique and purity of tone, after several listening sessions I cannot believe that he could have played the concerto with more brilliance and musicality than Augustin Dumay. The young violinist—about whom I know nothing biographical—is gifted with an apparently comprehensive inventory of violinistic prerequisites, technical and musical. Lalo, himself a violinist, determined that the concerto would be more than a flamboyant exercise of digital dexterity. Consequently, he took great care to fashion full partnership for the orchestra. Indeed, from the opening measures which feature the violin in cantabile mood singing with soulful reverie, the orchestral contribution provides a creative, elegant, complementary association. The artistic camaraderie of Dumay and Plisson's troops here is incandescent.

Dumay's facile courting of the delicate, graceful Andantino central movement, played with almost ineffable sweetness of tone and sensitivity, is quite lovely. The buoyant, lighthearted final movement is tossed off effortlessly with what sounds like youthful exuberance tempered with great affection.

The more familiar Symphonie Espagnole (also written for Sarasate) has been recorded in either the four- or five-movement version—this CD contains all five—by every violinist of note. Heifetz, Oistrakh, Stern, Perlman and, recently, Joshua Bell and Anne-Sophie Mutter, to name just a few, have set down their interpretations for posterity. With Bell, it's frankly no contest; Dumay is superior in every respect. Even Mutter's well-received CD of about a year ago pales in comparison with Dumay's, despite it being one of the best of the digital bunch. Dumay's artistic simpatico and exotic intensity, projected with such tonal purity, commendable bowing control, appropriate vibrato, and accurate, exciting passage-work are on a par with the finest. At the risk of castigation by Heifetz's idolaters (and I am one of his fans), in this repertoire Dumay compares very favorably with the late, much-missed Jascha.

The engineering is clear, clean, and possibly a trifle sterile. While the violin's dulcet timbre is faithfully captured, it is occasionally given undue prominence. With such an exciting display of violinism, this, however, is a very minor setback. What is annoying, though, is the absence of any biographical information about the soloist. Being so remarkably talented and so little known in this country, the omission is doubly regrettable.

—Bernard Soll

MOZART: Requiem, K.626
Barbara Schlick, soprano; Carolyn Watkinson, alto; Christoph Pregardien, tenor; Harry van der Kamp, bass; Amsterdam Baroque Orchestra, Ton Koopman
Erato 2292-45472-2 (CD only). Adriaan Verstijnen, eng.; Tinti Mathod, prod. DDD. TT: 47:01

MOZART: Requiem, K.626
Gundula Janowitz, soprano; Julia Bernheimer, mezzo-soprano; Martyn Hill, tenor; David Thomas, bass; The Hanover Band, Roy Goodman
Nimbus NI 5241 (CD only). DDD. TT: 48:05

MOZART: Requiem, K.626
Lynne Dawson, soprano; Jard van Nes, contralto; Keith Lewis, tenor; Simon Estes, bass; Philharmonia Orchestra, Carlo Maria Giulini
Sony Classical SK 45577 (CD only). Michael Shadley, eng.; David Mottley, prod. DDD. TT: 60:20

With roughly three dozen recordings of this score currently listed in Schuamm/Opus, these releases may seem unnecessary, but for those interested in period instruments, Koopman's version has much to recommend it. It features generally fast tempos made utterly convincing with clean articulation, forceful accents, wide dynamics, and richly colored, clearly defined textures. Rarely has the Dies irae (despite a relatively small number of singers and instrumentalists) sounded so wrathful, the trumpets piercing the sonority with terrifying effect. And pure, vibrato-free string tone adds an eerie ethos to the music, with moments of Lacrimosa sounding almost frighteningly tortured. In the main, this is a stark, intense reading that is sometimes fierce, other times delicately celestial (especially in the pure tone of the sopranos in the chorus), and always musical. The four soloists complement all this singing with minimum vibrato and a direct simplicity that intensifies expression. The in-concert
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recording is closely miked, but not excessively so, strings having less harshness than is usually encountered in period-instrument recordings. A commanding and warmly recommended release.

Like Koopman, Goodman directs a small ensemble of period instruments. On balance, this is one of his finest recordings. For one thing, it benefits from the acoustics of St. Giles Cripplegate and thus lacks the detail-blurring resonance that has marred so many of Goodman's previous efforts. Musically, too, this reading is often effective. As with Koopman's, it is colored by rich timbres that define textures; and often Goodman favors unusually fast tempos. But he is not quite as persuasive a musician. Thus his Kyrie sounds a bit mcing, his Dies irae, for all of its clarity and raw speed, a bit bland. In addition, his orchestra is less virtuosic than Koopman's. Still, the performance has many lovely moments, not the least of which involves choral singing featuring sopranos whose tone is so pure they almost sound like boys. On balance, though, this is not as intense, colorful, or pointedly grim a reading as Koopman's. It also differs textually, employing the H. C. Robbins Landon edition, which fills out skeletal sections with reconstructions not only by Süssmayr, but by two of Mozart's other pupils, Freystädler and Eybler, as well. The differences, by the way, between this and the straight Süssmayr completions (favored by Koopman, Giulini, and most other conductors) are not great, mainly involving matters of orchestration and voice-leading.

Giulini's new recording (his old EMI edition, which I have not heard, was recently reissued on CD) is a disappointment. If never unmusical, it nonetheless suffers from the conductor's propensity for slow tempos. Consequently, much of the music's drama and tension is neutralized, sometimes to the point of making the work sound downright dull. In addition, the wide vibrato and rolled R's favored by the soloists are too operatic and unstylish for this score. The performance, of course, is a modern one with considerably larger forces than either Goodman or Koopman employ. As a result, timbres are less biting, textures less sharply delineated. But this is not only the result of a great number of less colorful instruments. The brass, after all, cut through with far more bite in the modern Davis account (Philips). Furthermore, the cleaner articulation Davis secures suggests far more urgency than Giulini manages to project. Among modern-instrument accounts using the Süssmayr edition, Davis's stands out. And for those who are willing to sacrifice a few decibels of fidelity, a "live" 1966 Szell performance (Stradavarius) offers the most compelling account of the music I know. Finally, for anyone put off by listening to a work completed by someone other than Mozart, there is the Hogwood (L'Oiseau-Lyre), who (with period instruments) offers only what Mozart himself composed.—Mortimer H. Frank

STRAUSS: Der Rosenkavalier Suite, Salome's Dance, Suite & closing scene from Capriccio

Felicity Lott, soprano; Neeme Järvi, Scottish National Orchestra

Chandos CHAN 8758 (CD only). Ralph Couzens, eng.; Brian Couzens, prod. DDD. TT: 64:51

STRAUSS: Macbeth; Der Rosenkavalier: Waltz sequences 1 & 2, Notturno

Linda Finnie, mezzo-soprano; Neeme Järvi, Scottish National Orchestra

Chandos CHAN 8834 (CD only). Ralph Couzens, eng.; Brian Couzens, prod. DDD. TT: 59:00

STRAUSS: Josephslegende Suite, Symphonia Domestica

Gerard Schwarz, Seattle Symphony

Delos DE 3082 (CD only). John Eargle, eng.; Adam Stern, prod. DDD. TT: 77:00

STRAUSS: Verklingungene Fest—Tanzsuite & Diverimento

Hiroshi Watanasugi, Tokyo Metropolitan Symphony Orchestra

Denon 81757 6366 2 (CD only). Gen'ichi Kitami, eng.; Yoshiharu Kawaguchi, prod. DDD. TT: 64:04

Järvi and the SNO's collaboration with Chandos certainly reached a high point with their disc of the three operatic excerpts from Rosenkavalier, Salome, and Capriccio. This is surely one of the most satisfying of the lot (if you'll excuse the pun). Felicity is really quite wonderful here, justifying her reputation as one of the finest Strauss heroines around at the moment, and if Järvi and the SNO ride a little rough-shod in places, they certainly come into their own in the other two, purely orchestral extracts.

The Rosenkavalier Suite in its 1945 compilation is sumptuous. In the context of the complete opera, some of Järvi's tempi would wallow altogether too indulgently, but here they meld this hotchpotch into something quite delicious. The SNO certainly seems in top form here, but they surpass themselves in the salacious tones of Salome's Dance of the Seven Veils. Their playing is colorful, exciting, and highly suggestive—its recording has been handled with kid gloves!

With Macbeth we reach the end of Järvi's projected Strauss cycle, and though it may seem a strange choice, he and the SNO go out with a bang, not a whisper. They really make the most of this, Strauss's first (and weakest) essay in the genre of the one-movement tone poem, the structure that was to shape some of his greatest creations. In fact, they take more care over this comparatively unknown work than they do over the ubiquitous Rosenkavalier Waltzes. But this hardly matters, for the
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(Overseas readers: 911 is the emergency services telephone number in the USA.)
importance of this disc lies in its inclusion of the unjustly neglected Notturno. It is the first of two orchestrally accompanied songs that comprise Op.44, and was composed "für tiefe Stimme," its first performance being given by the bass Baptist Hoffmann with the BPO conducted by Strauss himself. Yet Strauss would have been happy with the female casting here, for its first voice-and-piano performance was given by the contralto Ernestine Schumann-Heink, who created the role of Klytemnestra in Elektra.

Mezzo Linda Finnie gives a magical performance, the SNO providing the half-lit backcloth to Dehemel's text depicting the poet's vision of death. Again, the reverberant acoustic of the Caird Hall, Dundee, swells Strauss's opulent orchestration to just the right degree.

Although Strauss composed the ballet Josephs-Legende between 1913 and '14, it was not until his exile after World War II that he got around to preparing a symphonic "fragment" in an attempt to make the work more popular. Even in this later form it is inconsistent, but Schwarz and the Seattle SO make up for this, and some unequal playing, by their enthusiastic response and their obvious enjoyment of its many instances of beautiful scoring.

Their performance of the Symphononia domestica is even more persuasive. Here they sound relaxed and affectionate, enjoying their playing and exuding a comforting reassurance in their own grasp of its intimate emotions. Had the recording been a little less thin and harsh, this disc would have earned a first-rate recommendation, considering its excellent TT value.

Finally, the Tokyo Met. SO completes its cycle of Strauss's full-length ballets with a disc of orchestrated dance pieces based on the Klavier works of François Couperin. If Schlagobers provoked a vitriolic attack from my Music Editor (Vol.13 No.10), then this disc could, for very different reasons, draw equal fire from those taken by surprise. Verklungene Feste; a peculiar and complicated hybrid that first saw the light of day in 1941, consists of the eight-movement Dance Suite, which was written in 1923 and given by Clemens Krauss as a ballet in Vienna, and six new pieces added in 1941. In 1943 Strauss took these last six pieces and added two more to make the augmented concert suite, Divertimento. Authenticists would tear their hair at Strauss's Romantic harmonies and orchestrations (celesta and harpsichord quite happily pirouette hand in hand!), and the closely focused recording which belies small-scale scoring. Wakasugi and the Tokyo MSO, with their mostly well-coordinated if rather literal renderings, somehow make this engaging music sound totally ludicrous. But it's fun when taken in small doses—to hear it once from end to end, though, requires some stamina!

—Barbara Jahn

**WAGNER: Die Walküre, Act I**
Klaus König, Siegmund; Susan Dunn, Sieglinde; Peter Meven, Hunding; Pittsburgh Symphony Orchestra, Lorin Maazel

After their stupendously popular but (to me) unlistenable Ring Without Words (Vol.11 No.9), Telarc has once again hired Lorin Maazel to conduct their next Wagner project: Act I of the Ring's First Day, Die Walküre. This, Telarc's first cautious foot in the often turbulent, seldom profitable waters of recorded opera, is less a triumph than a qualified success. Still, it deserves to sell well, and I hope it does: if Telarc shows a profit on this one, their next step is to record a complete opera. How many audiophile recordlings of complete operas do you know of?

Maazel may be the favorite conductor of no one but his mother, but that doesn't keep him from recording a great deal. Here he shows surprising—and uncharacteristic—good taste and balance in his conducting of the Pittsburgh Symphony, each beautifully sculpted phrase providing the singers with deft, perfect support. True, Maazel lacks any compelling overall vision of this most intimate, most pure and perfect act of the entire Ring, but he moves it along briskly without skimming the surface (though his Prelude is just as tediously dogged as on Without Words). Only when Hunding sings does Maazel inexplicably drag, though things invariably pick up after. The PSO is entirely up to the task for the most part, though the bass trumpet, which has so many solos in this work, is floppy and uncertain of tone.

The singers are far more interesting.

Peter Meven is a reserved, almost patrician Hunding, and not all that hefty in his upper range—a far cry from the coarse, one-dimensional hooting so often heard in this role, and an interesting, intelligent choice, if not with full emotional commitment. Klaus König, who passionately sang the lead in Haitink's excellent Tannhäuser recording of a few years ago (Vol.13 No.7, p.164), here tackles Siegmund with somewhat fruitier tone, wider vibrato, and a strange disinterest. The voice itself is lush, powerful, and seemingly full of feeling—reminiscent of Konrad Lorenz in his prime—but there's a distinct sense of König simply waiting to be cued for each entrance, and of Maazel not raising his baton again until König's finished; the tenor doesn't leap into the role. If his performance has plenty of luscious sound, there's not much poetry, and far too little freedom with the beat.

Stereophile, August 1991
But Susan Dunn's Sieglinde is simply glorious: virtually effortless throughout her range, free, liquid, rich but not oversweet, and more than fulfilling the promise made on her debut recital disc with Riccardo Chailly (which included excerpts from this same act; see Vol.12 No.11, p.200). Consistently, Dunn's sinfully smarts and sheer tonal beauty sent chills up my spine. She's an exciting singer—I hope she continues to explore this demanding repertoire, which, as always, desperately needs whatever world-class exponents it can find, force, or fake. Susan Dunn is the genuine article: a dramatic soprano with a gorgeous instrument and brains to match. Her seemingly infinite variety of tonal colorations allows her to express emotional and dramatic nuances without sacrificing, à la Fischer-Dieskau, the melodic pulse. As Sieglinde at last begins to remember where she's seen her long-lost twin before, we feel with her that slow thrill of wondering discovery (and so does this Siegmund, as König at last awakes—and promptly falls asleep again for "Nothung! Nothung!"). Dunn's Sieglinde may be an emotional introvert compared with, say, Crespin's or Almeyer's, but she's an intense, intricately detailed introvert with just as rich an emotional life. I can't wait to hear her in Wagner's three Elsa's—Elsa, Eva, Elisabeth—and if Marton and Behrens can trot those flawed Brünnhildes and Isoldes around the globe as top draws, there's definitely a place for Dunn. (Besides, her German has improved tremendously since the London recital disc; listen to those rolled R's!)

The somewhat dry sound is close to Telarc's best, sounding very much like a performance recorded in an empty concert hall—Pittsburgh's Heinz Hall, to be exact. This is emphatically a 'concert performance': there are no attempts by singers or producer to approximate entrances, exits, stage business, etc. The singers are thus squarely front-and-center, the orchestra spread out behind; soundstaging is very precise. The minimal miking picks up plenty of natural reverb; the die-away after the final sfondo goes on forever (though hard-core Telarc fans should know that Wagner did not score this act for bass drum). It's too bad that Telarc, usually so good in this department, included no artist bios or photos.

Not bad at all for your very first try, Telarc; let's have more. But next time schedule a day or so more of rehearsal, and first make sure Susan Dunn's got you penciled in.

—Richard Lehnhert
money-makers.

Even in the better-known works in this initial release there are unexpected turns. The well-known and oft-recorded cellist Anner Bylsma has chosen to play Bach's gamba suites on neither a gamba nor a cello, but rather on the cello piccolo, where the lighter tone emphasizes the treble line. In addition, his continuo player employs a trunk organ rather than the harpsichord which Bach specified. There's nothing inherently "wrong" about either of these choices—Bach cheerfully transcribed, arranged, and reworked his compositions (and others') for any number of instruments; the question is, would the resultant sound be appropriate to the music? At first I was put off by sonorities which rather differ from the expected, but about 15 minutes into the disc I found myself enjoying it a great deal. Bylsma's playing probably can't be bettered in terms of precision and fluid articulation; he has, after all, been playing this music since before I was born. If you require a gamba in these suites, there is Kuijken (with Leonhard on harpsichord) on DHM 77044-2, a fine performance at budget price, but I'd have to choose Bylsma/Van Asperen for my first recommendation. This was the first of the Vivartes I heard, and it put me in a good mood for the rest.

The Bach lute suites are a story in themselves, a story I intend to consider in a future review. For now, let me try to very briefly explain what lutenist Lutz Kirchhof is trying to do with them. He appears to reason thusly: Bach was familiar with the sound of the lute (he owned one, and knew several prominent lutenists of his day); therefore, when he wrote arranged these works, he "heard" them as being played on that instrument. However, the composer himself did not actually play the lute, and so was unaware that the structures he had written (in ordinary notation rather than tablature) could not actually be played on the instruments of the time in their ordinary tunings. In the days since Bach's death, many guitarists and lutenists have played these pieces in different keys and tunings with those changes necessary to render them playable. Kirchhof reasoned, however, that it would be useful to hear as precisely as possible those sonorities which had existed in Bach's mind when he set them down. So here we have, for the first time, the lute suites of Johann Sebastian Bach in the original keys and tunings. I presume no one told Kirchhof that this was an impossible feat, so he went ahead and did it.

Make no mistake: this recording is an absolute tour de force of lute technique—lutenists will doubtless listen and weep. By comparison, the famous Walter Gerwig version (Nonesuch H 71137) sounds too guitaristic, although a lute is employed. Kirchhof gets far more tonal and dynamic contrast out of his lute and theorbo, and his ornamentation of the famous (aude Jethro Tull) bourée from BWV 996 is positively dazzling and true to its Baroque identity. Anyone with a serious interest in Bach ought to have this recording. I will probably have more to say about this performance in future.

The Bach releases in this issue conclude with the Motets; although JSB wrote only a few of these, they each represent a valuable conspectus of some aspect of the composer's genius. The Stuttgarters do well with them, although I could wish for a bit more in the way of dynamics. The addition of instruments (as indicated in the manuscripts) definitely works, and Bernius has clearly done his homework.

Leaving Bach, we go back a hundred-odd years to Heinrich Schütz's magnificent Christmas and Easter Historien. The Christmas work is huge and elaborate, with complex and varied scoring. Everyone involved in this recording does splendidly, especially Christoph Pregardien as the Evangelist, and the two male altos, David Cordier and Christopher Robson. The Stuttgart Bach Orchestra play beautifully, particularly the brass section, which will make you forget everything you've heard about period wind sound.

The Resurrection story is a simpler work, and receives an equally fine performance from Bernius and his forces. The well-known soprano Mieke van der Sluis does very well with the difficult writing for Mary Magdalene, and Christopher Robson handles the strangely chromatic role of Jesus with élan (though I think there may be some sonic manipulation going on). On the whole, an extremely valuable disc.

Antoine Brumel's Mass Et ecce terrae motus is an interesting work, written in a late Gothic style, but using harmonic and contrapuntal techniques more usually associated with the Renaissance. This performance by the Huelgas Ensemble is its first appearance on disc, and it's a welcome one. Considering that no less an authority than Orlando Lasso admired this work, my comments are essentially superfluous, but I'll make them anyway. Brumel's writing is both daring and complex, and he makes use of considerable vocal range. I was struck particularly by the beauty of the Credo with its glorious and vivid harmonies.

In addition to the complete Et ecce Mass, we also have the sequence Dies irae, written in a more archaic style. (Brumel's Requiem, from which this sequence is taken, was the first polyphonic Requiem of which we have record.)
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The Huelgas Ensemble performs with excellent intonation and balance, but I would prefer their sibilants to be a bit less prominent; the recording may exacerbate this to some extent.

The Huelgas singers are also featured in a performance of portions of a 15th-century Neapolitan Mass cycle based on the famous L'homme armé tenor; again, a first recording. While I found these works historically interesting, they are none of them as fine as the Brumel setting, and the producers' decision not to give us a complete Mass is disappointing; although one could assemble such a thing with the CD programming facilities, you would not be sure of its being representative of the original MS. It is, however, heartening to have such an academically oriented performance on a major label. I'm pleased that Paul van Nevel likes to record previously unknown compositions—it bodes well for his association with Sony.

In a similar scholarly vein, we have Konrad Ruhland and the Niederaltaicher Scholaren in a disc of plainsong devoted to the Virgin. I confess that chant is not my usual field, but I can say with confidence that the German choir heard here does not have the precise intonation of the best English or French groups, and their voicing suffers as a result. (Note especially the selection from Ecclesiastes.) I will also admit to being put off a bit by the liner notes' mention of the University of Philadelphia, which does not exist.

Last, but definitely not least, we have the very talented Bob van Asperen heard solo in a recital of Dutch harpsichord pieces. Van Asperen ornaments with grace, skill, and extraordinary agility, and I could not imagine a better advocate for this music. The big number here is the Sonata in a by Jan Adam Reincken, an important precursor and inspiration for Bach. There's also a fine Chromatic Fantasy and a variant of Dowland's Lachrymae, both by Jan Pieterszoon Sweelinck, and another version of the Aria di Firenze which I have been encountering a lot of late. If any more proof is needed to show that we are in a Golden Age of harpsichordists, this will serve nicely.

The name of producer Wolf Erichson will be familiar to collectors from his long association with DG. He was responsible for engineering many of that label's sonic successes—in the days when there were precious few of those all told. Audiophiles should be aware that Erichson does not make "purist" recordings; he uses a good deal of spot pinning. Nevertheless, he has always been careful to create at least the semblance of realistic soundstaging and ambience. His efforts here are something of a mixed bag. The solo harpsichord disc, for example, is very fine with a strong sense of the hall sound; the Schütz is a model of this sort of recording. ("20-bit technology" is advertised on that one—does this represent true 20-bit words truncated with dither down to 16? It sounds good in any case, with no hardness whatsoever in the treble.) The Ave Maris Stella CD is much worse—far too "wet," with a loss of image specificity. Considering what CBS records used to sound like, I should stop quibbling. Compared to the old days, this is Sheffield Lab.

In sum, then, a promising initial batch, with a strong recommendation for Bylsma, Kirchhof, van Asperen, and Schütz. The rest are up to you. (I should mention in passing the uniform excellence of the liner notes, Philadelphia U. excepted.)

—Les Berkley

**Show Music**

**JILL GOMEZ: South of the Border**  
Jill Gomez, soprano; National Philharmonic Orchestra, Barry Wordsworth, cond.; Nettle and Markham, piano duo  
Hyperion CDA66500 (CD only). Christopher Palmer, prod.; Richard Lewsey, eng. DDD. TT: 67:38

What do Allie Wrubel, Sebastián de Yradier, Jimmy Kennedy, Nat Simon, Gabriel Ruiz, Cole Porter, Alberto Domínguez, Vincent Youmans, Ernesto Lacuona, Noel Coward, and William Walton have in common? Give up? They wrote music that is featured on this "crossover" recording by Jill Gomez. The collection is not as eclectic as it may appear: all the music is of the Latin-American variety (real or ersatz), most of it written in the period between the wars. Five of the eighteen numbers are instrumentals, the rest are sung—in, variously, "proper" English, Hollywood-Spanish-accented English, and Spanish—by Gomez, accompanied by the National Philharmonic and featuring the Nettie and Markham piano duo. It's old-fashioned in the best possible way, recalling, as Ted Perry says in the liner notes, a "not-so-distant time when the Brazilian forests were still intact and such concepts as acid rain, oil spills and nuclear confrontation would have been the subjects only of science fiction of the blacker sort." Gomez, with a Spanish father and an English mother, is a natural for this repertoire, and she sounds like she's having the time of her life. The programming is very clever: there's a nice mix of numbers done obviously with tongue in cheek ("The Carlioca," "Peanut Vender," "Nina from Argentina"), others performed with the seriousness of an art song ("Perfidia," "Amor, Amor," "Orchids in the Moonlight"), and, just as you're about to tire of Gomez's voice, there's an instrumental selection. The

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arrangements, mostly by Chris Palmer and Jeff Atmajian, use the full resources of a symphony orchestra plus various “Latin” instruments like marimbas with an inventiveness that is nothing short of brilliant, and Barry Wordsworth conducts with great sensitivity. Apart from some edginess in passages where Gomez sings high and loud, sound is topnotch: startlingly realistic instrumental timbres, a soundstage that’s wide and deep, and, in “Malaguena,” a bass drum that out-Telarc Telarc.

Did I make it clear that I like this record?

—Robert Deutsch

**Jazz**

**KEITH JARRETT TRIO: Tribute**

Keith Jarrett, piano; Gary Peacock, bass; Jack Dejohnette, drums

ECM 1420/21 (847 135-2, 2 CDs only). Jan Erik Kongshaug, O. Fries, engs.; Manfred Eicher, prod. DDD. TT: 115:05

Damn. Just checked my private stash of pure, uncut, Peruvian superlatives, and they’re just about out. Bummer. Worst scene a record reviewer can play. But what’d I expect after listening to 6½ hours of Jarrett’s Sun Bear Concerts, then Dave Holland’s Extensions, then the Hot Spot soundtrack, then Taj Mahal’s new Mule Bone (the Natchl Blues Rides Again!), and Elvis Costello’s Mighty Like A Rose, not to mention Columbia’s new box of nearly four prime hours of previously unreleased vintage Dylan? Bad action, mama.

Still, crank it up I must, as if I haven’t been having one of the best months ever in a lifetime of listening. But let’s keep it minimal—I mean, what is it you really need to know to get you down to your local musicmonger’s so’s you can plonk down 25 dead prezze and take Tribute home?

Start here: Just when you thought it was safe to listen to your old Bill Evans records again, Keith Jarrett’s “Standards” combo has gone and gotten even better than it was on 1988’s Still Life (Vol.11 No.8), the trio’s last recorded run-in with the Great American Songbook. Hard to believe, I know, but genuine troth—I swear it on my stack of Miles Davis bootlegs.

Tribute’s got a gimmick: Jarrett has picked his ten most important jazz influences—Lee Konitz, Jim Hall, Nancy Wilson, Bill Evans, Charlie Parker, Coleman Hawkins, Miles Davis, Anita O’Day, Sonny Rollins, John Coltrane—and paid, ah, tribute to each with an appropriate standard they themselves loved to play. (Jarrett’s mellowed—used to be he never admitted being influenced by anyone.) But dig: in no way does KJ try to ape these (mostly) guys, any more than Herbie Hancock & Co. tried to re-create expatriate ’50s Parisian bebop on the ’Round Midnight soundtrack. What Tribute gives you is a lot more than a musical museum; it’s a much more direct, straight-to-the-soul, spiritual connection with these mentors, living and dead. And it makes sense that of the ten musicians paid tribute, six are horn players and two are singers: about what you’d expect from someone who sings through a percussion instrument better than most horn blowers blow or vocalists sing, and who’s given whole new meanings to the concept of jazz cantabile.

It makes for some odd cross-references: “Lover Man,” dedicated to Lee Konitz, comes out sounding like Bill Evans, while the tune dedicated to Evans himself, Miles Davis’s “Solar,” sounds more like Red Garland, and “All of You,” dedicated to Miles Davis, reminds just a bit of Ahmad Jamal, who Miles admits was one of his own big influences. But it doesn’t really matter who Jarrett’s dedicatees are, or what tunes he plays for them, because what this set sounds like most is the Keith Jarrett Trio. What counts is the fact that the playing itself is simply unparalleled, even given the usual very high level of “musical telepathy” that’s become reviewer’s boilerplate for this band (including my own reviews of them), so relaxed and so intense all at once that it all sounds so much easier than it could possibly be, making you wonder why anyone would ever want these tunes played any other way.

Jack Dejohnette’s New Orleans influences are more in evidence all the time as his playing evolves—listen to his breaks on “Solar” and “All of You”—and that means ever more relaxed playing, driving more and more with fewer and fewer notes; an inversion of the young Tony Williams. And Gary Peacock remains, with Dave Holland, one of the two or three most satisfying bass players around: full, rich support, never grandstanding, always walking like it’s the first time down this particular path—confident, sure, full of discovery. What more could you ask?

You don’t have to—it’s here anyway. Like the astonishing interplay between Jarrett and Dejohnette on the Charlie Parker tribute, “Just in Time”: I sat there listening in a ten-minute wince, just waiting for the missed cadence, the dropped baton. It never happened. The trio cooked and cooked, built and built. Talk about creative tension . . . !

Or Coleman Hawkins’s lugubrious ghost almost taking a chorus on “Smoke Gets in Your Eyes.”

Or Jarrett’s long, long implied-guitar lines on the Jim Hall dedication, “I Hear a Rhapsody.”

Or “It’s Easy to Remember,” even quieter, though not as blue, as Trane’s own version on

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Ballads.

Or the real stinger, "All the Things You Are," as different as could be from the version on Standards Vol. 1, Jarrett beginning fugally, parsing the tune's rhythm and melody, folding them in on themselves like printed wrapping paper, then holding the whole thing up to the light to reveal rich new patterns. This one brings the otherwise stated, well-behaved, echt Deutsch audience (Köln again) to a shouting, whistling uproar. No surprise that this is the Sonny Rollins tribute, all of straight-ahead, high-energy fun and pianistic break-dancing.

The two Jarrett "originals," jams growing out of "Solar" and "It's Easy to Remember," are reminiscent of their very similar sisters on Changeless (Vol.13 No.6), a whole disc of such improvs. They're about as satisfying without ever rising above their own lack of material; though I've got to admit, Dejohnette amazes me with his relaxation on "U Dance," a classic Jarrett Caribbean gospel jam.

Sound is satisfyingly warm, undigital, with more or less believable soundstaging. The drums are too wide, as usual, but the piano is realistically sized for a change, not spreading as wide as the speakers are apart. Bass is somewhat left of center, drums (mostly) somewhat right; all in all, pretty natural soundstaging, and, as far as I can tell, accurate. Still, the mix is strange, drums consistently superimposed on the piano; listen to any Chesky jazz CD for what this kind of combo should sound like.

Say what? I hear you Old-Agers—you who've sworn never to listen to another Jarrett Solo Concert in your life (your loss, fellas)—squirmning in your sticky jazzclub seats: "But does it swing?"

Yes. Yes. As recommended as they wanna be.
—Richard Lehnert

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A Clutch of Jazz Cheskys

**DAVID CHESKY: The New York Chorinos**
David Chesky, piano; Romero Lubambo, guitar
Chesky JD39. TT: 69:16
ANA CARAM: Amazonia
Ana Caram, guitar, vocals; David Finck, bass; Portinho, drums; Leandro Braga, piano; Steve Sacks, flute, alto flute, alto sax; Ted Lo, synthesizers; Cyro Baptista, percussion
Chesky JD45. TT: 55:54

**PHIL WOODS: The Little Big Band**
Phil Woods, alto sax, clarinet; Steve Gilmore, bass; Bill Goodwin, drums; Jim McNeely, piano; Tom Harrell, trumpet, flugelhorn; Hal Crooks, trombone; Nick Brignola, baritone & alto sax; Nelson Hill, tenor & alto sax
Chesky JD47. TT: 68:56

**NATASHA: Natasha**
Natasha, vocals; Joel Diamond, piano, organ;
Teddy Erwin, guitar; Stu Woods, bass; Richard Crooks, drums; David Chesky, organ
Chesky JD48. TT: 54:22

**All four:** CD only. Norman & David Chesky, prods.; Bob Katz, eng. DDD.

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**CLARK TERRY: Portraits**
Clark Terry, trumpet, flugelhorn; Don Friedman, piano; Victor Gaskin, bass; Lewis Nash, drums
Chesky JR-2

**ANA CARAM: Rio After Dark**
Ana Caram, guitar, vocals; Steve Sacks, alto flute; David Finck, bass; Carlos Alberto De Oliveira, percussion; Café, percussion; Antonio Carlos Jobim, piano; Paquito D'Rivera, alto sax, clarinet; Bill Washer, guitar
Chesky JR-28

**Bob:** LPs from the original analog master tapes, mastered by Tim de Paravicini and John Dent at the Exchange on a custom-built all-tube cutting lathe. Norman & David Chesky, prods.; Bob Katz, eng. AAA.

Another handful of CDs from Chesky Records—two sure-fire winners, one stinker, and one I'm ambivalent about. These latest recordings present a diverse selection of musical styles ranging from elegant, impressionistic chorinos to funky barroom blues, with stops along the way for exuberant, wailing jazz and Brazilian popular song. It's good to see Chesky expanding its repertoire. Too often record companies get locked into a genre of music with which they're comfortable, refusing to take risks. Chesky takes risks, and the results are generally worth it. It's also nice to see them getting away from the generic cover art of their earlier pop and jazz releases. I especially liked William Cantwell's painting for Amazonia.

Multi-talented pianist David Chesky and guitarist Romero Lubambo give us 70 minutes of pianoguitar duos on JD39. Boring? Not in the least. I found the format appropriate, for the music—rhythmically simple yet structurally and harmonically sophisticated—is intimate in feel and refined in execution. The result is beguiling and seductive, as satisfying as a fine wine enjoyed in the company of close friends. There are no rough edges here. Instead, the songs are carried on the rhythm generated between the two instruments—the aural equivalent of watching clouds waft across Southwestern skies. This is music to enjoy, not analyze. The 16 Chorinos, all David Chesky originals, relate to various locales he knows, or experiences he has had, in New York City. Without exception, the Chorinos are lyrical, rich in harmony, and beautifully captured by the recording. The interplay between the two instru-

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ments sounds so spontaneous it surprised me to learn that most of what I was hearing was not improvised. David, on a fine-sounding Steinway, and guitarist Lubambo complement each other the way a carefully prepared sauce enhances pasta. Hint: Program your CD player for tracks 3, 5, 7, 9, 14, and 16 if you want ideal music for late-night listening sessions with your lover.

Intonation problems plague Ana Caram on Amazonia. Her voice is seductive and enchanting, as I mentioned in my review of her first Chesky release; I just wish she could sing in tune more of the time! She seems (at times) to hit the notes just enough off-center to make me uneasy. This is most evident on “Cigano” where, toward the song’s end, Ana is clearly struggling. Coincidentally, her voice suddenly shifts off-center to the right and back, as if she’s turned to look over her left shoulder to get support from the musicians behind her. This song was painful for me to listen to; I was relieved when the fade came. I’m surprised this performance was included in the album.

Fortunately, it was the exception; the rest of the album proved pleasant, if not particularly exciting—due, in large part, to Ana’s style (a bit too laid-back for me this time around) and a tendency for the rhythm section to hold back. I missed the excitement and energy of her first album. It’s like eating an aged steak cooked well-done instead of rare. You may get the same nourishment from both, but sinking your teeth into the latter and chewing it, with the juices running down your chin, is primal, sensual, and exciting. Eating steak well-done is as exciting as eating toasted crackers.

Incidentally, on “Cigano” and “Antonio’s Song,” I heard something in the piano’s upper registers which reminded me of an audiophile’s worst nightmare—a type of distortion which gave the piano sound a bad case of DITS (and it ain’t due to my system)!. With what happened, fellas? Ana does best on slow, melancholy songs like Jobim’s “Solidao.” The up-tempo numbers just don’t cut it. (I’d like to spend a Saturday night with Ana at the bar in Foster’s Hotel in Chama, NM where Flaco Jimenez and Dwight Yoakam leap out of the jukebox. This does it for me!) “Mae Terra” is captivating, with good synth effects and well-recorded backing chorus. Ana finally lets loose on this one. (I knew she had it in her!) “Jungle” will justifiably be used as demo fodder; its clearly recorded percussion effects will definitely test your system’s “speed.” But in all, after listening to this disc, I felt I had just consumed Tofu cheesecake.

Blues singer, guitarist, songwriter, and lyricist Natasha certainly looks the part, what with the wind-swept hair, leather jacket, and grip on what looks like a Fender guitar. Her sultry stare, captured in the jewel-box photo, challenges. Is this the kind of gal you’d want to snuggle up next to in a crowded bar to discuss Sartre or Camus? Nosiree! This is the kind of woman you’d love to wriggle with on the dance floor—to get hot with to the music of Buddy Guy or Junior Wells—raw, sensual, down’n’dirty. But I’d want to marry her to prove to her not all guys are like the jerk she sings about in “Seven Angels.”

Boy, can she sing! Her voice is right-on for this type of music, combining control with emotion—a breakthrough tension contrasting with firmly planted roots. I hear Carmen McRae, Janis, Etta, and Billie in her voice (captured magnificently by the recording). But she’s no clone. Her voice is powerful, assured, distinctive—the voice of one who’s paid her dues. I hear B.B. King, Muddy Waters, and Albert Collins in her guitar style (Natasha gets in some good licks on “High Cost of Loving” and “Walking By Myself”). The music is mostly medium-tempo blues, several of which have a distinct New Orleans flavor spiced with a bit of Chicago’s South Side. In addition to four Natasha originals (two co-written with pianist Joel Diamond), there are covers of Roscoe Gordon’s “Just A Little Bit,” Jimmie Rogers’ “Walking By Myself,” and three tunes by Mac Rebennack (Dr. John) and the late Doc Pomus. With a disc full of such good material, why aren’t I raving about the music instead of the girl? Because all the power, passion, and soul in Natasha’s guitar-playing and voice (which can stop a man cold ten feet away) is just about lost in the homogenized, plodding, stiff accompaniment. Loosen up, fellas! Please! You’re not playing this music “dirty” enough. Cleanliness may be next to Godliness, but not when it comes to the blues. It ain’t Mozart, fer chris-sakes. Kick out the jams and let the blues roar! Natasha deserves it.

An example of what I mean by kicking out the jams can be heard on Real Life. Phil Woods’ octet roars through the tunes on this disc with an energy that slapped me in the face, slammed me down in my chair, and said LISTEN! I did; I can sincerely say that this is the one I’ve been waiting for from Chesky Jazz. This music is as vital as anything else recorded today, and is a must for modern jazz lovers. What is there to say about 59-year-old Phil Woods other than he’s quite possibly the greatest alto sax player on the planet? He’s still playing with the fire and inventiveness he’s been known and respected for for decades. (I’m sure Bird is smiling, knowing the style he established is being carried on so well.) The

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small-band format Phil has chosen for this session is ideal: large enough to feature ensemble playing, small enough to retain the intimacy of the jazz experience and let the musicians blow. And blow they do, beginning with pianist McNeely's title tune. This one kicks off in a medium 4/4 tempo and features my favorite trumpeter, Tom Harrell. After Harrell's stunning solo, Phil comes in like a comet and blows his heart out, covering the horn in a way few others do (or can). Beautiful ensemble writing and playing elevate Phil's "Quill" (dedicated to the late, great alto saxist Gene Quill) to the highest plateau of the jazz art. It's a jaunty romp into alto madness as first Phil, then Nelson Hill, and finally Nick Brignola take turns testifying.

Trombonist Hal Crook's melancholy "Idols" slows things down a bit, and the band relaxes. Phil contributes a one-of-a-kind solo, followed by Crook's emotionally charged trombone. Drummer Bill Goodwin kicks off "Loose Change" with a no-nonsense beat which informs the listener he/she is in for a good old-fashioned jam with everyone getting a chance to solo. Nick Brignola switches to baritone sax, Nelson Hill to tenor on this one. Especially check out the group improvisation and tight ensemble playing toward the end of the song—this great performance had my fingers popping and head bobbing. Phil's clarinet is featured on his "Waltz for Harry," along with Harrell's lithe flugelhorn, Jim McNeely's piano, and Steve Gilmore's bass. Tom Harrell's "Sail Away" serves as a vehicle for Hal Crook's elegant trombone style. His singing tone, combined with fluid execution, showers the listener with waves of sound; music of the highest order.

I could rave on and on about this disc. Instead, I'll just recommend you run out and buy it—immediately. As my friend Ramón says, "If you don't have this album in your collection, it will never be complete." The sound is up to Chesky's best, perfectly reflecting the musicians as pictured on the inset photos. I also recommend New York Chorinbos and Natasha for music to soothe the savage beast and a voice to fall in love with, respectively.

In response to audiophiles who prefer vinyl to polycarbonate, Chesky has released Clark Terry's Portraits and Ana Caram's Rio After Dark on LP. These recordings were made from the original master analog tapes from the original sessions, edited by Chesky engineer Bob Katz, then sent to Tim de Paravicini in England for mastering on a custom-built all-tube cutting lathe. The LPs were subsequently pressed by Aligned Audio on heavy, flat vinyl. How do they sound, compared to the CDs? Wonderful! These slabs o' wax exhibited quiet surfaces and an absence of background noise which rivaled their CD counterparts. They also exhibited a quality which the CDs lack—body. An immediate enhancement of the palpability of the performance was apparent listening to the LPs (more "there" there, if you will). At the same volume level, the CDs seemed undernourished when compared to the LPs (I had to increase the playback level to get the same impact from the CDs). Without exception, the instruments and vocals sounded more real and believable on the analog LPs. In terms of dynamics, the CDs sounded held-back, while transients exploded out of the music via LP. The CDs are excellent, some of the best you will hear, but the LPs are better in every way that matters in the enjoyment of music. I urge you to buy these LPs and give Chesky Records the support they deserve. Few companies release LPs these days; even fewer will do so in the future. If you trust your ears, you'll treasure these recordings.

—Guy Lemcoe

**TAJ MAHAL: Mule Bone**
Gramavision R2 79452 (CD only). Taj Mahal, Jonathan F. P. Rose, prod.; mastered by Bob Ludwig. AAD. TT: 33:43

**TAJ MAHAL: Like Never Before**
Private Music 2081-2-P (CD only), Skip Drinker, prod.; Phil Nicolo, eng. AAD. TT: 47:18

Hey y'all—*Mule Bone* is the best Taj album in a long time. He hasn't made music with this much sit-up-straight country-bluesy punch since the late '60s and that stone 1968 classic, *The Natch'l Blues*. Just wait you hear "But I Rode Some," which'll remind the faithful of "She Caught the Katy" from *Natch'l* (still in print on cassette). This is the groove Taj has always tracked best, and after so many years of dabbling in black world music from the Caribbean to Africa to Hawaii, it's great to hear him getting back to this most basic of all Afro-American sounds.

'Cause these blues be clean—bracing, to-the-point, full-of-sunshine, joyous blues; blues a man's almost happy to have. "Hey Hey Blues" is timeless, and Taj's harp has never sounded better. And nothing's so joyful as the wordless clap-along "Finale." Really, Taj hasn't sounded this happy for so long that I'd about given up.

He's got a stripped-down electric band plus his own banjo, Nat'l. Steel Standard guitar, and that aforementioned Marine Band Mouth Organ. The recording's more processed than James Brown's 1963 coif, but do I care? This music is as alive as the jumpin'est Delta sharecropper just arrived in Chicago's South Side with this great idea, see, about electric blues. . .

And Langston Hughes wrote the lyrics. Taj
wrote this music for a play that Harlem Renai-
sancers Hughes and Zora Neale Hurston started
writing 60 years ago before they had a massive
falling-out and ditched the project. Well sir,
Mule Bone is playing at the Lincoln Center The-
ater as I write, but if you don’t happen to live in
what the swells call the Greater NY Metro-
]opolitan Area, just truck on down to your favor-
ite CD hole and hook Mule Bone: The CD. If
you ever liked Taj, you’ll love this.

And Like Never Before... I’ll say. Taj makes
a pop album. He’s got at least a dozen musicians
on almost every cut, including David Lindley,
Paul Barrère (Little Feat), Hall & Oates, and Dr.
John, with synthesizers and backup singers (the
Pointer Sisters!) galore. Pretty damn slick, and
a bit of a shock to old Taj fans (like me) who’ve
gotten used to his increasingly homemade
funky-butt roots thang. But there’s some of that
old-style stuff too, especially on “Blues With
A Feeling,” a duet with Taj on piano, Sonny
Rhodes on lap steel, and lots of tapping toes.

“Big Legged Mommas Are Back In Style” is
a fast stride in the Taj’s best old musical style with
a newly raunchy lyric bent, but the near-X
lyrics are so good-natured it’s hard to take
offense. And the welcome, goodnatured retreats of
two Taj classics of yesteryear, the newly Dix-
ified “Cakewalk Into Town” and the soothing
“Take a Giant Step” — Taj’s best and gentlest of
the four recordings he’s made of this song—
root this disc firmly in Tajland.

Otherwise it’s full-fledged pop accompani-
ment, but if that ain’t your cup of meat, let it
be known that this album has got Taj’s best sing-
ing in years—even better than on Mule Bone.
Meanwhile, on oddities like “Squat that Rab-
bit,” Taj sings a quick blues shuffle while rappy
samplings and turntable scratchings fill the mix.

Cubist blues, Pablo, with some outside lyrics:
“I feel some good my story be hurting me so
I she got snow on the roof, volcano white hot
down below.” Yo. And “Ev’ry Wind (In the River)”
blends some strong mandolin playing with a reggae rhythm section. The sound
is standard pop multi-mono, but the digitization
won’t hurt your ears.

In short, two exciting, upbeat discs from a
big-hearted man we’ve heard all too little from
for far too long. Welcome back, Taj; you sound
like you’re enjoying it. —Richard Lehnert

Phil Ochs, guitar: Allen Ginsberg, bells
Rhino R2 70778 (CD only). Michael Ochs, prod. TE: 67:47
It was 15 years ago in April that folksinger Phil
Ochs hung himself in the basement of his sis-
ter’s Queens, NY house. Since his death, rela-
tively little of his music has been issued. Con-
sidering that only Bob Dylan garnered more
popularity during the height of the Vietnam
War, it seems surprising.

Much of Ochs’s career was managed by his
younger brother, Michael, who has since created
the vast Michael Ochs Archives that supplies
many magazines with rock, R&B, and jazz pho-
notographs. Since his brother’s death, Michael
has produced the few releases, mostly CD compi-
lations composed largely of previously issued
material.

Under Michael Ochs’s direction, Rhino Rec-
ords, that off-beat and thoroughly unpatterned
company, issues Phil Ochs There & Now: Live
in Vancouver, 1968. It’s a collection of 14 songs
delivered acoustically, from a performance that
was part of a poetry and peace event. While
most of these songs appear on previous record-
ings, the renditions surfaced on A&M records,
primarily amid heavy string arrangements and
 overdubs. The value of the current release is
its nakedness: Ochs, his guitar, and that quiver-
ing, sometimes near-falsetto voice that my edi-
tor here says he’s always had problems with. (I
never did.)

The set takes place shortly after the Chicago
Democratic Convention, that bloody, divisive
event that saw the country split still further
over the war, over political strategy and meth-
odology. The timing of this release is impor-
tant to note. Chicago permanently scarred
Ochs, feeding his growing disillusionment with
America. The violence at Chicago stands as tes-
timony to Ochs’s subsequent irreversible down-
ward spiral. When the smoke from the Windy
City cleared, the co-founder—with Jerry Rubin
and the late Abbie Hoffman—of the Yippie
Party emerged altered.

As such, Ochs, delivering between-song
mini-raps, comes across as cynical, bitter, and
depressed, eerily quiet. His sarcastic wit is
there, including his classic imitation of Dylan
on “The Doll House.” His sharp-tongued, po-
gnant comments, however, only serve to paint
a clearer picture of this rebel with causes.

Artistically, Ochs was at his peak on There
& Now. The recording quality is surprisingly
good; only occasionally does something sound
slightly muffled. His voice is clear, though
the guitar is miked a bit hot. He hits high notes as
he weaves through such tales as “Outside a
Small Circle of Friends,” “Pleasures of the
Harbor,” “Changes,” and “Crucifixion.” And Ochs
is appropriately charged on “I Kill Therefore
I Am,” “I Ain’t Marching Anymore,” and
“Another Age.”

With comprehensive notes by Billy Bragg—a
serious fan—who enjoyed Phil Ochs the first
time around should appreciate this recol-
lection.

—Jon W. Poses
**THE AUDIO GLOSSARY** by J. GORDON HOLT

In the three and a half decades since the arrival of stereo, no one has done more than J. Gordon Holt to develop and define a consistent vocabulary for describing reproduced sound. This is actually two dictionaries in one: a glossary of subjective audio and a comprehensive plain-English guide to nearly two thousand technical terms. If you aren’t exactly sure about “liquid” midrange or “hard” sound, or find yourself puzzled by an unfamiliar word or alphabet-soup abbreviation, you’ll find a concise explanation in this handy, compact reference volume.

But watch out! When you least expect it, Holt’s dry humor emerges. You’ll learn that a cassette is “a small cass,” a chube is “a British tube,” and a code causes “blockage of the dose.” Whether you chuckle or groan, you won’t be bored!

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In the flamboyant, alley-struttin', whiskey-in-a-paper-cup-and-a-hangover-cure-before-you-take-it-out-of-the-sleeve world of David Lee Roth (it says here in a statement), girls are whores and men are willin'. Clearly it would be optimistic to expect the singer who once fronted the surprisingly talented heavy-metal trash band Van Halen in fabulous furs, a spandex lamé jock, and tricep extenders to be born again, politically correct.

After all, Van Halen has osmosed into the public unconscious to the point where they've been cited as the soundtracks to everything from city suicides to murder (think back through that hot summer when "Jump" was released, then fast-forward to this year's tabloid, a teenager seduced into eliminating the husband of the "Maiden of Metal" by a Kim Basinger video and a Van Halen classic).

Yes, it would be wrong to expect anything tasteful from a 36-year-old who hasn't out-grown his taste for beach bimbos, fast cars, and showing off his muscles on MTV. What is surprising is not that Roth can sing (which he can: "Panama" is a classic track, and "Just a Gigolo" is a perfectly controlled, self-aware, howlingly ironic look at his public persona), but that his solo albums are so bad.

The technical production and vocal work are fine, each plosive sound a popper, and range, control, and timbre are exercised with ease. Depth of soundfield, separation, and instrument accuracy also sound fine. It's simply that all this technical expertise has been lavished on a sewer. It's 2 Live Crew without the naughty words, a guy pushing 40 voicing the fantasies of a SWM pushing 17.

It's derivative too: ZZ Top, the Stones in their Exile on Main Street phase—no style remains un plundered. A little Aerosmith taking off "Walk This Way"—check out "Simple Fantasy." Led Zep groans, acid flashes, and smoke machines open "Dogtown Shuffle." Well, at least nothing's sampled.

Drinking, gambling, and advocating the fulfilled life via bedroom technique roughly equivalent to a rivet gun, Roth shows off his tender side to a gaming partner: "[You] don't wanna dance? / Listen to me / Shout your mouth / Hit the floor" ("Shoot It"). Another idea of a real good night out can be found on "Hammerhead Shark": "Sheriff found [Johnny] nearly broken in two... / If he had teeth like knives and skin like bark / You must've tangled up with the hammerhead shark." There are far too many songs here about far too many cigarettes, too much mash whiskey, and why-won't-the-devil-let-me-be-content-with-just-one-babe, but what the hey, in the end Dave says "Yes" to life: "Oh I say Mama / Livin' ain't a luxury / And a little ain't enough for me."

If this album is what Roth really thinks, then here we have Peter Pan dressed as a juvenile delinquent. If it isn't, he must need the money. Brainless and essentially dishonest (Roth has a nice place in Pasadena, thanks, and, in contrast to a guy like Tom Waits whom you'd move away from on the subway in his Bowery days, someone you just know dresses up to walk the night), this album is a nice double whammy on the art-as-mirror issue.

Did David Lee Roth help make the kind of Great Society which stands around singing "Jump" to potential suicides, or is he just holding up a mirror? And if he just wanted the dough, how is he any different from Mike Milliken, Neil Bush, or Teddy Kennedy's impetuous nephew? Since Roth emblazoned his fold-out Digitrax CD package with cloven-hooved, curly-tailed little devils convulsed with laughter (and an extremely odd snapshot of two vaudevillians with weight problems in black-face), the obvious question is the poet William Blake's: "Did he who made the Lamb make thee?"

—Beth Jacques

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Stereophile, August 1991 215
Oracle Delphi Mk IV turntable

Editor:
I would first like to thank Stereophile and Mr. Thomas J. Norton for his thorough and very positive review of the Oracle Delphi Mk IV turntable. The design of the Mk IV is the result of 14 years of research and refinement of the original design by Marcel Riendeau. Every effort has been made to provide the customer with a truly fine musical instrument of not only rare aesthetic beauty but also truly fine reproduction of recorded music. This is what we at Oracle find to be most important in our design and execution of any product bearing the Oracle Marque.

Mr. Norton comments on several points regarding suspension, platter, and speed adjustment. The suspension of the Mk IV was designed to be not only effective in dealing with vibrations, but to be extremely easy to set up. In the setup manual the procedure is defined showing how to calibrate the springs without having to remove the subchassis. Once the correct distance is achieved between the spring housing and the base, there is no need for any further adjustment or "tweaking," as the turntable is in perfect tune. With regard to the speed adjustment, there are two sets of adjustments on the Delphi Mk IV. There are two holes under the base used only for independent adjustment of either 33 rpm or 45 rpm simultaneously. This control is used to make the final and fine adjustments of the speed of the platter.

The small problem with oil leaking after initial setup will not be encountered if 2 ml of the supplied oil are used. I suspect the problem Mr. Norton encountered is a result of too much oil in the bearing, as his sample came directly from two trade shows with no time to empty or clean the unit prior to shipment for review. The platter showing some slight warpage is something we have not seen in any units as of yet. We are sending Mr. Norton a new platter and will inspect the unit in question and report our findings to Stereophile. The last thing I would like to mention is there is a cleaner available from Oracle, called Brilliance, which, when used, gives the Oracle a like-new appearance.

Again, my sincerest thanks to Mr. Norton and Stereophile for their fine review and support. It truly means a great deal to be recognized by our peers for achieving what one has set out to accomplish.

Ken Hosp
Managing Director, Oracle Audio USA

Audio Alchemy Digital Decoding Engine v1.0

Editor:
On behalf of everyone at Audio Alchemy I would like to thank Robert Harley and Stereophile for the thorough, accurate, and well-written review of our Digital Decoding Engine.

At the outset, I would like to point out that Mr. Harley has correctly exposed two of the primary design goals we set for ourselves when beginning the DDE project.

First, we wanted to bring a new level of affordable excellence to this product group. To that end we appreciate the reviewer pointing out that the designers did not take a "cheap-as-possible approach." Quite the contrary: many of the design nuances, such as our unique VCO clock recovery circuit and the careful attention paid to the analog output stage, were correctly identified after the "Engine's" hood was popped.

Second, an expansion port utilizing the ISA data bus was integral in Audio Alchemy's design philosophy. Our desire was to help the consumer (and the industry) overcome the omnipresent fear of obsolescence that the fast-moving world of digital electronics has imposed on us. The DDE's extendible nature will allow for future upgrades in a cost-effective manner. Audio Alchemy will introduce expansion chassis utilizing edge-of-the-art DAC and filter technology to further expand the DDE's performance envelope in the not-too-distant future.

A small but important point was the mention of the DDE's diminutive size. This was very much on purpose. Proper containment of digital signals (in the DDE's case, almost 12 MHz circulates within the chassis) is going to be on every manufacturer's mind in the not-so-distant future. Like any computing device, EMI emissions in the RF spectrum will come under the scrutiny of the FCC (i.e., FCC class B), so caveat emptor.

The DDE's presence in this product category naturally invites comparison with competitors costing many times more. We are flattered. We never considered this to be our final word in subjective performance.

Audio Alchemy's corporate charter mandates breaking price-to-performance ratios previously thought insurmountable. The DDE is our first expression of that philosophy. Our next step promises an even bigger surprise!

Mark L. Schifter
President, Audio Alchemy, Inc.
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Stereophile, August 1991
VTL Compact 160 monoblock power amplifier
Editor:
We thank Stereophile, JA, and Corey Greenberg for a very entertaining (yes, CG's writing is highly interesting and entertaining in style!) and carefully arrived-at review. We sympathize with the "double effort" required (because of the triode and pentode modes) and thank you for your diligent work.

Please let me allay the fears raised in both your and Corey's comments re. desirability of higher biasing vs tube life. (The VTL Book was, by the way, written before the birth of the KT90.) Specifically, the KT90 is "built to take it!" The plate and screen-grid volts are 200V under maximum in our 160s, and in either triode or pentode mode the tubes will have a huge life expectancy of 10,000 and more hours. This would still be true if biased all the way to full class-A current draw. Yes, we agree wholeheartedly with Corey about the sound and performance of the KT90 in triode mode; it was specifically designed to excel as a triode and we don't blame Corey one little bit for falling victim to "seduction by triodes . . ."

Also please let me assure Corey and your readers that the samples for review were "stock off the shelf" and definitely not specially prepared for "reviewer's courtesy." We do not play that game; never have, never will. Stereophile gets what the customer gets, we promise you.

David, Luke, & EveAnna Manley
VTL

Stereophile, August 1991

Acoustat Spectra 1100 loudspeaker
Editor:
Acoustat would like to extend our thanks to Guy Lemcoe and the Stereophile staff for the comprehensive review of the Spectra 1100 loudspeaker. Guy's suggestion to include that the 1100 being included in "Recommended Components" in Class B was particularly gratifying.

The Spectra 1100 can be best described as everything we wanted to include in the lower-priced Spectra 11, but could not due to the cost constraints of the lower price point. The enhanced cosmetics, added features, and greatly improved woofer system represent what we feel to be the optimum set of attributes for this size of electrostatic hybrid system.

We are particularly pleased that Guy had the opportunity to compare the 1100 with his reference Acoustat Model 2s, a product of almost ten years' vintage that sold for about the same price. Since Guy found the 1100 very similar in some respects, and greatly improved in other areas, it reinforces our feeling that we have been able to consistently enhance our products while still increasing the cost/performance value. A better product for the same dollars ten years later! Who says fine audio has to yield to inflation?

JA's observation about the speaker's "amplifier-punishing" impedance at high frequencies merits some comment. This low impedance should not be of great concern with respect to "punishment" of amplifiers, since the spectral content of musical signals at high frequencies is typically low. However, some consideration should be given to the output impedance (or damping factor) of an amplifier at high frequencies. If an amplifier has a significantly higher output impedance (or lower damping factor) at high frequencies as compared with lower frequencies, some effective high-frequency roll-off can occur due to voltage-divider action between the amplifier's output impedance and the speaker's impedance. This is exactly how the High Frequency Contour Switch works: by inserting varying resistance in series with the electrostat's step-up transformer.

In case some readers are wondering why Guy mentioned my hobby of model railroading (after all, who cares what this man's non-audio-related hobby is?), Guy and I discovered our mutual interest in trains at a recent CES. And yes, I do have miniature Acoustats installed in the cabs of my model locomotives. Have you ever seen an HO-scale smile?

Andrew J. Szabo
Director of Engineering
Acoustat Division, Rockford Corporation

Snell Type K/II loudspeaker
Editor:
Thank you for the opportunity to respond to the loudspeaker survey in Vol.14 No.7. We are delighted that you have gone to the trouble to perform blind listening tests, and that you have paid careful attention to the importance of proper speaker and listener placement. This sets an excellent precedent, and will contribute to achieving more meaningful listening test results.

We are pleased that you selected our $465/pair Type K/II as a reference when reviewing speakers averaging $734/pair and costing up to $1300/pair. Needless to say, we are also pleased that the K/II was rated higher than the $1000 and $1300 models! Lest anyone believe that the K/II is the only model we make in the covered price range, we would point out that our Type J/III at $680/pair, and our Type E/III at $990/pair, are equally good values in their respective price ranges. This would indicate that anyone shopping for loudspeakers in the price range covered in your survey would be wise to audi-
“The label’s first non-jazz, non-classical release and it’s a honey. Natasha is a modern-day torch singer with blues suss.” [A*:1] Highest Rating
Hifi News, April, 1991

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Muse Model 18 subwoofer

Editor:
I want to thank Stereophile and Robert Harley for a well-written review of the Muse Model 18 subwoofer [in Vol.14 No.7]. Mr. Harley’s technical description of the Model 18 is both thorough and accurate.

Mr. Harley begins his review stating that he’s “never been a fan of subwoofers.” I too have never been terribly enamored of most subwoofers. When thinking of subwoofers, the image that comes to mind is an endless fleet of Japanese mini trucks with innumerable over-sized woofers thumping out a monotonic drone that can hardly be called musical. Considering that most subwoofers sold for use in hi-fi systems have about as much in common with real music as their internal-combustion counterparts, one might wonder why Muse would consider a project like the Model 18. The answer to this question is simple. We knew that nearly all loudspeakers would benefit from the addition of a product like the Model 18. Not only would one gain several octaves of low-frequency extension, but, more important, also the added benefit of a bi-amplified configuration.

Therefore, you might understand how pleased we were with Mr. Harley’s review. His comments that the Model 18 “is an exceptional product worthy of my highest recommendation” and “has forever changed my standards of low-frequency reproduction” are most gratifying, especially considering his stated reservations. The Model 18 is the result of nearly a year of research and, needless to say, reading a review like this makes all the effort and expense seem worthwhile.

The only comment of the whole article requiring clarification is the measurement of the input overload point. Mr. Harley states that “input overload was 11.1V p-p (3.95V RMS).” This is not in agreement with our findings, as we show the input overload to occur at nearly 10V RMS. The only answer I can offer for this difference is that possibly a low-resistance load was accidentally left attached to the Hi-Pass output connection after the output impedance measurement was completed. It is normal to use a low-value resistor to load a circuit while comparing the loaded vs unloaded levels; from these measurements output impedance can be derived. This would account for the difference in the measured input overload point. In either case the levels measured are more than adequate, as all power amplifiers used with the Model 18 would clip long before the 3.95V RMS point.

For myself and everyone associated with this project, I thank you. Kevin Halverson
Muse Electronics

Icon Lumen loudspeaker

Editor:
All of us at Icon would like to thank you and your staff for including our Lumen speaker in your Vol.14 No.7 speaker survey. I have heard that there have been some retailers calling for an advertising boycott of Stereophile as a result of your review of one of our products last year.
We are pleased that you have not let such intimidation compromise your magazine, and that you continue to be dedicated to serving your readership.

We are very pleased that our Lumen was rated so highly in your survey. I would like to briefly mention a few points about setting up the Lumen. If carried out, these guidelines should address most of the reservations voiced in the review.

First, I’d like to refer to fig.28 in the review, the Lumen frequency response. The flat mid-range is quite correct, but the dip in the lower part of the tweeter response is a result of making the measurement on-axis. We recommend that the Lumen be listened to off-axis; that is, not pointed directly at the listener. With the speakers a bit closer together than the distance to the listener, and toed-in just slightly, the dip will no longer be present and the top end will be less prominent, resulting in a more full-bodied sound.

Perhaps this is why Tom preferred the Lumen during the blind listening session where he was seated in a “slightly less optimum” position. As noted in the survey, the “aim-point” of the speakers for the listening tests was just behind the front-row center position. Setting up speakers for a large group to do critical auditioning is virtually impossible, so I accept the compromises that had to be made. I would just like to note that while some speakers may benefit from this type of arrangement, our Lumen is certainly not one of them. Congestion and a collapse of soundstage depth and width are the primary symptoms. Once well set up, the Lumen should float a soundstage that begins behind the speakers and extends backwards, as well as extending beyond the speakers to the left and right. The sound should appear to float free of the cabinets.

Second, we have gone to a lot of expense and effort to make our speakers bi-wirable. We have done so because we felt the improvement in performance was worthwhile. Once again I accept the limitations of this type of survey,
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but I would like to note that taking advantage of the Lumen's capacity for bi-wiring will result in improved performance. When we ship our speakers, they are supplied with "shorting links" which connect the two sets of input-terminal terminals. We do this so that bi-wiring is not mandatory. However, many of our customers have remarked that bi-wiring was certainly worth the extra expense. Specifically, they cited significant improvements in dynamics, depth of bass, clarity, and soundstaging.

Every day I talk with many Stereophile readers who tell me they don't understand the frequency-response and waterfall plots that you publish with your reviews. For their benefit, I would like to take this opportunity to explain how to interpret those plots. The frequency-response plot is a graph of frequency (horizontally across the graph) vs amplitude (plotted vertically). Frequency correlates with the pitch of a note. The frequency of low notes, such as made by bass drums and deep male voices, are low numbers, usually on the order of 20Hz to 150Hz. These are plotted beginning on the left side of the frequency-response graph. High frequencies, such as those made by flutes and screeching female opera singers, have higher numbers such as 1000Hz. (The fundamentals of all voices and most instruments occur at frequencies below 1200Hz. Above that are mostly harmonics of those notes, which give the note "color"—so you can tell a trumpet note from the same note played on a violin.) The higher frequencies are plotted further to the right on the graph. When we measure a speaker, we feed it a signal which contains all the frequencies, all playing equally loud. A perfect speaker would then, of course, produce a sound that had all frequencies playing equally loud. The frequency response of a such a speaker would be a straight horizontal line. Any peaks or valleys in the plot would indicate that the speaker was either playing too loudly or too softly at the frequencies corresponding to the deviation. Therefore, a frequency-response curve that sloped upward from left to right would reproduce the high frequencies too loudly; such a speaker would sound too bright.

The "waterfall" plot is also a frequency-response curve, with the addition of a third axis—time. Time is plotted starting at the "back" of the graph and comes forward toward the "front." The first curve (at the very back) is the same as the regular frequency response described before. To make a waterfall plot, we stop the input signal (at the back of the graph) and watch how all the frequencies decay over time. The perfect speaker would have a straight horizontal line for the first curve (at the very back), then nothing for all the rest. In other words, all the frequencies would decay evenly and instantaneously. In the real world this never happens, so we get a graph that looks like a mountain landscape, some frequencies decaying faster than others. Tweeters, for instance (operating above 1500Hz in our Lumen speaker; see fig.31 in the survey), decay faster than woofers because the tweeter dome is lighter and therefore easier to stop quickly.

The waterfall plot is particularly useful in looking at resonance problems. A resonance is a frequency that doesn't die out as quickly as the others. When you hit a bell, its sound continues for a long time, even after the input (in this case, striking the bell) has stopped. If you strike your car tire the sound dies out very quickly, so there is very little resonance. Resonances are bad because they are sounds that the speaker generates on its own—sounds that aren't part of the music; they muck up the sound. If you look at fig.31 in the survey, the Lumen waterfall plot, you can see a resonance on the far right of the graph—it's the 25kHz resonance of our tweeter dome, and it extends to about 1.54 milliseconds time. You can also see, because it makes a high peak on the curve, that the sound at that frequency is playing much louder than the other frequencies. Fortunately this resonance is at a frequency well above our hearing range, so it's not a problem we can hear.

In fact, CD players reproduce nothing above 20kHz. Now if that resonance were at 1kHz, then it would be very audible. A resonance will appear as a small, narrow (that means at a single frequency) "mountain range" coming toward you. So when JA comments on the 210Hz and 600Hz Lumen cabinet resonances he detected, with a stethoscope, on the side of the cabinet, we can look for them on the waterfall plot. In this case, we don't see any trace of a resonance standing out in the waterfall plot, just the normal decay of the woofer. It's probably safe to assume that, from the microphone (or listening) position, you won't hear these resonances.

The final point I'd like to make is that this type of survey is especially valuable in that it demonstrates that different reviewers have very different tastes. That's why no two reviewers listed the speakers in the same order of preference. In some cases, a speaker appearing at the top of one reviewer's list was at the bottom of another's. Imagine how different a review from each of the reviewers would be. Also consider the differences among amplifiers, preamps, CD players, etc., that have been described in these

---JA

Stereophile, August 1991

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pages. If you put a dull speaker together with a bright amp, it might get a better review than a neutral speaker reviewed using the same amp, unless the reviewer liked bright sound, in which case...well, you get the idea. Therefore, as you have emphasized before, it's extremely important for audiophiles to audition products for themselves, because their personal tastes, equipment, and listening rooms make all the difference in the world. This is the basis of our no-risk, 30-day, in-home audition program. At Icon, our philosophy is that unless you try a product in your own room, in your own system, and with your own CDs and LPs, you'll never know how that product really sounds. Since we've made auditioning our products so convenient, I would hope that anyone considering the purchase of any of the speakers reviewed in this survey would also consider giving our Lumen a listen, then judging for themselves.

David R. Fokos
President, Icon Acoustics

**Finial Laser Turntable**

Editor:

I read with interest Peter Mitchell's "Industry Update" piece on the Finial Laser Turntable (LT) in the June issue. [PWM quoted the co-designer of the Finial, Bob Stark, as saying that the HF rolloff in the HFN/RR review was due to an alignment error, and that that was a demonstration sample of the turntable not intended for review—Ed.] I was closely involved with this fascinating but ultimately frustrating product for many years, and would like to provide some background, particularly with regard to its evaluation here in the UK, and the review in HFN/RR.

We had two Laser Turntable samples. Both measured and sounded identical. Both had been brought up to the latest spec at that time. CTI/Final were well aware that we were offering them for review and evaluation by HFN/RR, the BBC, and the National Sound Archive. I also had the opportunity to test both units myself objectively and subjectively over some months. All parties came to the same conclusions:

1) That the click & pop problem was too serious for the unit to be marketable, even using wet/vacuum cleaning, etc.

2) That there was HF compression with an unfavorable combination of high-level, high-frequency, and groove radius: ie, at large groove angles. The HF response was OK at low levels. This was analogous, as Martin Colloms cleverly pointed out, to the HF compression in a cassette recorder.

When these problems became apparent, we went to some lengths to establish whether our samples were working properly, with help from CTI in the US and ELP in Japan.

First, we got an alignment check procedure from CTI, which I carried out myself. Both units passed and both were identical. There was extensive dialogue on this with CTI at the time to make sure we hadn't missed anything. The HF compression problem was acknowledged as real by both US and Japanese. It is thus incorrect to say that there was an alignment problem with the HFN/RR sample.

Second, we made high-quality 15ips tapes of several of my own LPs as played back on the Finial. These tapes were sent to Japan along with the actual LPs, so that ELP could compare playback on their own. They agreed that their results were essentially the same as ours, but didn't recognize why we (and HFN/RR, the BBC, and the NSA) found them unsatisfactory.

Our conclusion then was that these two problems were fundamental to the LT design concept, at least as realized at that time.

The HF compression was due to the laser spot swinging out of the operating area of the position-sensitive detector at large groove angles, and was particularly noticeable on things like inner-groove cymbals. Moving the laser device closer to the record would improve this distortion, but worsen the electrical S/N ratio (already at the limit of acceptability).

The click & pop problem was particularly serious because most people would buy a Laser Turntable to play an extensive collection of old records, often contaminated. From my own modest collection (by Ken Kessler standards, anyway) of some 1000 LPs, many of those which play quietly on my conventional turntable were unlistenable with the LT, even after wet vacuum cleaning. The NSA, BBC, and HFN/RR found the same.

The curious pricing situation arose as soon as ELP took over making the product. We and CTI saw the market as being limited by the LT's (post-CD) specialized appeal, rather than by its price. Neither the BBC nor the NSA regarded the LT as "absurdly expensive"; they were worried about clicks and pops. At the same time, CTI, which had made a multi-million-dollar R&D investment, naturally wanted to see some of it back, and accordingly marked up the price it was being charged by ELP. However, there was not a correct relationship between ELP's low direct consumer price in Japan, their price to CTI, and CTI's markup; which resulted in a huge differential in end-user cost. This was another reason we (and CTI) decided to stop marketing the Laser Turntable in Europe. With the original development costs effectively having been written off by CTI's demise, and with ELP marketing the LT itself, no doubt the pricing will be more consistent.
I am not aware of the current performance of the LT, and some improvement may have been made to the S/N ratio/HF compression compromise, but the click & pop problem was not a minor one and seems fairly intractable without going into the digital domain. The 78rpm ability will be of great interest, although there are a great many different 78 cutting standards, and it is unlikely that the LT will be able to cope with them all.

Lastly, the two LIs we had were entirely reliable. Despite being shipped frequently, they did not go out of alignment or develop any faults at all.

Denis Watten
Acoustic Gold

JBL XPL-200 loudspeaker

Editor:
One of the most difficult tasks facing an audio reviewer is to cover a major show in detail, while at the same time making sure that all the facts are in place. Nobody knows this any better than Peter Mitchell, and normally nobody does it any better.

We would like to correct some misconceptions about the JBL XPL-200, as stated by Peter Mitchell in the April 1991 issue of Stereophile.

The XPL products which have been demonstrated in the US have not changed, and the XPL-200 which Peter Mitchell heard in January 1991 is the same as heard at earlier CE Shows. The US model is slightly different from the original European models, but those models have never been shown here.

The European XPLs were quite smooth on-axis, but with a slight rising characteristic in the upper octave. The American voicing does not have the high-frequency rise, and the contour switch provides an additional high-frequency rolloff. What Peter heard when he was in the room was due to the room itself, the program material at hand, associated equipment, the playback level, or any combination of these factors.

The room was small, but it was all that we could get at a late date. Considerable time was spent fine-tuning the room/speaker interface and in reviewing program material. In all, the line was very well received, and the limited group of dealers targeted for XPL distribution seemed happier than ever with the sound of the XPL-200s.

John Eargle
Senior Director, Product Development & Application, JBL Incorporated

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Sauerkraut & Hot Fudge

Bad combinations are mistakes either in food or music systems. Simply choosing a “Recommended” amplifier or an “Editor’s Choice” speaker doesn’t guarantee a successful system. At Audio Vision we stress synergistic combinations without regard to what may only be this month’s conventional wisdom. Sometimes our recommendations are unusual, but always tasty. Our ingredients include:

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Stereophile, August 1991

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How mature is too mature?

Stereophile readers can hardly miss how important CES is to us here at the magazine—after all, with this issue you've had to put up with two huge reports on this event in the space of a mere four months. There are, of course, newsworthy items at a CES—the Apogee Grand I mentioned in July and the Fox system (described by JA next month) were two of the biggies this summer—but our real attachment to CES is more complex.

Last year at this time I wrote about the sense of high-end community that's such an important part of this semiannual event, and how last year's CES sitting blew it apart. I can happily say that our housing this year was truly excellent.

Then there's history. Back in 1985, Gail Anderson (Stereophile's Business Manager) and I were scurrying around the halls of the Hilton illegally distributing our little 96-page copies of Stereophile in every exhibitor showroom—illegal only because Stereophile was too broke (or cheap) to be an official exhibitor. Then there was the Las Vegas CES where all our writers had to carry magazines to exhibitor rooms in bulk, this the same CES where Judith Reilly, who discovered that digital LPs permanently damaged turntables (a discovery that remains undiscovered by others), had to see in room after room the cover of Stereophile Vol.8 No.8 screaming "Stop Digital Madness," the title of JGH's attack on her theories.

Then there's the parties. Stereophile hosts a party at every CES for high-end industry big-and smallwigs, the first one of which took place in 1984 in an ordinary hotel room. We weren't sure anyone would come, but when they turned out en masse we quickly set the bar up in the doorway to the room so people could spread out in the corridor! I even heard rumors of a dangerous expansion of the party onto a fire escape. Those were the Good Old Days.

We're much more upscale now, with official facilities, and attendance from just about everyone. Combined with this much more substantial Stereophile presence is a change in high-end audio, at least as it appears at CES. Companies that used to be Young Turks are now Establishment, and new Young Turks are harder to find. Partly this is due to the recession—as hard as it is to start up an audio company in good times, it's just about impossible in bad times.

There's even an Academy for high-end companies, as reported on by JA in June, and the Academy will make high end better known to the world at large. We, the high end, are big time; Stereophile is big time. Sam Tellig was observed at this CES grumbling loudly about the fact that everyone from the magazine showed up at a press conference in suits! (Of course, Sam remained "unrobed," and Corey Greenberg held high the flag of informality—he ain't no "suit.") Sam's right: We all wear suits, and some of the youthful, rebellious energy of yore is gone.

There are significant benefits to this new maturity. High-end companies, the ones that sell much stuff anyway, rarely if ever go under, so the products you buy can be repaired and will retain value years from now. These same companies produce brochures and run advertisements, so you can find out about them. Company phones picked up by answering machines during business hours are more or less a thing of the past. Stereophile, with its maturity, can afford to do a much more thorough job of covering the products out there, and can begin to correlate what we hear with what we measure.

But there's a big "however": Forty- and fifty-point margins, steady 20% growth, and well-conceived marketing programs all have their places, but they're not what make great music in your home. It's a restless and unsatisfied energy that drives our pastime—after all, no one's system, not yours or mine or a guru's latest revealed-truth system, sounds much like live music. Ten years from now there will have been breakthroughs we can't imagine (I hope and pray), and it is revolutionary zeal that will get us there.

To quote a currently popular notion in “running your business” circles, the successful companies I visited at CES had best be already "reinventing themselves" or their places will be taken by young upstarts (or their markets eroded by an apathetic public). And, wearing suits or T-Shirts, Stereophile had best be reinventing the ways we keep you informed and excited.

—Larry Archibald

Stereophile, August 1991
The sole value of an audio system lies in its ability to evoke emotional pleasure through the accurate reproduction of a musical event.

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